



## P-1 AGREEMENT

No. 01-P1 of 2017-18

Name of Work:- Construction for widening and strengthening of existing carriageway to two lane for Bhadrak-Anandapur road ( 0/000 Km to 43/000 Km) of SH-53 ( Balance work)

D.R. No. and Amount:-

Name of Contractor:- Fortune Group

Agreement Value Rs. 35,71,26,484

Date of Commencement Dt. 12.03.2018

Stipulated Date of Completion Dt. 11.02.2019

Extension of time granted upto

Authority and No. & Date in which extension of time period

Reference to Letter No. & Date in which the copy of agreement submitted to

(i) Superintending Engineer \_\_\_\_\_

(ii) Chief Engineer \_\_\_\_\_

(iii) Account General \_\_\_\_\_

Certified that the agreement contains

( \_\_\_\_\_ ) number of pages only.

FORTUNE GROUP  
Fortune Group  
(Contracting Partner)

Chief Engineer,  
DPI & Roads, Odisha  
Odisha, Bhubaneswar



**ODISHA PUBLIC WORKS DEPARTMENT**

**FORM P-1**

**PERCENTAGE RATE TENDER AND CONTRACT FOR WORKS**

*General Rules and Directions for the Guidance of Contractors*

1. All works proposed for execution by contract will be notified in a form of invitation to tender pasted on a board hung up in the office of and signed by the Executive Engineer.  
This notice will state the work to be carried out, the items and approximate quantities thereof as well as the date for submitting and opening tenders also the amount of earnest money to be deposited and the amount of the security deposit to be deposited by the successful tenderer. Copies of the specification, designs and drawings and any other documents required in connection with the submission of tender signed for the purpose of identification by the Sub-divisional Officer/Executive Engineer shall be open for inspection by the contractor at the office of the Executive Engineer during office hours.
2. In the event of the tender being submitted by a firm it must be signed separately by each member thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorising him to do so.
3. Receipts for payments made on account of work, when executed by a firm must also be signed by the several partners, except where the contractors are described in their tender as a firm in which case the receipts must be signed in the name of the firm by one of the partners or by some other person having authority to give effectual receipts for the firm.
4. The memorandum of work tendered for and the memorandum of materials to be supplied by the Public Works Department and their issue rates shall be filled in and completed in the office of the Executive Engineer before the tender form is issued. If a firm is issued to an intending tenderer without having been so filled in and completed, he shall request the office to have this done before he completes and delivers his tender.
5. The amount of earnest money to be deposited will be \_\_\_\_\_ percent of the tendered amount.
6. Any person who submits a tender shall fill up the usual printed form stating at what rate he is willing to undertake each item of the work. Incomplete tender and tenders which propose any alteration in the work specified in the said form of invitation to tender, or which contain any other conditions of any sort or omit to note the time within which the work can be finished or which are not accompanied

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(Employer)

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by a treasury challan for the required earnest money will be liable to rejection. No single tender shall include more than one work, but contractors who wish to tender for two or more work shall submit a separate tender for each. Tender shall bear the name of the work to which they refer written outside the envelop.

7. The Engineer or his duly authorised assistant will open the tenders in the presence of any intending contractors who may be present at the time and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of a tender being rejected the earnest money so furnished will be refunded.
8. The Engineer shall have the right of rejecting all or any of the tenders.
9. In the event of a tender being selected for acceptance, the Engineer who opened the tender will, if he is competent to accept the tender, inform the tenderer of the selected tender who shall thereupon sign copies of the specification and other documents mentioned in rules 1 and 4 for the purpose of identification and for his acceptance with the tender. The tenderer of the selected tender shall also deposit the required amount of the security money within the prescribed time. If the tenderer fails to deposit the required amount of the security money within the prescribed time, the Engineer may reject the tender.  
If the Engineer is not competent to accept the tender himself, he will inform the tenderer of the tender which he decides to recommend for acceptance. Such tender shall thereupon sign forth with copies of the specification and other documents mentioned in rules 1 and 4 and shall deposit the required amount of the security money within the prescribed time. The tender with the specification and other documents signed by the tenderer will then be forwarded for acceptance to the Engineer who is competent to accept the same. If the said Engineer rejects the tender the security money deposited shall be refunded.
10. When a tender is selected for acceptance, the tender shall deposit the required amount of the security money in the form of Deposit receipt of Schedule Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Post Office Time Deposit Account duly pledged in favour of the Executive Engineer as per the terms and conditions laid down in OGFR. No tender shall be finally accepted until the required amount of the security money has been deposited.
11. The amount of security money to be deposited by the tenderer whose tender is selected for acceptance shall be 7 or 5 percent as the case may be of the estimated value of the work and towards this amount the earnest money already deposited by him shall be credited.  
Any balance of the security money outstanding after completion of the contract with the tenderer may be made up by deduction of 5 or 3 percent as the case may be of the amount of each payment to be made to him under clause 2 of the conditions of contract for work done under the contract.
12. When the tender has been selected for acceptance the required amount of the security money has been deposited, the Engineer shall scrutinise all pages of the form of Item, Rate, Percentage excess or loss, Tender and Contract for works to see that the form has been properly filled up and signed by the contractor and the signature witnessed. He shall then, if he is competent to accept the tender, sign the acceptance of the tender or if he is not so competent, shall send the form for signature of the acceptance to the officer competent to accept it.

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(Contractor)  
Managing Partner.

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar

## TENDER OF WORK

I/We hereby tender for the execution for the Governor of Odisha of the Works specified in the written memorandum at the rates specified therein within a period of .....(.....) Year / .....(.....) Months from the date of written order to commence and in accordance in all respects with the specification, designs, drawings and other documents referred to in the rule thereof and subject to the annexed conditions of contract and with such materials as are provided for by, and in all other respect in accordance with such conditions so far as applicable.

### MEMORANDUM

(a) If several sub-works are included they should be detailed in a separate list.

Agency :

Fortune Group

(a) Name of work

Construction for widening & strengthening of Existing Carriageway to two lane for Bhadrak - Arandpur Road (0/000 km to 15/000 km) of JH-5

(b) i) Estimated cost

(Value of work) Rs. 39,79,49,000/- ... Rs. (Balance work)

ii) Agreement Value

Rs. 34,79,03,000/- ... Rs. 85,71,26,284/-

(b) This deposit will be 2% of the estimated cost of the work.

(c) Earnest money

Rs. 94,79,000/-

(d) Initial security deposit (including earnest money) to be deposited before the commencement of the work,

Rs. 71,43,000/- (TDR) (valid upto 28/3/2020)

(e) Percentage to be deducted from bill { Rs.5% (Five percent)  
Rs.3% (Three percent)

(c) This percentage deduction from bills will be credited to the contractor's security deposit.

(f) Time required for the works from date of written order to commence..... months.

(g) Date of written order to commence.

(h) Total number of items tendered for ..... 97 ..... (Ninety seven) items only.

ITEM NO.	ITEM OF WORK	RATE PER SANCTIONED ESTIMATE		PER
		IN FIGURE		
		Rs.	P.	
(Refer next page)				

**FORTUNE GROUP**

K. S. ...  
Fortune Group  
(Contractor) Partner

Chief Engineer,  
DPI & Roads, Odisha  
(Employer) & Roads  
Odisha, Bhubaneswar

**BILL OF QUANTITIES**

NAME OF WORK: Construction for widening and strengthening of existing carriageway to two lane  
for Bhadrak-Anandapur road ( 0/000 Km to 43/000 Km) of SH-53 ( balance work)

Contract No:- Agreement No.

of 2017-18

Sl. No.	Item Description	Quantity	Units	Estimated Rate (excluding GST)	TOTAL AMOUNT	TOTAL AMOUNT In Words
1	2	3	4	5	6	7
1.01	Clearing and grubbing of road land complete as per the Technical specification clause 201 and as per direction of the Engineer-in-charge.	9.00	Hectare	26710.50	240394.50	INR Two Lakh Forty Thousand Three Hundred & Ninety Four and Paise Fifty Only
1.02	Dismantling structures and pavement including disposal off the resulting material at suitable site with all leads & lifts and/or reuse salvaging useful materials complete as per Technical Specification Clause 202, 2809 and as per the direction of Engineer-in-charge. for Brick/ Stone Structures of dry or in lime/cement mortar	453.00	Cum	205.70	93182.10	INR Ninety Three Thousand One Hundred & Eighty Two and Paise Ten Only
1.03	Dismantling structures and pavement including disposal off the resulting material at suitable site with all leads & lifts and/or reuse salvaging useful materials complete as per Technical Specification Clause 202, 2809 and as per the direction of Engineer-in-charge. for Dismantling of all types of Pavement course	11768.00	Cum	170.00	2000560.00	INR Twenty Lakh Five Hundred & Sixty Only
1.04	Dismantling structures and pavement including disposal off the resulting material at suitable site with all leads & lifts and/or reuse salvaging useful materials complete as per Technical Specification Clause 202, 2809 and as per the direction of Engineer-in-charge. for Reinforced concrete/Pre-stressed concrete structures including cleaning, strengthening & cutting of bars and separating them out from RCC/PSC For Slab Culverts, Box Culverts and Bridges	32.00	Cum	481.70	15414.40	INR Fifteen Thousand Four Hundred & Fourteen and Paise Forty Only
2	<b>BILL NO.2 : EARTH WORKS</b>					
2.01	Roadway excavation in all kinds of soil necessary for construction of roadway including disposal off the resulting material at suitable site with all leads & lifts and/or reuse salvaging useful materials complete as per Technical Specification Clause 301 and as per the direction of Engineer-in-charge.	14365.00	Cum	41.70	599020.50	INR Five Lakh Ninety Nine Thousand & Twenty and Paise Fifty Only
2.02	Construction of embankment with approved material obtained from approved borrow areas with all leads and lifts Complete as per Drawing and technical Specification Clause 305 and as per the direction of the Engineer-in-charge.	34422.00	Cum	159.90	5504077.80	INR Fifty Five Lakh Four Thousand & Seventy Seven and Paise Eighty Only
2.03	Construction of embankment with approved sand with all leads and lifts complete as per Drawing and Technical Specification Clause 305 and as per the direction of the Engineer-in-charge.	12014.00	Cum	668.30	8028956.20	INR Eighty Lakh Twenty Eight Thousand Nine Hundred & Fifty Six and Paise Twenty Only

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 (Contractor)  
 Managing Partner

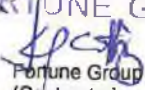
  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
**Chief Engineer**  
**DPI & Roads**  
 Odisha, Bhubaneswar


2.04	Construction of rockfill embankment with broken hard rock fragments with all leads and lifts of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls binding top layer with granular material rolled with vibratory road roller all complete as per Technical Specification Clause 313 and as per the direction of Engineer-in-charge.	1170.00	Cum	1305.00	1526850.00	INR Fifteen Lakh Twenty Six Thousand Eight Hundred & Fifty Only
2.05	Construction of subgrade and earthen shoulder with moorum/ gravelly soil having CBR value 10% or more from approved borrow areas with all leads and lifts Complete as per Drawing and technical Specification Clause 305 and as per the direction of the Engineer-in-charge.	74553.00	Cum	355.20	26481225.60	INR Two Crore Sixty Four Lakh Eighty One Thousand Two Hundred & Twenty Five and Paise Sixty Only
2.06	Construction of Emabankment & Subgrade with Material obtained from roadway Cutting with all leads and lifts all complete as per Drawing and Technical Specification Clause 305 and as per the direction of the Engineer-in-charge.	13662.00	Cum	66.00	901692.00	INR Nine Lakh One Thousand Six Hundred & Ninety Two Only
2.07	Loosening and recompacting the existing subgrade in all kinds of soil upto a depth of 300mm/500mm to meet the requirement of table 300-2 complete as per Technical Specification Clause 305 and as per the direction of the Engineer-in-charge.	2113.00	Cum	37.60	79448.80	INR Seventy Nine Thousand Four Hundred & Forty Eight and Paise Eighty Only
2.08	Scarifying the existing bituminous surface layers without disturbing the base including transporting and disposing off waste material at approved location complete as per Technical Specification Clause 501 and as per the direction of the Engineer-in-charge.	1305.00	Sqm	3.30	4306.50	INR Four Thousand Three Hundred & Six and Paise Fifty Only
2.09	Earthwork with top soil for filling of median/island complete as per Technical Specification Clause 308 and as per the direction of the Engineer-in-charge.	2436.00	Cum	224.90	547856.40	INR Five Lakh Forty Seven Thousand Eight Hundred & Fifty Six and Paise Forty Only
3	<b>BILL NO.3 : SUB-BASE AND BASE COURSES</b>					
3.01	Construction of Granular Sub-base course using crushed stone aggregate by providing the materials conforming to Grading-V of Table 400-1 complete as per Technical Specification Clause 401 and as per the direction of the Engineer-in-charge.	23270.00	Cum	1747.50	40664325.00	INR Four Crore Six Lakh Sixty Four Thousand Three Hundred & Twenty Five Only
3.02	Construction of wet mix macadam complete as per Technical Specification Clause 406 and as per the direction of the Engineer-in-charge.	21538.00	Cum	2257.90	48630650.20	INR Four Crore Eighty Six Lakh Thirty Thousand Six Hundred & Fifty and Paise Twenty Only
4	<b>BILL NO.4 : BITUMINOUS COURSES</b>					
4.01	Providing bituminous Primer coat over granular surface complete all as per Technical Specification Clause 502 and as per the direction of the Engineer-in-charge.	82956.00	Sqm	15.70	1302409.20	INR Thirteen Lakh Two Thousand Four Hundred & Nine and Paise Twenty Only
4.02	Providing Tack coat Over Granular Surface treated with primer complete as per Technical Specification Clause 503 and as per the direction of the Engineer-in-charge.	85756.00	Sqm	7.20	617443.20	INR Six Lakh Seventeen Thousand Four Hundred & Forty Three and Paise Twenty Only
4.03	Providing Tack coat Over normal bituminous surface complete as per Technical Specification Clause 503 and as per the direction of the Engineer-in-charge.	150218.00	Sqm	5.90	886266.20	INR Eight Lakh Eighty Six Thousand Two Hundred & Eighty Six and Paise Twenty Only
4.04	Providing Dense Bituminous Macadam course using Bitumen Grade-60/70 (VG-30) complete as per Technical Specification Clause 505 and as per the direction of Engineer-in-charge.	5451.00	Cum	6182.00	33698082.00	INR Three Crore Thirty Six Lakh Ninety Eight Thousand & Eighty Two Only

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4.05	Providing bituminous concrete wearing course using CRMB-80 complete as per Technical Specification Clause 507 and as per the direction of the Engineer-in-charge.	6162.00	Cum	7417.30	45705402.60	INR Four Crore Fifty Seven Lakh Five Thousand Four Hundred & Two and Paise Sixty Only
4.06	Construction of dry lean cement concrete sub-base over a prepared sub-grade with coarse and fine aggregate, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid either with a fixed form or slip form paver or by hand guided method, compacting with 8-10 tonnes vibratory roller, finishing and curing as per Technical Specification Section 600 and as per the direction of the Engineer-in-charge.	1532.00	Cum	3274.30	5016227.60	INR Fifty Lakh Sixteen Thousand Two Hundred & Twenty Seven and Paise Sixty Only
4.07	Construction of un-reinforced, dowel jointed, plain cement concrete pavement of M40 grade with 43 grade cement @ minimum 400 kg per cum, over a prepared dry lean concrete sub base, mixed in a batching and mixing plant as per approved mix design, transported to site by transit mixers, laid either with a fixed form or slip form paver or by hand guided method, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction, and longitudinal joints, joint filler, separation membrane of 125 micron thickness, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing and Clause 602 of Technical Specifications and as per the direction of the Engineer-in-charge.	3398.00	Cum	5677.60	19292484.80	INR One Crore Ninety Two Lakh Ninety Two Thousand Four Hundred & Eighty Four and Paise Eighty Only
5	<b>BILL NO.5 : CULVERTS AND UNDERPASSES</b>					
5.01	Earthwork in excavation of foundation for structures complete as per drawing and technical specifications clause 304 including all leads and lifts as per the direction of Engineer-in-charge.	4838.00	Cum	28.80	144172.40	INR One Lakh Forty Four Thousand One Hundred & Seventy Two and Paise Forty Only
5.02	Earth fill below pitching in quadrant portion with approved material complete as per drawing and Technical Specification Clause 305 with all leads and lifts and as per the direction of Engineer-in-charge.	2133.00	Cum	159.90	341066.70	INR Three Lakh Forty One Thousand & Sixty Six and Paise Seventy Only
5.03	Providing and filling behind abutment, wing wall and return wall with granular material etc. Layers not exceeding 150mm thick including all leads and lifts complete as per Drawing and Technical Specification Clause 304 and as per the direction of Engineer-in-charge.	756.00	Cum	812.70	614401.20	INR Six Lakh Fourteen Thousand Four Hundred & One and Paise Twenty Only
5.04	Providing filter media behind abutment, wing wall and return wall including all leads and lifts complete as per drawing and Technical Specification clause 2504, 2509, 2510 and as per the direction of Engineer-in-charge.	146.00	Cum	2409.60	351801.60	INR Three Lakh Fifty One Thousand Eight Hundred & One and Paise Sixty Only
5.05	Cement Concrete M-15 grade in leveling course etc. including centering and shuttering all complete as per Drawings and Technical Specification Sections 1500 and 1700 and as per the direction of Engineer-in-charge.	522.00	Cum	4450.30	2323056.60	INR Twenty Three Lakh Twenty Three Thousand & Fifty Six and Paise Sixty Only
5.08	Cement Concrete M15 grade in Substructure and Headwall including centering and shuttering all complete as per drawing and Technical Specifications Section 1500, 1700, 2100 and 2200 as per the direction of Engineer in-charge.	1185.00	Cum	4636.80	5494608.00	INR Fifty Four Lakh Ninety Four Thousand Six Hundred & Eight Only

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5.07	Reinforced cement concrete M-25 grade in all types of culverts including centering & shuttering as per drawing and technical specification Section 1500, 1700 and as per the direction of Engineer-in-charge.	773.00	Cum	5491.60	4245006.80	INR Forty Two Lakh Forty Five Thousand & Six and Paise Eighty Only
5.08	HYS(D/TMT) bar reinforcement complete as per drawing and technical specifications clause 1600 and as per the direction of Engineer-in-charge.	46.00	MT	48403.60	2226574.80	INR Twenty Two Lakh Twenty Six Thousand Five Hundred & Seventy Four and Paise Eighty Only
5.09	Providing , laying and joining NP-4 (IS:458) hume pipes for culverts on concrete cradle bedding excluding cost of concrete, complete as per drawing Technical Specification Section 2900 and IRC Special Publication No.13 and as per direction of Engineer-in-Charge. for 1000mm dia pipe in Single Row	68.00	Lm	7180.70	488287.60	INR Four Lakh Eighty Eight Thousand Two Hundred & Eighty Seven and Paise Sixty Only
5.10	Providing , laying and joining NP-4 (IS:458) hume pipes for culverts on concrete cradle bedding excluding cost of concrete, complete as per drawing Technical Specification Section 2900 and IRC Special Publication No.13 and as per direction of Engineer-in-Charge. for 1000mm dia pipe in Double Row	166.00	Lm	14361.30	2671201.80	INR Twenty Six Lakh Seventy One Thousand Two Hundred & One and Paise Eighty Only
5.11	Providing , laying and joining NP-4 (IS:458) hume pipes for culverts on concrete cradle bedding excluding cost of concrete, complete as per drawing Technical Specification Section 2900 and IRC Special Publication No.13 and as per direction of Engineer-in-Charge. for 300mm dia pipe in Single Row for utility duct/ reptile underpass	230.00	Lm	1055.80	242834.00	INR Two Lakh Forty Two Thousand Eight Hundred & Thirty Four Only
5.12	Providing , laying and joining NP-4 (IS:458) hume pipes for culverts on concrete cradle bedding excluding cost of concrete, complete as per drawing Technical Specification Section 2900 and IRC Special Publication No.13 and as per direction of Engineer-in-Charge. for 600mm dia pipe in Single Row for Cross Road	120.00	Lm	2996.10	359532.00	INR Three Lakh Fifty Nine Thousand Five Hundred & Thirty Two Only
5.13	Providing and laying filter material with moorum/ gravelly soil underneath stone pitching in slopes complete as per drawings and technical specification section 2504, 2509, 2510 and as per the direction of Engineer-in-charge.	580.00	Cum	2529.50	1467110.00	INR Fourteen Lakh Sixty Seven Thousand One Hundred & Ten Only
5.14	Providing and laying stone Pitching on embankment slopes complete as per drawing and technical specification Clause 2504 and as per the direction of Engineer-in-charge.	1118.00	Cum	1784.00	1994512.00	INR Nineteen Lakh Ninety Four Thousand Five Hundred & Twelve Only
5.15	Providing rubble stone flooring in cement mortar (1 cement : 3 sand) for aprons and joints complete as per Drawing and Technical Specification Section 1400, 2504 and as per the direction of Engineer-in-charge.	1027.00	Cum	2035.90	2090869.30	INR Twenty Lakh Ninety Thousand Eight Hundred & Sixty Nine and Paise Thirty Only
5.16	Providing weep holes in box portion, return wall, wing wall etc. all complete as per drawing and technical specification clause 2706 and as per the direction of Engineer-in-charge.	381.00	Nos	101.90	38823.90	INR Thirty Eight Thousand Eight Hundred & Twenty Three and Paise Ninety Only
5.17	Reinforced cement concrete M-25 railing complete as per Drawing and Technical Specification Section 2700 (Including cost of Reinforcement) and as per the direction of Engineer-in-charge.	117.00	Cum	5491.60	642517.20	INR Six Lakh Forty Two Thousand Five Hundred & Seventeen and Paise Twenty Only

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**Chief Engineer**  
**DPI & Roads**  
**Odisha, Bhubaneswar**

5.18	Bituminous wearing course 56mm thick comprising 50mm thick asphaltic concrete in a single layer over Bituminous mastic course 6mm thick with a prime coat complete as per Drawing and Technical Specification Section 2700, Clause 512 and as per the direction of Engineer-in-charge.	1208.00	Sqm	559.80	676238.40	INR Six Lakh Seventy Six Thousand Two Hundred & Thirty Eight and Paise Forty Only
5.19	Synthetic enamel painting of culvert no. and span arrangement as per IRC - 7 - 1971 and as per the direction of Engineer-in-charge.	116.00	No.	90.10	10451.60	INR Ten Thousand Four Hundred & Fifty One and Paise Sixty Only
5.20	Providing 2 coats of water based cement paint top over a coat of primer concrete surface after clearing the surface of dirt, dust, oil, grease, efflorescence as per the direction of Engineer-in-charge.	500.00	Sqm	36.00	18000.00	INR Eighteen Thousand Only
5.21	Grouting stone pitching on embankments of reptile passes for making trap drain 23cm deep with cement concrete M15 grade using 20mm down stone aggregate as per drawing, technical specification including cost of all materials, labour, transportation, taxes, sundries curing, T&P etc and as per the direction of the Engineer-in-charge.	200.00	Sqm	197.40	39480.00	INR Thirty Nine Thousand Four Hundred & Eighty Only
<b>6</b>	<b>BILL NO.6 : BRIDGES</b>					
6.01	Earthwork in excavation of foundation for structures complete as per drawing and technical specification clause 304 including all leads & lift and as per the direction of Engineer-in-charge.	7210.00	Cum	29.80	214658.00	INR Two Lakh Fourteen Thousand Eight Hundred & Fifty Eight Only
6.02	Providing and filling foundation and at the back of abutment, wing wall and return wall etc. and below pipe bed in layers not exceeding 150mm thick with granular material including all leads & lifts as per Technical Specification Clause 304 and as per the direction of Engineer-in-charge.	380.00	Cum	812.70	308826.00	INR Three Lakh Eight Thousand Eight Hundred & Twenty Six Only
6.03	Providing Filter media behind abutment, wing wall and return wall complete as per drawing and technical Specification clause 2504 and as per the direction of Engineer-in-charge.	55.00	Cum	2409.60	132528.00	INR One Lakh Thirty Two Thousand Five Hundred & Twenty Eight Only
6.04	Cement concrete M-15 grade in leveling course etc including centering and shuttering all complete as per drawing and Technical specification Section 1500 and 1700 and as per the direction of Engineer-in-charge.	159.00	Cum	4450.30	707597.70	INR Seven Lakh Seven Thousand Five Hundred & Ninety Seven and Paise Seventy Only
6.05	Reinforced cement concrete in structure complete as per drawing and technical specification Section 1500, 1700, 2200 & 2300 and as per direction of Engineer -in-charge . RCC M25 grade	306.00	Cum	5491.60	1680429.60	INR Sixteen Lakh Eighty Thousand Four Hundred & Twenty Nine and Paise Sixty Only
6.06	Reinforced cement concrete in structure complete as per drawing and technical specification Section 1500, 1700, 2200 & 2300 and as per direction of Engineer -in-charge . RCC M30 grade	166.00	Cum	5517.00	916822.00	INR Nine Lakh Fifteen Thousand Eight Hundred & Twenty Two Only
6.07	Reinforced cement concrete in structure complete as per drawing and technical specification Section 1500, 1700, 2200 & 2300 and as per direction of Engineer -in-charge . RCC M35 grade	832.00	Cum	5642.80	4694809.60	INR Forty Six Lakh Ninety Four Thousand Eight Hundred & Nine and Paise Sixty Only
6.08	TMT/HYSD Fe-500 grade bar reinforcement complete as per drawing and Technical Specification clause no 1600 and as per direction of Engineer-in-charge.	148.00	MT	48403.80	7163762.40	INR Seventy One Lakh Sixty Three Thousand Seven Hundred & Sixty Two and Paise Forty Only

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 Odisha, Bhubaneswar

6.09	Bituminous Wearing course 56mm thk comprising 50mm thk asphaltic concrete with modified bitumen conforming of grade CRMB 55 in a single layer over bituminous mastic course 6mm thk with a prime coat complete as per drawing and Technical Specification Section 503, 509,515 & 2700 and as per direction of the Engineer-in-charge.	2296.00	Sqrm	559.80	1285300.80	INR Twelve Lakh Eighty Five Thousand Three Hundred and Paise Eighty Only
6.10	Providing and fixing Drainage Spouts Complete as per drawing and Technical Specification Clause 2705 and as per the direction of Engineer-in-charge.	56.00	No	778.40	43590.40	INR Forty Three Thousand Five Hundred & Ninety and Paise Forty Only
6.11	Providing and laying Stone pitching in slopes complete as per drawing and Technical Specification Section 2500 and as per the direction of Engineer-in-charge.	285.00	Cum	1784.00	508440.00	INR Five Lakh Eight Thousand Four Hundred & Forty Only
6.12	Providing and laying filter material underneath stone pitching in slopes complete as per Drawings and Technical Specifications Clause 2504 and as per the direction of Engineer-in-charge.	143.00	Cum	2529.50	361718.50	INR Three Lakh Sixty One Thousand Seven Hundred & Eighteen and Paise Fifty Only
6.13	Providing weep holes in abutments, wing walls and return walls etc. as per drawing and Technical Specification clause 2706 and as per the direction of Engineer-in-charge.	428.00	Nos	101.90	43613.20	INR Forty Three Thousand Six Hundred & Thirteen and Paise Twenty Only
6.14	Providing rubble Stone flooring in Cement Concrete M15 and joints Complete as per drawing and Technical Specification Section 1400 and 2500 and as per the direction of Engineer-in-charge.	259.00	Cum	3463.40	897020.60	INR Eight Lakh Ninety Seven Thousand & Twenty and Paise Sixty Only
6.15	Synthetic enamel painting of culvert no. and span arrangement as per IRC - 7 - 1971 and as per the direction of Engineer-in-charge.	36.00	No.	90.10	3243.60	INR Three Thousand Two Hundred & Forty Three and Paise Sixty Only
6.16	Providing and laying 150mm dia. HDPE Service pipe as per drawing and as per the direction of Engineer-in-charge.	796.00	Lm	600.00	477600.00	INR Four Lakh Seventy Seven Thousand Six Hundred Only
6.17	Providing Earth fill below pitching in quadrant portion with approved material complete as per drawing and Technical Specification Clause 305 with all leads and lifts and as per the direction of Engineer-in-charge.	1472.00	Cum	159.90	235372.80	INR Two Lakh Thirty Five Thousand Three Hundred & Seventy Two and Paise Eighty Only
6.18	Providing Sand Filling in Foundation Trenches as per Drawing & Technical Specification Clause 304, 305 and as per the direction of Engineer-in-charge..	1113.00	Cum	776.60	864355.80	INR Eight Lakh Sixty Four Thousand Three Hundred & Fifty Five and Paise Eighty Only
6.19	Providing PCC in flooring as per Drawing & Technical Specification section 1700, 2500 and as per the direction of Engineer-in-charge for the grades of concrete mentioned in the sub-items below.					
6.20	Providing PCC in flooring as per Drawing & Technical Specification section 1700, 2500 and as per the direction of Engineer-in-charge for the grades of concrete . Of M-15	225.00	Cum	4450.30	1001317.50	INR Ten Lakh One Thousand Three Hundred & Seventeen and Paise Fifty Only
6.21	Providing PCC in flooring as per Drawing & Technical Specification section 1700, 2500 and as per the direction of Engineer-in-charge for the grades of concrete . Of M-20	692.00	Cum	4969.80	3439101.60	INR Thirty Four Lakh Thirty Nine Thousand One Hundred & One and Paise Sixty Only

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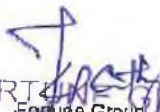
  
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**Chief Engineer**  
**DPI & Roads**  
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6.22	Providing reinforced cement concrete crash barrier constructed with M40 grade concrete with HYSD reinforcement conforming to IRC-21, with MS vertical plate & base plate, pipe of dia 50mm and dowel bar 25mm dia, 450mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design and as per dimensions in the approved drawing and at locations directed by the Engineer-in-charge and technical specification clause 809, and section 1500, 1600, 1700. The item includes the cost of reinforcement and its fabrication.	261.00	Lm	3031.70	791273.70	INR Seven Lakh Ninety One Thousand Two Hundred & Seventy Three and Paise Seventy Only
6.23	Providing rubble stone aprons in bed of nallahs as per Drawing and Technical Specification Section 2503 as per direction of Engineer-in-charge.	642.63	Cum	1825.30	1173001.01	INR Eleven Lakh Seventy Three Thousand & One and Paise One Only
7	<b>BILL NO.7 : RETAINING WALL, DRAINAGE AND PROTECTIVE WORKS</b>					
7.01	Earthwork in excavation for foundation complete as per drawing and Technical Specification Clause 304 in Retaining Wall for high embankment stretches as per direction of Engineer-in-charge.	2104.00	Cum	29.80	62699.20	INR Sixty Two Thousand Six Hundred & Ninety Nine and Paise Twenty Only
7.02	Providing Plain Cement Concrete M15 grade in levelling course etc including centering and shuttering all complete as per drawing and Technical Specifications Section 1500, 1700 and as per direction of Engineer-in-charge.	144.00	Cum	4450.30	640843.20	INR Six Lakh Forty Thousand Eight Hundred & Forty Three and Paise Twenty Only
7.03	Reinforced cement concrete M20 grade in structure etc including centering and shuttering all complete as per drawing and Technical Specification clauses 1500,1700,2100 and as per instruction of Engineer-in-charge.	763.00	Cum	4969.80	3791957.40	INR Thirty Seven Lakh Ninety One Thousand Nine Hundred & Fifty Seven and Paise Forty Only
7.04	Providing steel reinforcement HYSD (TMT) for retaining wall complete as per drawing and Technical Specification Section 1600 and as per direction of Engineer-in-charge.	39.00	MT	48097.70	1875810.30	INR Eighteen Lakh Seventy Five Thousand Eight Hundred & Ten and Paise Thirty Only
7.05	Turfing side slopes of main road and service road with grass sods complete as per technical specification clause 307 and as per direction of the Engineer-in-charge.	166494.00	Sqm	23.40	3895959.60	INR Thirty Eight Lakh Ninety Five Thousand Nine Hundred & Fifty Nine and Paise Sixty Only
7.06	Providing and laying pre-cast cement concrete saucer drain in blocks of length 500mm of M35 grade to the required lines and grade over 100mm thk cement concrete base of M-15 grade including excavation, cost of all materials, labour, taxes, transportation, royalties,rent, watering & curing, T&P etc complete as per drawing and instruction of Engineer-in-charge.	5078.00	Lm	3080.70	15643794.60	INR One Crore Fifty Six Lakh Forty Three Thousand Seven Hundred & Ninety Four and Paise Sixty Only
7.07	Providing and laying pre-cast Reinforcement cement concrete grade M30 for Slab Over Drain per Drawing and as per the direction of Engineer-in-charge.	82.00	Cum	5264.70	431705.40	INR Four Lakh Thirty One Thousand Seven Hundred & Five and Paise Forty Only
8	<b>BILL NO-8 : MISCELLANEOUS ITEMS.</b>					
8.01	Providing and laying plain cement concrete kerb as per drawing and Technical Specifications Clauses 408, section 1500,1700 and as per the direction of Engineer-in-charge.	4128.00	Lm	279.20	1152537.60	INR Eleven Lakh Fifty Two Thousand Five Hundred & Thirty Seven and Paise Sixty Only
8.02	Providing and fixing RCC/PCG 200meter Stone complete as per Technical Specification Clause 804 and as per the direction of Engineer-in-charge.	172.00	No	447.80	77021.60	INR Seventy Seven Thousand & Twenty One and Paise Sixty Only

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8.03	Providing and fixing RCC/PCC Kilometer Stone complete as per Technical Specification Clause 804 and as per the direction of Engineer-in-charge.	34.00	No	1689.40	57439.60	INR Fifty Seven Thousand Four Hundred & Thirty Nine and Paise Sixty Only
8.04	Providing and fixing RCC/PCC 5th Kilometer Stone complete as per Technical Specification Clause 804 and as per the direction of Engineer-in-charge.	9.00	No	2735.30	24617.70	INR Twenty Four Thousand Six Hundred & Seventeen and Paise Seventy Only
8.05	Pavement marking with hot applied thermoplastic compound and reflectorised glassbeads confirming to ASTM D86 / BS 3262-Part as per drawing and Technical specifications Clause 803.4 and as per the direction of Engineer-in-charge for Lines, Arrows and Lettering	10244.00	Sqm	639.10	6546940.40	INR Sixty Five Lakh Forty Six Thousand Nine Hundred & Forty and Paise Forty Only
8.06	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of high intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-Charge. for Rectangular 800 mm x 600mm	40.00	No	3337.60	133504.00	INR One Lakh Thirty Three Thousand Five Hundred & Four Only
8.07	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of high intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-Charge. of size Triangular 750mm side	22.00	No	2429.30	53444.60	INR Fifty Three Thousand Four Hundred & Forty Four and Paise Sixty Only
8.08	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of high intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-Charge. for Circular 750mm diameter	22.00	No	3191.90	70221.80	INR Seventy Thousand Two Hundred & Twenty One and Paise Eighty Only

  
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8.09	Providing and fixing of retro-reflectorised cautionary, mandatory and Informatory sign a per IRC:67 made of high Intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting , 1.5 mm thick supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-Charge. for Octagonal 750mm height	34.00	No	3283.90	111652.60	INR One Lakh Eleven Thousand Six Hundred & Fifty Two and Paise Sixty Only
8.10	Providing and erecting direction and place identification retro-reflectorised sign a per IRC:67 made of high intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting , 2 mm thick with a area not exceeding 0.9 sqm supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-Charge. of size 1200mm X 750mm for flag type direction	16.00	No	5581.00	89296.00	INR Eighty Nine Thousand Two Hundred & Ninety Six Only
8.11	Providing and erecting direction and place identification retro-reflectorised sign a per IRC:67 made of high intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting , 2 mm thick with a area not exceeding 0.9 sqm supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-Charge of size . of size 1200mm X 750mm for place identification sign	66.00	No	5581.00	368346.00	INR Three Lakh Sixty Eight Thousand Three Hundred & Forty Six Only
8.12	Providing and erecting direction and place identification retro-reflectorised sign a per IRC:67 made of high intensity grade sheeting vide Clause 801.3, fixed over aluminium sheeting , 2 mm thick with a area exceeding 0.9 sqm supported on a 2.85 metre long mild steel angle iron post 75 mm X 75 mm X 6 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 45 cm X 45 cm X 60 cm, 60 cm below ground level as per approved drawing & Technical Specifications and as per the direction of the Engineer-in-charge. of size 1800 x 1200mm for Advance Direction/Re Assurance sign	10.00	No	5893.50	58935.00	INR Fifty Eight Thousand Nine Hundred & Thirty Five Only
8.13	Providing & fixing retro - reflectorised road delineators complete as per drawing , Technical specifications clause 805 and as per the direction of Engineer-in-charge. Roadway delineator	846.00	No	851.90	720707.40	INR Seven Lakh Twenty Thousand Seven Hundred & Seven and Paise Forty Only

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8.14	Providing & fixing retro - reflectorised road delineators complete as per drawing , Technical specifications clause 805 and as per the direction of Engineer-in-charge. Hazard Marker	82.00	No	851.90	69855.80	INR Sixty Nine Thousand Eight Hundred & Fifty Five and Paise Eighty Only
8.15	Supply and fixing over head cantiliver gantry sign board (5500 x 1200)mm complete as per drawing and technical specification section 800 including cost of posts, truss, erection, fitting and pile foundation. Sheeting shall be retro reflective type high intensively grade and messages/borders and as per the direction of Engineer-in-charge.	10.00	No	350000.00	3500000.00	INR Thirty Five Lakh Only
8.16	Providing and fixing of metal beam crash barrier made out of cold rolled steel strips W profile of 3mm thk having a minimum yield strength of 2400 kg/sqcm width of 313mm depth of corrugation as 83mm hot dip galvanised of zinc coating @550 gm/sqm. The post and spacer channel is made out of cold rolled channel 150x75x5 mm having minimum yield strength of 2400 kg/sqcm and hot dip galvanised of zinc coating @550 gm/sqm. The total length of the post shall be 1900mm and minimum height of the post above concrete foundation shall be 800mm. The length of spacer channel shall be 330mm. Job includes neatly fixing new post in cement concrete of M-20 Grade complete ( cost include) as directed by the Engineer including fasteners and fixing etc complete. The spacing of the steel posts shall be about 2m. The guard rail reflectors of 100mm dia circular made out of 2mm thk GI Sheet duly fixed with micro-prismatic type sheeting with Type 9 ASTM D 4956-01 standards @ every 5 meters. The rate also includes the cost for supplying & fixing of terminal anchorages at both ends of barrier. The work is to be executed as per drawing, Specification and as directed by Engineer-in-charge.	1875.00	Rm	2238.00	4196250.00	INR Forty One Lakh Ninety Six Thousand Two Hundred & Fifty Only
8.17	Supply of colour video coverage in CD form during construction as per Technical Specifications Clause 126 As per requirement and as per the direction of Engineer-in-charge.	2.00	set	5000.00	10000.00	INR Ten Thousand Only
8.18	Providing and making rumble strips comprising of six rumbles in each set etc complete at required places as per drawing and as per the direction of Engineer-in-charge.	100.00	Rm	1590.00	159000.00	INR One Lakh Fifty Nine Thousand Only
8.19	Providing road hump complete at required places as per drawing and as per the direction of Engineer-in-charge.	98.00	Rm	2021.00	198058.00	INR One Lakh Ninety Eight Thousand & Fifty Eight Only
8.20	Providing and fixing of bi-directional retro reflective raised pavement markers of approved colour, quality & make conforming to ASTM D-4280 as per approved drawing and locations provided in the schedule made from injection moulded high impact polymer including cleaning, preparation of surface and fixing at position with approved quality adhesives including cost of all materials, labour, transportation, taxes, duties, sundries, T&P etc. complete as per the technical specifications and direction of Engineer-in-charge.	13997.00	No.	400.00	5598800.00	INR Fifty Five Lakh Ninety Eight Thousand Eight Hundred Only

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8.21	Filling Pot- holes and Patch Repairs with Mixed Seal Surfacing ,20mm. (Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 511, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2) and as direction of Engineer in-charge.	2850.00	Sqm	123.00	350550.00	INR Three Lakh Fifty Thousand Five Hundred & Fifty Only
8.22	Construction of temporary diversion including temporary cross drainage works for plying of traffic in both directions wherever necessary and maintenance thereof including traffic control and safety complete as per Technical Specification Clause 112 and as per direction of the Engineer-in-charge. (Construction upto GSB Top)	560.00	Lm	2788.50	1561560.00	INR Fifteen Lakh Sixty One Thousand Five Hundred & Sixty Only
8.23	Providing temporary passage of traffic by widening existing pavement with Granular Sub-base course for plying of traffic in both directions wherever necessary and maintenance including traffic control and safety as per drawing and Technical Specification and as per the direction of Engineer-in-charge. With New Material	600.00	Cum	1876.60	1125960.00	INR Eleven Lakh Twenty Five Thousand Nine Hundred & Sixty Only
8.24	Providing temporary passage of traffic by widening existing pavement with Granular Sub-base course for plying of traffic in both directions wherever necessary and maintenance including traffic control and safety as per drawing and Technical Specification and as per the direction of Engineer-in-charge. With Salvaged Material obtained from dismantling roadway and /or diversion	600.00	Cum	115.10	69060.00	INR Sixty Nine Thousand & Sixty Only

Tender Premium : 2.65% Excess = RS. 347906952.00  
Agreement Value : = RS. 9219532.00  
= RS. 3571,26,484.00

( Rupees Thirty Five Crore Seventy One Lakh Twenty Six thousand Four Hundred Eightty Four) Only


Total estimate value of the work :	Quoted Rate by the Tenderer	Agreement Value
Rs. 34,79,06,952	2.65% Excess	Rs. 35,71,26,484
Total: 97 (Ninety Seven) ITEMS ONLY		
N.B. : VAT, Income Tax, Royalties as applicable will be deducted from the bill of the Contractor		

  
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Should this tender be accepted I/We hereby agree to abide by and fulfil all the terms and provisions of the said conditions of contract annexed hereto so far as applicable, or in default thereof to forfeit and pay to the Governor of Odisha or his successors in office, the sums of money mentioned in the said conditions.

  
Signature of contractor

Dated the 12<sup>th</sup> day of March 2018.

  
Signature of witness to one tenderer's signature.

\*Witness — Laxmidhar Mohapatra  
Address — Plot - 1064, Pragati Nagar, Unit-08, Barang  
Occupation — Private Job

  
Signature of the officer by whom accepted.  
**Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar**

The above tender is hereby accepted by me on behalf of the Governor of Odisha.

Dated the 12<sup>th</sup> day of March 2018.

### CONDITIONS OF CONTRACT

**Clause-1 :** All compensations or other sums of money payable by the contractor to Government under the terms of his contract may be deducted from or paid by, the sale of a sufficient part of his security deposit or from the interest arising therefrom, or from any sums which may be due or may become due to the contractor by Government of any account whatsoever and in the event of his security deposit being reduced by a reason of any deduction or sale as aforesaid, the contractor shall within 10 days thereafter make good in cash or Government securities endorsed as aforesaid any sum or sums which may have been deducted from or raised by, sale of the security deposit or any part thereof.

Compensation for delay.

**Clause-2(a) :** The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date of which the written order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract, be carried on with all due diligence (time being deemed to be of essence of the contract on the part of the contractor) and the contractor shall pay, as compensation, an amount equal to ½ percent on the amount of the estimated cost, if the whole work as shown by the tender for every day that the work remained uncommenced, or unfinished after the proper dates (The work should not be considered finished until such date as the Executive Engineer shall certify as the date on which the work is finished after necessary rectification of defects as pointed out by the Executive Engineer or his authorised agents, are fully complied with by the contractor to the Executive Engineer's satisfaction). And further, to ensure good progress during the execution of work the contractor shall be bound, in all cases in which the time allowed for any work exceeds one month, to complete one-fourth of the whole of the work before one fourth of the whole time allowed under the contract has elapsed;

  
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one half of the work, before one half of such time has elapsed, and three-fourth of work before three-fourth of such time has elapsed, in the events of the contractor failing to comply with the condition, he shall be liable to pay as compensation an amount equal to one-third percent on the said estimated cost of the whole work for everyday that the due quantity of work remains incomplete. Provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed 10 percent on the estimated cost of the work as shown in the tender.

(b) If there are possibilities of exceeding this compensation amount as mentioned in clause (a) 10% of the estimated cost, or in any case in which under any clause or clauses of this contract, the contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit in the hands of Government (Whether paid in the sum or deducted by instalments) the Executive Engineer on behalf of the Governor of Odisha, shall have power to adopt the following courses, as he may deem best suited to the interest of the Government.

(i) To rescind the contract (of which rescission notice in writing to the contractor under the hands of the Executive Engineer shall be conclusive evidence), 20% of the value of left-over work will be realised from the contractors penalty. (Works Deptt. No.10639, Dt. 27.05.2005)

Rescission of contract

In the event of above course being adopted by the Executive Engineer the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials, or entered into any engagements, or made any advances on account of or with a view to, the execution of the work or the performance of the contract. And in case the contract shall be rescinded under the provisions aforesaid, the contractor shall not be entitled to recover or be paid any sum of any work thereto for actually performed under this contract, unless and until the Executive Engineer shall have certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

Contractor remains liable to pay compensation if action not taken under clause-1.


(ii) Security deposit of the contractor shall be refunded only one year after the date of completion of the work provided the final bill has been paid and defects, if any, rectified.

Refund of Deposit

**Clause-3 :** In any case in which any of the powers, conferred upon the Executive Engineer by clause 2 hereof, shall have become exercisable and the same shall not be exercised. The non-exercise thereof shall not constitute a waiver of the conditions hereof and such powers shall notwithstanding be exercisable. In the event of any future case of default by the contractor of which by any clause or clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit, and the liability of the contractor for the past and future compensation shall remain unaffected. In the event of the Executive Engineer putting in force the powers vested in him under the proceeding clauses he may, if he so desires, take possession of all or any tools, plants, materials and

Power to take possession of or require removal of onsell contractor plants.

  
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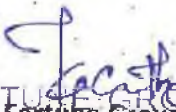
stores, in or upon the works, or the site thereof or belonging to the contractor, or procured by him and intended to be used for the execution of the work or any part thereof, paying or allowing, for the same in the account at the contract rates, or in case of these not being applicable, at current market rates to be certified by the Executive Engineer whose certificate thereof, shall be final otherwise the Executive Engineer may be notice in writing to the contractor or his clerk of the works, foreman or other authorised agent require him to remove such tools, plants, materials or stores from the premises (within a time to be specified in such notice); & in the event of the contractor failing to comply with any such requisition, the Executive Engineer may remove them at the contractor's expenses or sell them by auction or private sale on account of the contractor and at his risk in all respects, & the certificate of the Executive Engineer as to the expense of any such removal and the amount of the proceeds and expense of any such sale shall be final & conclusive against the contractor.

Extension time

Clause-4 : If the contractor shall desire an extension of the time for completion of the work, on the ground of his having been unavoidably hindered in its execution or any other ground, he shall apply in writing to the Executive Engineer within 30 days of the date of hindrance on account of which he desires such extension as aforesaid and the Executive Engineer shall, if in his opinion (which shall be final) reasonable grounds be shown therefore, authorise such extension of time, if any as may in his opinion, be necessary or proper. The Executive Engineer shall at the same time inform the contractor whether he claims compensation for delay.

Final Certificate

Clause-5 : On completion of the work, the contractor shall be furnished with a certificate by the Executive Engineer (here-in-after called the Engineer-in-charge) of such completion, but no such certificate be given nor shall the work be considered to be completed until the contractor shall have removed from the area of the premises to be distinctly marked by the Executive Engineer in the site plan on which the work shall be executed, all scaffolding, surplus materials and rubbish, and cleaned off the dirt from all wood-work, doors, windows, floors or other part of any building in, upon or about which the work is to be executed, or of which he may have had possession for the purpose of the execution thereof, nor until the work shall have been measured by the Officer of the Public Works Department in accordance with the rules of the department whose measurements shall be binding and conclusive against the contractor. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish and cleaning off dirt on or before the date fixed for the completion of the work, the Engineer-in-charge may the expense of the contractor remove such scaffolding, surplus materials and rubbish and dispose of the same he thinks fit and clean off such dirt as aforesaid, and the contractor shall forthwith pay the amount of all expenses incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid, except for any sum actually realised by the sale thereof.

  
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**Sub-Clause-5 :** If in the opinion of the Engineer-in-charge which shall be final & binding on the contractor, occupation or utilisation of portion of the work completed in no way interferes with the progress of the work the same may be occupied or utilised by or on behalf of the Govt. under the written order of the Engineer-in-charge. This will not impede the right of the Engineer-in-charge to get the defects if any rectified by the contractor at his (Contractors) own cost within six months from the date of completion of the whole work, provided that the contractor will not be allowed any occasion either in the shape of extension of the stipulated period or any monetary compensation on account of such occupying use.

**Clause-6 :** A bill shall be submitted by the contractor each month on or the date fixed by the Engineer-in-charge for all works executed in the previous month, and the Engineer-in-charge or his subordinates shall take the requisite measurement for the purpose of having the same verified and the same verified and claim, as admissible, adjusted, if possible, before the expiry of ten days from the presentation of the bill, if the contractor does not submit the bill within the time fixed as aforesaid, the Engineer-in-charge or his subordinate shall measure up the said work in the presence of the contractor whose counter signature to the measurement list will be sufficient warrant, and the Engineer-in-charge or his subordinate shall be prepare a bill from such list which shall be binding on the contractor in all respects.

Provided that if any balance of the 7% or 5% as the case may be security is outstanding from each payment shall be deducted so such, not exceeding 5% as may be necessary to make up the balance of the security. All such intermediate payments to the contractor shall be regarded as payments by way of advance against the final payment only and not as payment for work actually done & completed and shall not preclude the requiring of bad, unsound and imperfect or unskilful work to be removed and taken away and reconstructed or re-erected or be consider as an admission of the due performance of the contract, or any part thereof in any respect, of the actual of any claim nor shall it conclude, determine, or effect in any way the powers of the Engineer-in-charge under these conditions or any of them as to the final settlement or adjustment of the accounts or otherwise, or in any other way vary or affect the contract. Bill for this work shall be prepared at the estimated rates for individual items only and the percentage excess/less will be added/ subtracted from the gross amount of the bill.

**Clause-7 :** The final bill shall be prepared by the offices of the Public Works Department in accordance with the rules of the department in the presence of the contractor within one month or the date fixed for completion of work.

**Clause-8 :** If the specification or estimate of work provides for the use in any special description of material to be supplied from the Engineer-in-charge's store, or if it is required that the contractor shall use certain stores to be provided by the Engineer-in-charge under the conditions of this contract (such materials & stores and the prices to be charged therefore as hereinafter mentioned being so far as

Payment on intermediate certificate to be regarded as advance and bill to be submitted monthly.

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practicable for the convenience of the contractor but not so as in any way to control the meaning or effect of this contract are specified in the schedule or memorandum here so annexed), the contractor shall be supplied with such materials and stores noted in the annexed schedule as are required from time to time to be used by him for the purpose of the contract only and the value of the full quantity of materials and stores so supplied the rates specified in the said schedule may be set off or deducted from any sums then due, or thereafter to become due to the contractor under the contract or otherwise or against or from the security deposit or the proceeds of sale thereof, if the same is held in Government securities, the same or a sufficient portion thereof being in this case sold for the purpose. All materials supplied to the contractor shall remain the absolute property of Government and shall not on any account be removed from the site of the work and shall at all times be open to the inspection by the Engineer-in-charge. Any such materials unused and in perfectly good condition at the time of completion or determination of the contract shall be returned to the Engineer-in-charge's store at the prevailing market rate or at the issue rate whichever is less if by a notice in writing under his hand he shall so require, but the contractor shall not be entitled to return any such materials unless with such consent, and shall have no claim for compensation on account of any such materials so supplied to him as aforesaid being unused by him or for any wastage in or damage to any such materials.

Stores supplied by  
Government.

**Clause-8(a) :** If a contractor removes any material of stock so supplied to him from the site of the work in contravention of the provision of this clause with a view to dispose of the same dishonestly he shall in addition to any other liability, civil or criminal arising out of his contract be liable to pay a penalty equivalent to five times the price of the said material and stock according to the stipulated rate. The penalty so imposed shall be recoverable from any sum that may be then or at any time thereafter may become due to the contractor or from his security deposit, or the proceeds of sale thereof.

**Clause-8(b) :** Owing difficulty in obtaining certain materials in the open market the Government undertaking supply material specified in the schedule here to annexed. There may be delay in obtaining materials by the Department and the contractor thereof, required to keep himself to touch with the day to day position regarding the supply of materials from the Engineer-in-charge and to so adjust the progress of the work that their labour may not remain idle nor may there be any other claim due to or arising from delay in obtaining the materials. It should be clearly understand that no monetary claim whatsoever shall be entitled by the Government on account of delay in supplying materials. However, extension of time completion of work can be granted on timely application by the contractor vide also clause-4.

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**Clause-9 :** The contractor shall execute the whole and every part of the work in the most substantial and workman like manner and both as regards materials and otherwise in every respect in accordance with the specification. The contractors shall also confirm exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office, and to which the contractor shall be entitled to have access at such office, for the purpose of inspection during office hour and the contractor shall if he so require, be entitled at his own expenses to make or cause to be made copies of the specification, and off all such designs, drawings and instructions as aforesaid.

Works to be executed in accordance with specification, drawings and orders etc.

**Clause-10 :** The Engineer-in-charge shall have power to make any alterations in or additions to the original specification, drawings, designs and instructions that may appear to him necessary and advisable during the progress of work, and the contractor shall be bound to carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-charge and such alteration shall not be invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work. The time for the completion of the work shall be extended in the proportion that the additional work bears to the original contract work and the certificate of the Engineer-in-charge shall be conclusive as to such proportion. And if the additional work includes any class work if which no rate specified in this contract, then such class of work shall be carried out at the rates entered in the sanctioned schedule of rates of the locality during the period when the work is being carried on and if such last mentioned class of work is not entered on the schedule of rates of the district then the contractor shall within seven days of the date of his receipt of the order to carry out the work inform the Engineer-in-charge of the rate which it is his intention to charge for such class of work, and if the Engineer-in-charge does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out class of work and arrange to carry it out in such manner as may be consider advisable.

Do not invalidate contract.

Extension of time in consequence of alterations.

Rates of works not in estimate or schedule of rates of the District.

No deviations from the specifications stipulated in the contractor nor additional items of work in all ordinarily be carried out by the contractor nor shall may altered additional or substituted work be carried out by him unless the rates of the substituted, altered or additional item have been approved and fixed in writing by the Engineer-in-charge. The contractor shall be bound to submit his claim for any additional work done during any month on or before the 15th day of the following month accompanied by a copy of the order in within the Engineer-in-charge for the additional work and that the contractor shall not be entitled to any payment in respect of such additional work if he fails it submit his claim within the aforesaid period.

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Provided always that if the contractor shall commence work or incur any expenditure in regard thereof before the rates shall have been determined as lastly herein before mentioned, in such he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rates as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of a dispute the decision of the Superintending Engineer or the Circle will be final.

No compensation for alteration or restriction of work to be carried out.

**Clause-11 :** If at any time after the commencement of the work the Governor of Odisha shall for any reason whatsoever not require the whole thereof as specified in the tender to be carried out the Engineer-in-charge shall give notice in writing of the fact to the contractor who shall have no claim to any payment of compensation whatsoever on account of and profit or advantage, which he might have dared from the execution of a work in full but which he did not drive in consequence of the full amount of the work not having been carried out either shall he have any claim for compensation by reason or any alterations having been made in the original specification, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.


Action and compensation payable in case of bad work.

**Clause-12 :** If it shall appear to the Engineer-in-charge of his subordinate in charge of the work that any work has been executed with unsound imperfect or unskilful workmanship or with materials of any inferior description or that any materials or articles provided by him for the execution of the work are unsound or a quality inferior to that contracted for or otherwise not in accordance with the contract, the contractor shall on demand in writing from the Engineer-in-charge specifying the work materials or articles complained of notwithstanding that the same may have been inadvertently passed certified and paid for forthwith rectify or remove and reconstruct the work so specified in whole or in part as the case may require or as the case may be remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost, and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for everyday not exceeding ten-days while his failure to do so shall continue and in the case of any such failure the Engineer-in-charge may rectify or remove, and re-execute the work or remove and replace with others the materials or articles complains of as the case may be at the risky and expense in all respects of the contractor.

Works to be open to inspection.

**Clause-13 :** All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Engineer-in-charge and his subordinates and the contractor shall all times during the usual working hours and at all other times at which reasonable notice of the intention of the Engineer-in-charge either him. If be present to receive orders and instruction

  
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or have a responsible agent duly accredited in writing present for that purpose. Orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

Contractor or responsible Agents to be present.

**Clause-14 :** The contractor shall give not less than five days notice in writing to the Engineer-in-charge or his subordinate-in-charge of the week before covering upto otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement, any work without the consent in writing of the Engineer-in-charge of his subordinate-in-charge of the work and if any work shall be covered up or placed beyond the reach measurement without such notice having been given or consent obtained the same shall be uncover at the contractors expenses, or in default thereof no payment or allowance shall be made for such work or the materials with the same executed.

Notice to be given before work is covered up.

**Clause-15 :** If the contractor or his work people, or servants shall break, deface, injure or destroy any part of a building in which he may working or building, road, fence, enclosure or grassland or cultivated ground continuous to the premises on which the work at any part of it is being executed or if any damage shall happen to the work, while in progress, from any cause whatever or any imperfection became apparent in it within 3 months from the date of final certificate of its completion shall have been given by the Engineer-in-charge, as aforesaid, the contractor shall make the same good at his expense, or in default, the Engineer-in-charge may cause the same to be made good by other workman and deduct the expense (of which the certificate of the Engineer-in-charge shall be final) from any sums that may than, or at any time thereafter may become due to the contractor or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof and the contractor shall liable to pay any part of the expenses not so recovered by the Engineer-in-charge.

Contractor liable for damage done and for imperfection for 3 months after certificate.

**Clause-16 :** The contractor shall supply at own cost all materials (except such special materials, if any, as may in accordance with the contract be supplied from the Engineer-in-charge's stores), plant, tools, appliances, implements, ladder cordage, tackle scaffolding and temporary works requisite or proper for the proper execution of the work, whether original, altered or substituted and whether included in the specification or other documents for part of the contract or referred to in there condition or not which may be necessary for the purpose of satisfying or complying with the requirement if the Engineer-in-charge as to any matter which under this conditions be is entitled to be satisfied, which is entitled to require together with carriage there for to and from the work the contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials. Failing his so doing the same may be provided by the Engineer-in-charge

Contractor to supply plant, ladders, scaffolding etc.

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And is liable for damages arising from non-provision of lights, fencing etc.

at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of the sale thereof or of a sufficient portion thereof. The contractor shall also provide all necessary financing and lights required to protect the public from accident, and shall be bound to bear the expenses of defence of every suit action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions, and to pay any damages and cost which may be awarded in any such suit action or proceedings to any such person or which may with the consent of the contractor be paid to compromise any claim by any such person.

Clause-17(a) : No female labour shall be employed within the limits of cantonment.

The contractor shall not employ for the purpose of this contract any person who is below the age of twelve years and shall pay to each labourer for the work done by such labour, wages not less than the wages paid for similar work in the neighbourhood.

The Executive Engineer shall have the right to enquire in to and decide any complaint alleging that the wages paid by the contractor to any labourer for the work done by such labourer is less than the wages paid for similar work in the neighbourhood.

The Officer-in-Charge of the work have the right to decide whether any labourer employed by the contractor is below the age of twelve years and to refuse to allow any labourer whom he decide to be below the age of twelve years to be employed by the contractor.

Works to be open to inspection.

(b) The contractor shall employ one or more Engineer Graduate or Diploma holders as apprentices at his own cost if the work as shown in the tender exceeds Rs. 2,50,000.00. The apprentices will be selected by the Chief Engineer. The period of employment will commence within one month after the date of work order and would last till the date when 90% of the work is completed. The fair wage to be paid to the apprentices should be not less than the emolument of personnel of equivalent qualification employed under Government. The number of apprentices to be employed should be fixed by the Chief Engineer in a manner so that the total expenditure does not exceed one percent of the tendered cost of the work.

(c) Special class contractor shall employ under him one Graduate Engineer and two Diploma holders belonging to the State of Odisha, likewise 'A' class contractor shall employ under him one Graduate Engineer or two Diploma holders belonging to the State of Odisha. The employment of such Graduate Engineers and Diploma holders under the contractor shall be full-time and continuous and they shall not be superannuated, retired, dismissed or removed personnel from any State Government or Central Government Service, Public Sector Undertakings, Private Companies and Firms or be ineligible for appointment of Govt. The contractor shall pay them monthly emoluments which shall not be less than the emoluments of the personnel of equivalent qualification.

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employed under the State Govt. of Odisha. The Chief Engineer (Civil), Odisha, may however assist the contractor with names of such unemployed Graduate Engineers and Diploma holders if such help is sought for by the contractor.

The name of such engineering personnel appointed by the contractor should be intimated to the tender receiving authority alongwith each tender as to who would be supervising the work.

Each bill of the Super/Special class or 'A' class contractor shall be accompanied by an employment roll of the engineering personnel together with a certificate of the Graduate Engineer or Diploma holder so employed by the contractor to the effect that the work executed as per the bill has been supervised by him.

**Clause-18 :** The contract shall not be assigned or sublet without the written approval of the Executive Engineer. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make composition with his creditor or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite reward or advantage, pecuniary or otherwise, shall either directly be given, promised or offered by the contractor, or any of his servants or agents to any public office or person in the employ of Government in any way relating to his office or employment, or of any such officer or person shall become in any way directly or indirectly interested in the contract, the Executive Engineer may thereupon by notice in writing rescind the contract and the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the disposal of the Government and the same consequences shall ensue as if the contract had been rescinded under clause 2 hereof, and in addition the contractor shall not be entitled recover or paid for any work therefore, actually performed under the contract.

Work not to be sublet

Contractor may be rescinded and security deposit forfeited for subletting, bribing or if contract of becomes insolvent.

**Clause-19 :** All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to use of government without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

Sum payable by way of compensation to be considered as reasonable compensation without reference to actual loss.

**Clause-20 :** In the case of a tender by partners, any change in the constitution of the firm shall be forthwith notified by the contractor to the Engineer-in-charge for his information.

Changes in constitution of firm.

In case of failure to notify the change in the constitution within fifteen days the Engineer-in-charge may notice in writing rescind the contracts and the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the disposal of Government and the same consequences shall ensue as if the contract had been rescinded under clause-2 thereof and in addition the contractor shall not be entitled to recover or be paid for any works therefore actually performed under the contract.

**Clause-21 :** All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Superintending Engineer of the Circle for the time being who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

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Clause-22 : Deleted.

Lumpsums in estimate.

Clause-23 : When the estimate on which a tender is made includes lumpsums in respect of parts of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-charge capable of measurement, the Engineer-in-charge may by his discretion pay the lump-sum amount entered in the estimate and the certificate in writing of the Engineer-in-charge shall be final and conclusive against the contractor with regard to any sum of sums payable to him under the provisions of this clause.

Action where no specification.

Clause-24 : In the case of any class of work for which there is no such specification as is mentioned in rule 1, such work shall be carried out in accordance with the circle specification and in the event of there being no circle specification, then in such case the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-charge.

Definition of works.

Clause-25 : The expression 'Work' or 'Works' where used in these conditions shall, unless there be something either in the subject or context repugnant to such construction, be constructed and taken to mean the works by or by virtue of the contract contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.

Clause-26 : Government shall be entitled to recover in full from the contractor any amount that the government may be liable to pay under Workman's Compensation Act-VIII of 1923, to any workman employed in course of execution of any part of the work covered by these contracts.

Clause-27 : That the purpose of jurisdiction in the event of dispute, if any, the contract should be deemed to have been entered into within the State of Odisha and it is agreed that neither party to the contract or agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Odisha.

Clause-28 : The department will have the right to inspect the scaffolding and centering made for the work and can reject partly or fully such structure if found defective in their opinion.

Clause-29 : Sanitary agreements will be made by the contractor at his own cost for his labour camp.

Clause-30 : The contractor shall bear all taxes including sales tax, income tax, royalty, fair-weather charges and tollage, where necessary.

Clause-31(a) : If during the progress of the work the price of any material incorporated in the work (not being materials supplied from the Engineer-in-charge's store in accordance with clause..... hereof) increases or decreases as a result of increase or decrease in the Average Wholesale Price Index (all commodities), and the contractor thereupon necessarily and properly pays in respect of that material (incorporated in the work) such increase or decrease price, then he shall be entitled to reimbursement or

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liable to refund quarterly, as the case may be, such an amount, as shall be equivalent to the plus or minus difference of 75% in between the Average Wholesale Price Index (all commodities) which is operating for the quarter under opened consideration and that operated for the quarter in which the tender was opened, as per the formula indicated below, provided that the work has been carried out within the stipulated time or extension thereof as are not attributed to him.

(b) Similarly, if during the progress of work, the wages of labour increase or decrease as a result of increase or decrease in the Minimum Wages prescribed by Govt. and the contractor thereupon necessarily and properly pays in respect of labour engaged on execution of the work such increased or decreased wages, then he shall be entitled to reimbursement or liable to refund quarterly as the case may be, such an amount, as shall be equivalent to the plus or minus difference in between in the minimum wages for labour, which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened, as per the formulae indicated below, provided that the work has been carried out within the stipulated time or extension thereof as are not attributed to him.

Price adjustment and reimbursement of claim for escalation on labour under clause 31 (b) will be applicable only if there is an increase or decrease in the minimum wage, fixed by the State Government.

(c) Similarly, if during the progress of work, the price of Petrol, Oil and Lubricants. (Diesel oil being the representative item for price adjustment) increases or decreases as a result of the price fixed thereof by the Government of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards Petrol, Oil and Lubricants used on execution of the work, then he shall be entitled to reimbursement or liable to refund, quarterly, as the case may be such an amount as shall be equivalent to the plus or minus difference in between the price of P.O.L. which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below, provided that the work has been carried out within the stipulated time or extension thereof as are not attributable to him.

(i) Formula to calculate the increase or decrease in the price of materials:

**Formulated to calculate the increase or decrease in the price of materials :**

Price adjustment for increase or decrease in cost of materials other than cement, steel, bitumen, pipes and POL procured by the contractor shall be paid in accordance with the following formula :

$$V_M = 0.85 \times P_m / 100 \times R \times (M_1 - M_0) / M_0$$


$V_M$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates of materials other than cement, steel, bitumen, pipes and POL.


$R$  = Value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schools of rate/derived rates.

$M_0$  = The all India wholesale price index (all commodities) prevailed during the quarter of last date of receipt of bids (as published by the Economic Adviser to govt. of India, Ministry of Industry and commerce, New Delhi)

$M_1$  = The all India wholesale price index (all commodities) for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry and commerce, New Delhi. In respect of the justified period extended for completion of the work, the index prevailing at the time of stipulated date of completion or the prevailing index of the period under consideration, whichever is less, shall be considered.

$P_m$  = Percentage of material component (other than cement, steel, bitumen, pipes and POL) of the work, as indicated in clause-31(d) below.

  
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**Clause 31(a) (ii) : Reimbursement/Recovery of Differential cost due to variation in prices of principal materials (Steel, Cement, Bitumen and pipes not issued by Department) After submission of Tender :**

If after submission of the tender, the prices of Steel, Cement, Bitumen and Pipes (not being supplied by the Department) increases/decreases beyond the price(s) prevailing at the time of the last date for submission of tenders including extension for the work, the contractor shall be eligible to get differential cost due to such hike on the value of works executed during the stipulated period and during the extended period when the reason of delay in completion of the work is not attributable to the Contractor. If penalty is levied for delayed completion of the work, the contractor shall not be eligible to get price variation on the above materials on the value of works executed during the extended period.

Reimbursement in case of differential cost due to increase in prices of cement, steel, bitumen and pipes are to be made by the Executive Engineer with prior approval of tender accepting authority subject to following conditions.

1. Contractors have to submit the vouchers showing procurement of different materials from authorised dealers for the said work.
  2. Differential cost will be allowed only for the works which are progressed as per the approved work programme / revised work programme duly approved by the Engineer in charge.
- Recovery in case of decrease in prices of cement, steel, bitumen & pipes shall be made by concerned Executive Engineer from the Contractor immediately.
- The increase/decrease in prices of cement, steel, Bitumen and Pipes for reimbursement/recovery shall be determined as follow.

**a) Adjustment towards differential cost of cement.**

$V_c = (C_1 - C_0) / C_0 \times$  Actual quantity of cement utilized in the work during the quarter under consideration  $\times$  base price of cement as prevailing on the last stipulated date of receipt of tender including extension, if any.

$V_c =$  Differential cost of cement i.e., amount of increase or decrease in rupees to be paid or recovered.

$C_1 =$  All India Wholesale price index for cement for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry and commerce, New Delhi.

$C_0 =$  All India Wholesale price index (as published by Economic Adviser, Govt. of India, Ministry of Industry and commerce, New Delhi) for cement as prevailing on the last stipulated date of receipt of tender.

**b) Adjustment towards differential cost of Steel.**

$V_s = (S_1 - S_0) \times$  Actual quantity of steel utilized in the work during the quarter under consideration.

$V_s =$  Differential cost of Steel i.e., amount of increase or decrease in rupees to be paid or recovered.

$S_1 =$  Cost of the Steel as prevailed during the period under consideration as fixed by Steel Authority of India.

$S_0 =$  Base price of Steel prevailing as on the last date of submission of tender including extension, if any.

**c) Adjustment towards differential cost of Bitumen.**

$V_b = (B_1 - B_0) \times$  Actual quantity of Bitumen utilized in the work during the quarter under consideration.

$V_b =$  Different cost of Bitumen i.e. amount of increase decrease in rupees to be paid or recovered.

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B<sub>i</sub> = Average cost of Bitumen prevailed during the period under consideration as fixed by IOCL/BPCL/HPCL.

B<sub>o</sub> = Base price of bitumen as prevailing on the last stipulated date of receipt of tender including extension, if any.

d) Adjustment towards differential cost of Pipes.

V =  $0.85 \times P_p / 100 \times R (P_i - P_o) / P_o$

V<sub>p</sub> = Differential cost of pipe i.e, amount of increase of decrease in rupees to be paid or recovered during the quarter under consideration.

P<sub>p</sub> = Percentage of pipe component of the work as indicated in the clause 31(d).

R = Value of work done during the quarter under consideration excluding the value of work executed under extra items, if any, at prevailing schedule of rates or derived rate.

P<sub>i</sub> = All India whole sale price index for the period under consideration as published by Economic Advisor, Govt. of India, Ministry of Industry and Commerce, New Delhi, for the type of pipe under consideration.

P<sub>o</sub> = All India Wholesale price index (as published by Economic Advisor, Govt. of India, Ministry of Industry and Commerce, New Delhi) as on the last stipulated date of receipt of tender including extension, if any, for the type of pipe under consideration.

**The compensation for escalation for labour shall be worked out as per the formula given below :**

V<sub>i</sub> =  $0.85 \times P_l / 100 \times R \times (L_i - L_o) / L_o$

V<sub>l</sub> = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates of minimum wages.

R = Value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schedule of rate/derived rates.

L<sub>o</sub> = The minimum wages for labour as notified by State Government, as prevailing on the last stipulated date of receipt of tender including extension, if any.

L<sub>i</sub> = The minimum wages for labour as notified by State Government & as prevailed on the last date of the quarter previous to the one under consideration. In respect of the justified period extended, the minimum wage prevailing on the last date of quarter previous to the quarter pertaining to stipulated date of completion or the minimum wage prevailing on the last date of the quarter previous to the one under consideration, whichever is less, shall be considered.)

P<sub>l</sub> = Percentage of labour component of the work, as indicated in the clause 31(d).

**Formula to calculate the increase or decrease in the price of P.O.L. :**

V<sub>f</sub> =  $0.85 \times P_f / 100 \times R \times (F_i - F_o) / F_o$

V<sub>f</sub> = Increase or decrease in the cost of work during the quarter under consideration due to Changes in rates for P.O.L.

P<sub>f</sub> = Percentage of P.O.L. component of the work, as indicated in clause-31(d) below.

R = Value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schedule of rate/derived rates.

F<sub>i</sub> = All India Wholesale price index for Fuel, Oil & Lubricant (High Speed Diesel) for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry and Commerce, New Delhi. In respect of the justified period extended, the rates prevailing at the time of stipulated date of completion or the prevailing rates of the period under consideration, whichever is less, shall be considered.

F<sub>o</sub> = All India Whole date price index for Fuel, oil & Lubricant (High Speed Diesel) as prevailing on the last stipulated date of receipt of tender including extension, if any.

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Odisha, Bhubaneswar

(d) : The following percentages will govern the price adjustment for the entire contract for different types of works as applicable given in the following table.

**Percentage Table**

Sl. No.	Category of works		% Component (Cost wise)		
			Labour (P)	POL (P)	Steel+Cement+Bitumen+ Other Materials*
1.	R&B works (% of component)	Road Works	5	5	90
		Bridge works	25	5	70
		Building works	25	-	75
2.	Irrigation works (% of component)	Structural work	20	5	75
		Earth, Canal & Embankment work.	25	10	65
3.	P.H. Work	Structural work	25	5	70
		Pipeline work	5	-	Pipe - 70% *Other material - 25%
		Sewer Line	10	-	Pipe - 70% *Other material - 20%

(\*Note) :- Further break up may be worked out considering the consumption of Cement, Steel, Bitumen and pipe in the concerned works for the period under consideration.)

(e) Application of Escalation Clause :

(i) The contractor shall for the purpose of availing reimbursement/refund of differential cost of steel, bitumen, cement, pipe, POL and wages, keep such books of account and other documents as are necessary to show that the amount of increase claimed or reduction available and shall allow inspection of the same by a duly authorized representative of Government and further, shall at the request of the Engineer-in-charge, furnish documents to be verified in such a manner as the Engineer-in-charge may require any document and information kept. The contractor shall within a reasonable time of 15 days of his becoming aware of any alteration in the price of such material, wages of labour and/or price of P.O.L. give notice thereof to the Engineer-in-charge stating that the same is given pursuant to this condition alongwith information relating there to which he may be in a position to supply.

(ii) The compensation for escalation shall be worked out at quarterly intervals and shall be with respect to the cost of work done as per bills paid during the three calendar months of the said quarter. The first such payment shall be made at the end of three months interval. At the time of completion of the work, the last period for payment might become less than 3 months, depending on the actual date of completion.

(f) The contractor shall for the purpose of subclause (a), (b) and (c) of this clause keep such books of account and other documents as are necessary to show that the amount of increase claimed or reductions available and shall allow inspection of the same by a duly authorized representative of Government and further shall at the request of the Engineer-in-charge furnish, verified in such manner as the Engineer-in-charge as the Engineer-in-charge may require any document kept and such other information as the Engineer-in-charge may require.

  
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The contractor shall within a reasonable time of his becoming aware of any alteration in the price of such material, wages of labour and/or price of P.O.L., give notice thereof to the Engineer-in-charge stating that same is given pursuant to this condition together with an information relating there to which he may be in a position to supply.

**Clause-32 :** After the work is finished, all surplus and debris are to be removed by the contractor and preliminary work such as vats, mixing platforms etc. are to be dismantled and all materials removed from site. The ground upto 100'-0" wide from the building should be clear and dressed.

#### FAIR WAGE CLAUSE

**Clause-33(a) :** The contractor shall not employ for the purpose of their contractor any person who is below the age of twelve years and shall pay to each labourer for work done by such labours fair wages.

**Explanation :** 'Fair Wages' means wages whether for time or piece of work prescribed by the State Public Works Department provided that where higher rates have been prescribed under the minimum wage Act 1948. Wages at such higher rates should constitute fair wage.

The Executive Engineer shall have the right to enquire into and decide any complaint alleging that the wages paid by the contractor to any labourer for the work done by such labourer is less than the wages as per sub-paragraph (1) above.

(b) The contractor shall notwithstanding the provision of any contract to contrary cause to be paid a fair wage to labourers indirectly engaged on the work including any labour engaged by his such contractors in connection with that said work, as it is the labourers had been immediately employed to him.

(c) In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of his agreement, the contractor shall comply with or cause to be complied with all regulations made by Government in regard to payment of wages, wage period deductions from wages, recovery of wages not paid and deductions unauthorisedly made, maintenance of wage register, wage cards publication of scale of wages and other terms of employment, inspection and submission of periodical returns and other matters of a like nature.

(d) The Executive Engineer of Sub-divisional Officer concerned shall have the right to deduct, from the money due to the contractor, any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of nonfulfilment of the conditions of the contract for the benefit of the workers non payment of wages or of deductions made from his or their wages, which are not justified by their terms of the contractor, non observance of the regulations. Money so deducted should be transferred to the workers concerned.

(e) Vis-a-vis, the Government of Odisha, the contractor shall be primarily liable for all payments to be made under and for the observance of the regulations aforesaid without prejudice to his right to claim indemnity from his sub-contractor.

(f) The regulations aforesaid shall be deemed to be a part of this contract and any breach thereof shall be breach of this contract.

#### *Odisha P.W.D./Electricity Department Contractors Labour Regulations*

1. **Short title :** These regulations may be called "The Odisha Public Works Department/Electricity Department Contractor's Regulations".
2. **Definition :** In these Regulations unless otherwise expressed or indicated the following words and expression shall have the meaning merely assigned to them respectively, that is to say —
  - 1) 'Labour' means workers employed by a contractor of the Odisha Public Works Department/Electricity Department directly or indirectly through a sub-contractor or other person or by an agent on his behalf.

  
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- ii) 'Fair Wage' means wages whether for time or piece work prescribed by the Public Works Department/ Electricity Department for the area in which the work is done.
- iii) 'Contractor' shall include every person whether a sub-contractor or headman or agent employing labour on the work taken on contract.
- iv) 'Wages' shall have the same meaning as defined in the payment of Wages Act and include time and piece rate wages, if any.

**3. Display of notice regarding wages, etc. —**

The contractor shall —

- (a) before he commences his work on contract display and correctly maintain and continue to display and correctly maintain, in a clean and legible condition, in conspicuous on the work, notices in English and in the local Indian language spoken by the majority of the workers, giving the rate of wage prescribed by the State Public Works Department/Electricity Department for the district in which the work is done.
- (b) send a copy of such notices to the Engineer-in-charge of the work.

**4. Payment of wages :**

- (1) Wages due to every worker shall be paid to him direct.
- (2) All wages shall be paid in current coin or currency or in both.

**5. Fixation of wage period :**

- (1) The contractor shall fix the wage period in respect of which the wages be payable.
- (2) No wage period shall exceed one month.
- (3) Wages of every workman employed on the contract shall be paid before the expiry of ten days, after the last day of wage period in respect of which the wages are payable.
- (4) When the employment of any worker is terminated by or on behalf of the contract, the wages earned by him shall be paid before the expiry of the day succeeding the one on which his employment is terminated.
- (5) All payments of wages shall be made on a working day.


**6. Wage book and wage cards etc. :**

- 1. The contractor shall maintain a wage book of each worker in such form as may be convenient, but the same shall include the following particulars —
  - (a) Rate of daily or monthly wages.
  - (b) Nature of work on which employed.
  - (c) Total number of days worked during each wage period.
  - (d) Total amount payable for the work during each wage period.
  - (e) All deductions made from the wages with an indication in case of the ground which the deduction is made.
  - (f) Wage actually paid for each wage period.
- 2. The contractor shall also maintain a wage card for each worker employed on the work.
- 3. The Executive Engineer may grant an exemption from the maintenance of wage book, wage cards to a contractor who, in his opinion may not directly or indirectly employ more than 10 persons on the work.

**7. Fines and deductions which may be made from wages :**

- 1. The wages of a worker shall be paid to him without any deduction of any kind except the following —
  - (a) Fines
  - (b) Deduction for absence from duty, i.e., from the place or places whereby the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.
  - (c) Deduction for damage or loss of good expressly entrusted to the employed persons for custody or for loss of money for which he is required to account where such damage or losses directly attributed to his neglect or default.
  - (d) Any other deductions which the Odisha Government may from time to time allow.

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2. No fines shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deduction.
3. The total amount of fines which may be imposed in any one wages period on a work shall not exceed an amount equal to five paise in a rupees of the wages payable to him in respect of that wage period.
4. No fine imposed on any worker shall be recovered from him by instalments, or after the expiry of 60 days from the date on which it was imposed.

8. **Register of Fines etc. :**

1. The contractor shall remain a register of fines and of all deductions for damage or loss. Such register shall maintain the reason for which fine was imposed or deduction for damage or loss was made.
2. The contractor shall maintain a list in English and in the local Indian language, clearly defining acts and omising for which penalty of fine can be imposed. It shall display such list and maintain it in clean and legible condition in conspicuous places on the work.

9. **Preservation of Register :**

The wage register, the wage cards and the register of fines deduction required to be maintained under these regulations shall be preserved for 12 months after date of the last entry made in them.

10. **Powers of Labour Welfare Officers to make investigation or enquiry :**

The Labour Welfare Officers or any other persons authorised by the Government of Odisha on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of the fair wage clauses and the provision of these regulations. He shall investigate into any complaint regarding default made by the contractor, sub-contractor in regard to such provisions.

11. **Report of Labour Welfare Officers :**

The Labour Welfare Officers or others authorised as aforesaid shall submit a report of the results of his investigation or enquiry to the Executive Engineer concerned, indicating the extent, if any, to which the default has been committed with a note that necessary deductions from the contractor's bill be made and the wages and other dues be paid to the labourers concerned.

12. **Appeal against the decision of Labour Welfare Officers :**

Any person aggrieved by the decision and recommendation of the labour welfare officer or other person so authorised may appeal against such decision to the Labour Commissioner within 30 days from the date of decision forwarding simultaneously a copy of his appeal to the Executive Engineer concerned but subject to such appeal, the decision of the officer shall be final and binding upon contractor.

13. **Inspection of Registers :**

The contractor shall allow inspection of the wage book and wage cards to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Commissioner or any other person authorised by the Government of Odisha on his behalf.

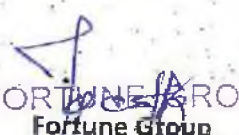
14. **Submission of return :**

The contractor shall submit periodical returns as may be specified from time to time.

15. **Amendments :**

The Government of Odisha may from time to time, and to amend these regulations and on any question, as to the application, interpretation of effect of these regulation, the decision of the Labour Commissioner or any other person authorised by the Government of Odisha in that behalf shall be final.

Clause-34 : The terms and conditions of the agreements have been read/explained to mean..... certify..... clearly understand them.

  
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**Clause-35 : Clauses for site engineer and road furnitures etc. in DTCN / Agreement.**

In Works Deptt. Letter No.-10407, dt.25.06.2004, the agencies executing major works should possess full-fledged field laboratory for testing of the quality of the work. Under the same clause, the following provisions are to be made as per Works Deptt. No.12351/W, dated 23.07.2004.

(1) An engineering personnel of the executing agency should be present at work site at the time of visit of high level Inspecting Officers in the rank of Chief Engineer and above.

(2) After completion of the Road in all respects, road furnitures should be affixed by the executing agency indicating locations like School, Hospital, Non-horn etc.

**UNDERTAKING**

I/ We do hereby undertake that, I/ We will not claim anything in any shape from the Government if the work is curtailed or stopped at any stage for want of funds. This will form a part of the contract.

*Signature of the Contractor*

**SPECIAL CONDITION**

1. Any increase or decrease over or below the Schedule of Quantities appended to the tender during the execution be carefully watched to determine the financial implication in accordance to the codal provisions. No extra items, extra quantities beyond the agreement quantities should be allowed without prior permission from competent authority.
2. The quantities are not allowed to be varied by more than 5% on higher side without prior approval of competent authority in respect of items for which the contractor has quoted his rates more than 25% excess over the corresponding estimated cost.
3. The contractor is to bear required sales taxes, octroi taxes, all other taxes and royalties etc. as are in force from time to time. Royalty will be reimbursed on production of valid money receipt by the contractor from the concern Tahasildar.
4. The contractor has to pay the minimum wages fixed by Government from time to time to the labourers engaged by him in the work.
5. The work should be executed as per approved designs. Necessary soil tests / field tests etc. are to be conducted at site to ensure the structural adequacy.
6. In case, where quoted rates are too low, strict supervision is necessary and the Assistant Engineer should also make frequent inspection of the work to ensure the execution of the same as per the required specification in accordance with the instructions.
7. The sample of materials used for the work should be got approved from the competent authority before execution of work.
8. Number of tests as specified in I.R.C. /MORT&H /I.S. specification required for the construction of roads / bridges / buildings or any other structural works will be conducted as per required frequency in any Govt. Test House / Departmental Laboratories / Reputed material testing laboratory as to be decided by the Engineer-in-Charge. Testing charges including expenditure for collection / transportation of samples / specimens etc. will be borne by the contractor. The collection of samples and testing are to be conducted for both prior to execution and during the course of execution as may be directed by the Engineer-in-charge and on both the accounts the cost shall be borne by the contractor. Besides the Firm/Contractor shall install full-fledged field laboratory at work site for conducting required tests as per I.R.C. /MORT&H /I.S. requirement at his own cost for providing opportunity for checking from time to time.
9. The fortnightly progress of work both physical and financial should be submitted forthwith and any failure of progress of work in proportionate to work programme as submitted by the contractor should be reported and appropriate action as deemed proper should be taken under the terms and conditions of the agreement.

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10. The work should be restricted to the available funds.
11. The Chief Engineer, Superintending Engineer, Executive Engineer, while inspecting the work under execution should invariably record his observations in the Register of Inspections maintained at the site of work for which the tender has been accepted by him or by Government. He shall make final inspection of such work after completion thereof but before the payment of the final bills.
12. It shall be responsibility of the contractor to procure all materials required for the work including procurement of steel, cement and bitumen etc. (to be approved by the Engineer-in-charge) from the market at his cost and complete the work within the stipulated time of completion as per accepted agreement. At no stage difficulty or obstacle for procurement of materials due to any reasons whatsoever shall not be entertained by the department nor any plea for extension of time or compensation/claim to this effect shall be entertained on account of the above. The safe custody of the materials issued by the Deptt. of procured by the contractor will be sole responsibility of the contractor. For both departmental issue of materials or any procurement of materials by the contractor all incidental expenses like transport, storage, handling and any other expenditure shall be borne by the contractor. The materials as per appendix-A, if available with the department, may be supplied to the contractor at the discretion of the Deptt. at the place and rates noted against each. The contractor may satisfy himself about the quality and quantity of materials at the time of issue.
13. The empty cement bags and empty bitumen/emulsion drums are required to be returned to the Deptt. in default of which cost thereof @ Rs.....per bag, @ Rs..... per bitumen drum and @ Rs..... per empty emulsion drums will be deducted from the contractor's bill.
14. In the event of any particular item (s) of work for which the contractor has quoted rate (s) which are grossly below the corresponding estimated rates or (CSR) for that particular item the difference between the amount corresponding estimated or (CSR) rate and this grossly under quoted rate for quantity of work to be executed by the contractor shall be kept withheld from the payment due to the contractor until such time as the execution of the said item (s) of work is/are completed in all respects by the contractor to the full satisfaction of the Engineer-in-Charge.
15. **Addition performance security**  
When the bid amount is upto 10% less than the estimated cost, no additional performance security is required to be deposited. When the bid amount is less than the estimated cost by more than 10% and within 15% in such as event, the successful bidder will deposit the additional performance security to the extent of 1.5 times of the differential cost of the bid amount and 90% of the estimated cost.
16. If the rate quoted by the bidder is less than 15% of the tendered amount, then such a bid shall be rejected and the tender shall be finalized basing on merits of rest bids. But if more than one bid is quoted at 14.99% (Decimals upto two numbers will be taken for all practical purposes) less than the estimated cost, the tender accepting authority will finalize the tender through a transparent lottery system, where all bidders/ their authorised representaitves, the concerned Executive Engineer and DAO will remain present.
17. **Incentive for early completion :**
  - i) As per para 3.5.5 of O.P.W.D. Code Vol-I amended vide works department letter No.1220 dt.19.01.2004, provision for incentive will be @ 1% in case of completion of work ahead of one month (part of the month shall be excluded) and the maximum amount payable will be fixed at 2% if the work is completed ahead of two months of the schedule time.
  - ii) As amended vide letter No.8310 dt. 17.05.2006 of Works Department incentive should be paid in respect of individual project for new construction /substantial additional or improvement work the minimum value of which mentioned below :

<u>Name of the work</u>	<u>Minimum Value</u>
1. Building work / P.H. work	Rs.40.00 lakhs
2. Road works	Rs.3.00 crores
3. Irrigation work	Rs.10.00 crores

  
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iii) Vide Works Department letter No.10070 dt.08.06.2007, whenever any project is completed before the stipulated date of completion, it is mandatory on the part of the Executive Engineer to report the actual date of completion of project within three days to the concerned Superintending Engineer, Chief Engineer and Works Department by Fax/Telegram. Otherwise such proposal will not be entertained and the concerned Executive Engineer will be held responsible.

Incentive will be paid with approval of next higher authority of tender accepting authority on completion of original work before original time schedule.

(Incentive need not be included in the estimate. Specific budget provision may be made under State-plan out of which the incentive shall be met).


The Department shall not supply any materials what-so-ever for the work. The contractor should be financially stable for advanced procurement of all materials to be required for the work vide Govt. of Odisha, Finance Department Memo No.48443/F - Code-46/95 dated 11.12.95.

OR

Schedule showing (Approximately) materials supplied, if available, the rates at which they are to be charged for and the places at which they are to be supplied.

Particulars	Rates at which the materials will be charged to the contractor			Place of Delivery
	Unit	Rs.	P.	

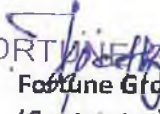
- Note : (1) The person of firm submitting the tender should see that the rates in the above Schedule are filled up by the Engineer-in-Charge on the issue of the form prior to the submission the tender.
- (2) Before issue of the above materials to him, the Contractor shall furnish Bank Guarantee of any of the Nationalised Bank located at..... for a sum equal to the cost of materials. The Bank guarantee should be valid for the entire period of agreement. The same may be refunded to the contractor only after the materials supplied to him are fully utilised in the works and cost thereof recovered from his bill (s) in full or if the materials are partly utilised materials are returned by him to the Department in full and in good condition and receipt thereof duly acknowledged by the concerned Department Officer.


  
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# DETAILS OF PAYMENTS DONE

Sl. No. of R/A Bill	M. B. No.	Page No.	Voucher No.	Date	Deductions				Net Amount	Signature of Sr. D.A.O.
					Gross Amount	S.D.	I.T.	S.T.		

  
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DPI & Roads, Odisha & Roads  
(Employer)  
Odisha, Bhubaneswar

# APPROVAL OF THE GOVERNMENT OF ODISHA

GOVERNMENT OF ODISHA  
WORKS DEPARTMENT

57

No. 1467 /W, dt. 12-18  
AC-I-0718890004-2017

From  
Sri A. Khatua,  
AFA-cum-Under Secretary to Govt.

To  
The Chief Engineer, D.P.I. & Roads, Odisha,  
Nirman Soudha, Bhubaneswar.

Sub: - Tender for the work "Construction for Widening and Strengthening of Existing Carriageway to 2-Lane from Bhadrak to Anandpur from 0/000 km to 43/000 km of SH-53 -Balance work -Package No.OSRP-CW-P1-P02 (Balance)".

Sir,

I am directed to invite a reference to your Letter No.49875 dated 21.12.2017 on the subject noted above and convey the approval of Government for acceptance of the lowest negotiated percentage rate tender of M/s Fortune Group, Super Class Contractor amounting to ₹ 35,71,26,484.00 (Rupees Thirty five crore Seventy one lakh Twenty six thousand four hundred eighty four) only excluding applicable GST as applicable which is 2.65 % excess over the corresponding estimated cost of ₹ 34,79,06,952.00 as per SoR-2014 (Post GST) subject to following conditions:-

- i. All codal formalities and other preliminaries should be completed well before issuing of work order.
- ii. The provision under Para-3.5.18 (vi) of OPWD Code Volume-I should be scrupulously followed for commencement of the work.
- iii. Steps should be taken for allotment of funds so as to ensure completion of the work within the stipulated period.
- iv. For items, in which the tendered rates are in excess of 25% over the corresponding estimated cost, no variation in quantities would be allowed without prior approval of Government.
- v. A detailed work programme for completion of the work within the stipulated period may be obtained from the Contractor and strictly followed during the course of execution and the progress of the work supervised / reviewed from time to time.
- vi. A copy of the work programme and copy of agreement should be furnished to this Department for reference and record.
- vii. The provision under para-2.2.9, para-2.2.23, para-2.2.27, para-2.2.30 & para- 3.5.5 (v) of OPWD code Volume-I should be scrupulously followed.
- viii. The plan & design should not be ordinarily changed.
- ix. The work has to be completed within the stipulated period of 11 (Eleven) calendar months without any time and cost over-run.
- x. Availability of funds for the project shall be ensured before award of the work.
- xi. The work programme shall be monitored by the Chief Engineer before drawl of Agreement.

A copy of the proceedings of the Tender Committee meeting held on 23.12.2017 for the above work is enclosed for reference

Tender documents received with your letter under reference are returned herewith, the receipt of which may please be acknowledged.

Yours faithfully,

AFA-cum-Under Secretary to Govt.

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Chief Engineer  
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LETTER OF ACCEPTANCE

OFFICE OF THE ENGINEER-IN-CHIEF (CIVIL), ODISHA  
NIRMAN SOUDHA, KESHARI NAGAR, UNIT - V, BHUBANESWAR - 751 001

File No. PMU-WB-74/2017

6371

February 09, 2018

From:

Er. Om Prakash Patel  
Chief Engineer, DPI & Roads, Odisha  
Tel: + 91 - 674 - 239 3122 / Fax: + 91 - 674 - 239 0080  
Email: pmuosrp@gmail.com

To:

M/s Fortune Group,  
Charamps, Bhadrak  
E-mail: ikp.fortune@gmail.com

Subj: "Construction for Widening and Strengthening of existing Carriageway to two lane for  
Bhadrak-Anandpur Road (0/000 K.m. to 43/000 K.m.) of SH - 53" (Balance work), Package  
No. OSRP-CW-P1-P02 (Balance)

LETTER OF ACCEPTANCE

Ref: Bid Identification No. CE-DPI & R-28/2017-18 \_Letter No. C-IM-IFB-06/2017 \_ 44818  
dated 25.11.2017 of T.O.

Sir,

This is to notify you that your Bid dated December 13, 2017 for the execution of the above work for the contract price of ₹ 35,71,26,484/- (Thirty Five Crore Seventy One Lakh Twenty Six Thousand Four Hundred Eighty Four) only excluding applicable GST being 2.65% excess over the corresponding estimated cost of ₹ 34,79,06,952.11 has been accepted by the undersigned.

You are hereby requested to attend this office on within 15 days of issuance of this letter, in accordance with Clause 34 of the DTCN with the following documents as applicable to your above tender, for signing the Contract.

1. Performance security (Initial Security Deposit) as per Clause 28 of DTCN for an amount of ₹ 71,43,000/- which make 2% of the accepted tender value pledged in favour of Executive Engineer, PMU, OSRP in shape of Term Deposit Receipt from any Nationalised Bank payable at Bhubaneswar.
2. Original R.C licence for verification.
3. Labour licence and cess registration from the District Labour officer, Bhadrak
4. A detailed work programme for completion of the work within the stipulated period.

You are requested to start all preliminaries in consultation with the Engineer-in-Charge of the work i.e. Resident Engineer-P2, LEA Associates South Asia Pvt. Ltd, Kalyani Nagar, Bhadrak for the concerned work as mentioned in the Bid Data Clause-1 of the DTCN.

Yours faithfully,

Chief Engineer,  
DPI & Roads, Odisha

Memo No.

6372

February 09, 2018

Copy submitted to the Engineer-in-Chief-cum-Secretary, Works Department, Government of Odisha for favour of information with reference to Works Department Letter No. 1467/W /AC-I-0718890084-2017) of February 01, 2018.

Chief Engineer,  
DPI & Roads, Odisha

**FORTUNE GROUP**  
Fortune Group  
(Contractor)  
Managing Partner

Chief Engineer,  
DPI & Roads, Odisha  
Chief Engineer (Employer)  
DPI & Roads  
Odisha, Bhubaneswar



# Negotiated Price

e-Procurement System (Development of Odisha)  
 Created By: Dr. Prakash Patel  
 Created Date/Time: 31-Dec-2017 04:11 PM  
 Tender ID: 2017\_E3001\_42779\_5 (GROUP Key to 45000 Key of SH-51 (Balance work))

Tender Inviting Authority: CHIEF ENGINEER (DPI & ROADS), ODISHA, BHUBANESWAR

Name of Work: Construction for widening & strengthening of existing Carriage way to 2 lane road from Bhadrak to Anandpur (Km. 00/0 to Km. 48/00) of SH-51 (Balance Work).

Contract No./ Bid Identification No. CE-DPI & R- 28/2017-18

SCHEDULE OF WORK / ITEMS					
Sl No	Bidder Name	Estimated Rate	Quoted Percentage	Quoted Rate in Figures and Words	
				Rate	Amount
1.00	M/s. Fortune group	34780002.0		2.70	Thirty Five Crore Seventy Three Lakh Four Hundred and Thirty Nine
2.00	Sigma Conder Private Limited	34780002.0		9.00	Thirty Seven Crore Only Two Lakh Eighteen Thousand Five Hundred and Seventy Seven

Lowest Amount Quoted By: M/s. Fortune group (357,00,43,70)

*MR*  
*2.65%*  
*357,00,43,70*  
*12,75,01,17,79*  
*123*  
*357,00,43,70*

*21/12/17*  
*21-12-2017*

The negotiated Rate of M/s. Fortune Group amounting to Rs. 35,73,56,484/- (Rupees thirty five crore seventy three lakh twenty six thousand four hundred eighty four) only being 2.65% excess over the estimated cost of Rs. 34,78,00,000/- (Including GST) is recommended for approval of Govt in work department.

*[Signature]*  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

*Test checked*

*[Signature]*  
 Sd/-  
 In-charge  
 of  
 the  
 work

The negotiated rate of M/s. Fortune Group amounting to Rs. 35,73,56,484/- (Rupees thirty five crore seventy three lakh twenty six thousand four hundred eighty four) only being 2.65% excess over the estimated cost of Rs. 34,78,00,000/- (Including GST) put to tender is accepted as approved by the Govt. in work Deptt vide WD No. 1967KAC-I-01/1803000/1-2017/dt. 02-02-2018

*[Signature]*  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

**FORTUNE GROUP**  
*[Signature]*  
**Fortune Group**  
 (Contractor)  
 Managing Partner

*[Signature]*  
**Chief Engineer,**  
**DPI & Roads, Odisha**  
*(Holding)*  
**DPI & Roads**  
 Odisha, Bhubaneswar

TDR of Work

मीमादी जमा स्वीड / TERM DEPOSIT RECEIPT

अहस्तांतरणीय / NON TRANSFERABLE



ओरियन्टल बैंक ऑफ कॉमर्स  
ORIENTAL BANK OF COMMERCE  
BHUBANESWAR - SAHIB NAGAR

TDR  
SSP/B 101090

ग्राहक आईडी.  
Customer ID : 27358298  
खाता सं.  
Account No. : 04953031055432  
जमाकर्ता  
Received From :  
M/S FORTUNE GROUP, PLEDGE TO  
EE, PMU, OSRP, BHUBANESWAR

तिथि  
Date : 28-02-2018  
प्रभावी तिथि  
Effective From : 28-02-2018  
राशि  
Amount : Rs. 71,43,000.00  
ब्याज दर  
Rate of Interest : 6.50% p.a.  
परिपक्वता राशि  
Maturity Amount : Rs. 81,68,122.00  
देय तिथि  
Due Date : (Auto Renew)  
28-03-2020  
प्राप्तकर्ता  
Payable To : AUTHORIZED SIGNA  
TORY  
जन्म तिथि (यदि अवयवक ही)  
D.O.B. (If minor) :  
जमा का प्रकार  
Type of Deposit : CDR  
ब्याज आवृत्ति  
Interest Frequency: Quarterly

राशि / The Sum of :  
Rupees Seventy One Lakh Forty  
Thousand Only

जमा की अवधि  
As a Deposit for 2 Years 1 Months 0 Days  
देय ब्याज  
Interest Payable : On Maturity

• देवी अवयवकों के लंबत से अवयवक पुनः बैंक के सामान्य नियमों से अवयवीन है / Notice of withdrawal subject to the general rules of the bank with respect to such deposits.  
• नामांकन बैंक में दर्ज है / Nomination Registered with the Bank :  
• परिपक्वता राशि का कसब पुनः अवयवक नियमों से अवयवीन है / Payment of maturity amount in cash is subject to Income Tax regulations.

\* Maturity value printed on this receipt is subject to the effect of TDS & compounding of interest thereon for remaining amount. Facility of renewal with respect to overdue deposit(s) after active effect is not available. Form 15G/15H is applicable as per IT act.

Address: AT PO CHARAMPA  
DIST BHADRAK  
BHADRAK - 756163

कृत ओरियन्टल बैंक ऑफ कॉमर्स  
For ORIENTAL BANK OF COMMERCE

*S. Nayak* ज.अ.सं. PA No. *R. 491* ज.अ.सं. PA No. R. 491  
प्रतिष्ठा इत्याचारकर्ता / Authorized Signatories

FORTUNE GROUP  
Fortune Group  
(Contractor)  
Managing Partner

*[Signature]*  
Chief Engineer,  
DPI & Roads, Odisha  
(Engineer)  
DPI & Roads  
Odisha, Bhubaneswar

Name of Work Construction for widening and strenghtening of existing carralgeway to two lane for Bhadrak-Anandpur(0/00 km to 43/00 km)of SH-53  
 (Balance work)  
 Agreement 34,79,07,000.00/-  
 Agreement Value  
 Agreement Period 11 Calendar Months  
 Name of Employer Chief Engineer, DPI & Roads  
 Name of Engineer LASA  
 Name of Contractor M/s Fortune Group  
 Date of Commencement  
 Date of Completion

**Work Programme (Quarterly)**

BOQ Item No	Description	Quarterly ending March 2018 (1 Month)		Quarterly ending June 2018 (3 Month)	Quarterly ending September 2018 (3 Month)	Quarterly ending December 2018 (3 Month)	Quarterly ending March 2019 (January)	Remarks
		Quantity	Amount (Rs)					
1	BILL NO.1 : SITE CLEARANCE		44541.42	532476.17	1172365.42	600168		
2	BILL NO.2 : EARTH WORKS		1593227.73	15721848.47	13750724.38	9636554.28	2971078.96	
3	BILL NO.3 : SUB-BASE AND BASE COURSES		0.00	31253241.32	26788492.56	31253241.32	0.00	
4	BILL NO.4 : BITUMINOUS COURSES		0.00	26165409.60	27380845.22	44751118.46	8220962.32	
5	BILL NO.5 : CULVERTS AND UNDERPASSES		1221607.25	15805513.21	3316604.64	4118641.50	2018179.00	
6	BILL NO.6 : BRIDGES		1556807.65	11407968.33	8166200.31	3410818.92	2401779.11	
7	BILL NO.7 : RETAINING WALL, DRAINAGE AND PROTECTIVE WORKS		175885.60	10089717.42	14317207.08	1759959.60		
8	BILL NO-8 : MISCELLANEOUS ITEMS.		418360.00	2516210.00	73010.00	6658450.00	16637728.10	
			<b>5010429.65</b>	<b>113492384.52</b>	<b>94965449.61</b>	<b>102188952.08</b>	<b>32249727.49</b>	

Note :

1. The above work programme is tentative in nature.
2. The work programme is applicable on availability of all GFC drawings and full hindrance free site on the date of commencement.
3. The work programme is valid for the original BOQ
4. The work programme is valid in standard prevailing favourable conditions
5. However the detailed work programme will be made in consultation with the Engineer-in-charge

FORTUNE GROUP

  
 Managing Partner

  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

Schedule of Key Equipments as per requirement of Bidding Document

Sl. No.	List of plants and equipments*	Owned/ Leased
1	Concrete batch mix plant (20Cum/Hr)	Own
2	Complete staging and shuttering materials	Own
3	Generator (100 KVA)	Own
4	Hot mix plant (60 to 90 TPH)	Own
5	Paver finisher hydrostatic with sensor control (100 TPH)	Leased
6	WMM Plant (175 TPH)	Leased
7	Mechanical paver for WMM work (100TPH)	Leased
8	Vibratory roller	Own
9	Transit Mixer	Own
10	Hydraulic excavator ( 60 cum/hour)	Own
11	Tandem Roller	Own
12	Dozer (150 cum/hr)	Leased
13	Front end loader (1 cum bucket capacity)	Leased
14	Tipper (of different capacity)	Own
15	Bitumen sprayer (1750 sqm/hr)	Own
16	Water tanker (6 KL)	Own
17	Motor grader (3.35m blade – 200 cum/hr)	Own
18	Pneumatic Tyred Roller (25 cum/hour)	Leased

**FORTUNE GROUP**  
  
**Fortune Group**  
**(Contractor)**  
**Managing Partner**

  
**Chief Engineer,**  
**DPI & Roads, Odisha**  
**(Employer)**  
**Chief Engineer**  
**DPI & Roads**  
**Odisha, Bhubaneswar**

**PLANTS AND EQUIPMENTS OWNED AND PROPOSED FOR THE PROJECT  
BY FORTUNE GROUP**

1.

Item of equipment: Motor Grader.		
Equipment information	Name of manufacturer Liu Gong India	Model and power rating MOTOR GRADER CLG414 BS III
	Capacity	Year of manufacture 2017
Current status	Current location	Bhadrak
	Details of current commitments	Bhadrak
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

2.

Item of equipment: Motor Grader.		
Equipment information	Name of manufacturer Larsen & Turbo Limited	Model and power rating MOTOR GRADER GD511-1
	Capacity	Year of manufacture 2009
Current status	Current location	Bhubaneswar
	Details of current commitments	Bhubaneswar
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> <b>Leased</b> <input type="checkbox"/> Specially manufactured	

3.

Item of equipment: Generator.		
Equipment information	Name of manufacturer Western Consolidated Pvt. Ltd.	Model and power rating MOTOR GRADER 4K1080TAI
	Capacity 125 KVA	Year of manufacture 2014
Current status	Current location	Bhadrak
	Details of current commitments	Bhadrak
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

**FORTUNE GROUP**  
*(Signature)*  
**Fortune Group**  
**(Contractor)**  
 Managing Partner

*(Signature)*  
**Chief Engineer,**  
**DPI & Roads, Odisha**  
**(Employer)**  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

4.

Item of equipment: MECHANICAL PAVER FINISHER HYDROSTATIC		
Equipment information	Name of manufacturer Apollo Earthmovers Limited	Model and power rating MECHANICAL PAVER AP 600
	Capacity	Year of manufacture 2012
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

5.

Item of equipment: MECHANICAL PAVER FINISHER		
Equipment information	Name of manufacturer Apollo Earthmovers Limited	Model and power rating PAVER FINISHER BHC-II-1702
	Capacity	Year of manufacture 2001
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

6.

Item of equipment: BATCH MIX PLANT		
Equipment information	Name of manufacturer SCHWING Stetter (India) Pvt.Ltd.	Model and power rating BATCHING PLANT CP45
	Capacity	Year of manufacture 2016
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

  
**FORTUNE GROUP**  
 Fortune Group  
 (Contractor)  
 Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

7.

Item of equipment: WMM PLANT		
Equipment information	Name of manufacturer Apollo Earthmovers Limited	Model and power rating WMM PLANT ANP-1500
	Capacity 128 TPH	Year of manufacture 2001
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

8.

Item of equipment: PNEUMATIC TYRED ROLLER		
Equipment information	Name of manufacturer GREAVES COTTON LTD.	Model and power rating PNEUMATIC TYRED ROLLER BW24 RH (CIF)
	Capacity	Year of manufacture 2012
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

9.

Item of equipment: HOT MIX PLANT		
Equipment information	Name of manufacturer APOLLO	Model and power rating HOT MIX PLANT – DM50
	Capacity 60-90 TPH	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

  
**FORTUNE GROUP**  
 Fortune Group  
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 Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

10.

Item of equipment: HYDRAULIC EXCAVATOR		
Equipment information	Name of manufacturer TELCO	Model and power rating EX350LCH
	Capacity 60-90 TPH	Year of manufacture 2012
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

11.

Item of equipment: HYDRAULIC EXCAVATOR		
Equipment information	Name of manufacturer HYUNDAI	Model and power rating R210-7
	Capacity	Year of manufacture 2013
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

12.

Item of equipment: DOZER		
Equipment information	Name of manufacturer BEML LTD.	Model and power rating BD50
	Capacity	Year of manufacture 2009
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

  
**FORTUNE GROUP**  
 Fortune Group  
 (Contractor)  
 Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar



13.

Item of equipment: TANDEM ROLLER		
Equipment information	Name of manufacturer WIRTGEN INDIA	Model and power rating HD 99
	Capacity	Year of manufacture 2015
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

14.

Item of equipment: VIBRATORY SOIL COMPACTOR		
Equipment information	Name of manufacturer WIRTGEN INDIA	Model and power rating HAMM 311
	Capacity	Year of manufacture 2015
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

15.

Item of equipment: VIBRATORY SOIL COMPACTOR		
Equipment information	Name of manufacturer ESCORTS CONSTRUCTION EQUIP.	Model and power rating S250
	Capacity	Year of manufacture 2010
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

**FORTUNE GROUP**  
 Fortune Group  
 (Contractor)  
 Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

16.

Item of equipment: VIBRATORY SOIL COMPACTOR		
Equipment information	Name of manufacturer VOLVO	Model and power rating SD110
	Capacity	Year of manufacture 2008
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

17.

Item of equipment: TRANSIT MIXTURE		
Equipment information	Name of manufacturer TATA	Model and power rating TRANSIT MIXTURE LPK 2518/38 HD
	Capacity	Year of manufacture 2011
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

18.

Item of equipment: TRANSIT MIXTURE		
Equipment information	Name of manufacturer TATA	Model and power rating TRANSIT MIXTURE LPK 2518/38 HD
	Capacity	Year of manufacture 2011
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

**FORTUNE GROUP**  
 Fortune Group  
 (Contractor)  
 Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

19.

Item of equipment: TRANSIT MIXTURE		
Equipment information	Name of manufacturer TATA	Model and power rating TRANSIT MIXTURE LPK 2518/38 HD
	Capacity	Year of manufacture 2011
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

20.

Item of equipment: BITUMEN SPRAYER		
Equipment information	Name of manufacturer AMMANN APOLLO	Model and power rating AMMANN APOLLO ATM-6000
	Capacity	Year of manufacture 2015
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

21.

Item of equipment: TIPPER (30 Nos.)		
Equipment information	Name of manufacturer TML	Model and power rating TML - LPK 1613
	Capacity	Year of manufacture 2016
Current status	Current location Bhadrak	
	Details of current commitments Bhadrak	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> <b>Owned</b> <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

**FORTUNE GROUP**  
 Fortune Group  
 (Contractor)  
 Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

22.

Item of equipment: WATER TANKER (5 Nos.)		
Equipment information	Name of manufacturer	Model and power rating
	Capacity 6 KL	Year of manufacture
Current status	Current location	Bhadrak
	Details of current commitments	Bhadrak
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

23.

Item of equipment: WATER TANKER (2 Nos.)		
Equipment information	Name of manufacturer	Model and power rating
	Capacity 6 KL Fitted With Ball Valve	Year of manufacture
Current status	Current location	Bhadrak
	Details of current commitments	Bhadrak
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

24.

Item of equipment: FRONT END LOADER		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current status	Current location	Bhubaneswar
	Details of current commitments	Bhubaneswar
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

FORTUNE GROUP  
  
 Fortune Group  
 (Contractor) Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

BID IDENTIFICATION NO-CE-DPI&R-21/2017-18

GOVERNMENT OF ODISHA

WORKS DEPARTMENT



DOCUMENTS FOR COVER - I

TECHNICAL BID DOCUMENTS / DETAILED BID CALL NOTICE  
FOR THE WORK

PACKAGE No. OSRP-CW-P1-P02(Balance)

“CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING  
CARRIAGEWAY TO TWO LANE FOR BHADRAK-ANANDPUR ROAD  
(0/000 KM TO 43/000 KM) OF SH - 53 (BALANCE WORK)

ESTIMATED COST: - Rs. 39,74,49,000

  
FORTUNE GROUP  
Fortune Group  
(Contractor)  
Managing Partner

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar



**OFFICE OF THE ENGINEER-IN-CHIEF (CIVIL) ODISHA  
NIRMAN SOUDHA, BHUBANESWAR.**

INVITATION FOR BIDS (IFB)

**Bid Identification No. CE-DPI & R- 21 /2017-18**

File No-C-IIM-IFB-06/2017 -

40677

October 28, 2017


1. The Chief Engineer, D.P.I & Roads, Odisha, Bhubaneswar on behalf of Governor of Odisha invites percentage rate bid in double cover system for the construction of works detailed in the table below from Super Class contractors registered with the State Governments and contractors of equivalent Grade / Class registered with Central Government / MES / Railways for execution of Civil works. The proof of registration from the appropriate authority shall be enclosed along with the bid.

Sl. No	Item	Details
1	Name of work	Construction for Widening and Strengthening of existing Carriageway to two lane for Bhadrak-Anandpur Road (0/000 km to 43/000 km) of SH - 53 (balance work)
2	Value of work	Rs. 34,79,07,000
3	Concerned E.E.	E.E. PMU, OSRP, Bhubaneswar
4	Security	Rs. 34,79,000/-
5	Cost of document	Rs.10,000/-
6	Class of bidder	Super Class
7	Period of completion	11 (eleven) calendar Months

2. Bid documents consisting of plans, specifications, the schedule of quantities and the set of terms and conditions and conditions of contract and other necessary documents can be seen in the website: [www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)
3. The bidder shall transfer online the Earnest Money Deposit /Bid Security of the amount specified for the work in the table Row.4 above as part of the bid through a process as mentioned under DTCN. Bidders desirous to hire machineries or equipments from outside the State or owned but deployed outside the state are required to transfer online 2% of the amount put to tender as Bid Security.
4. The Bid document will be available in the website: [www.tendersodisha.gov.in](http://www.tendersodisha.gov.in) from **November 02, 2017 to November 16, 2017** for online bidding.
5. The bidder must possess compatible Digital Signature Certificate (DSC) of Class-II or Class-III.
6. Bids shall be received only "online" on or before **11.00 AM of November 17, 2017**
7. Bids received online shall be opened at 11:15 Hours on November 17, 2017 in the office of the Engineer-in-Chief (Civil), Nirman Soudha, Unit-V, Bhubaneswar, Odisha in the

**FORTUNE GROUP**  
Fortune Group  
(Contractor)

Managing Partner

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

presence of the bidders who wish to attend. Bidders who participated in the bid can witness the opening of the bids after logging on to the site through DSC. If the office happens to be closed on the last date of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue.

8. After the date & time of receipt of bid is over, the original Bid security and Demand draft towards cost of Bid documents shall be submitted in the office of the undersigned on or before date & time of opening of Bid as specified at Para 07 above, during office hours on working days failing which the bid will be rejected.
9. The bidder shall transfer online the cost of bid document for Rs. 10,000.00 towards cost of the Bid through a process as mentioned under DTCN.
10. Other details can be seen in the bidding documents.
11. The authority reserves the right to cancel any or all bids without assigning any reason.
12. The Addendum / Corrigendum if any will be hosted in the website only.

Sd/-O.P.Patel  
Chief Engineer, DPI & Roads, Odisha

Memo No. 40678 / Dt. 28.10.2017

Copy forwarded to the Deputy Secretary to Government, Department of Information & Technology, Odisha, Bhubaneswar for information.

Sd/-O.P.Patel  
Chief Engineer, DPI & Roads, Odisha

Memo No. 40679 / Dt. 28.10.2017

Copy forwarded to the Director, Printing Stationary and Publication, Government of Odisha, Madhupatana, Cuttack -10 for information and necessary action. He is requested to arrange for publication in next issue of Odisha Gazette.

Sd/-O.P.Patel  
Chief Engineer, DPI & Roads, Odisha

Memo No. 40680 / Dt. 28.10.2017.

Copy submitted to the Engineer-in-Chief-cum-Secretary to Government of Odisha, Works Department, Bhubaneswar for favour of information.

Sd/-O.P.Patel  
Chief Engineer, DPI & Roads, Odisha

Memo No. 40681 / Dt. 28.10.2017

Copy submitted to the Engineer-in-Chief (Civil), Odisha, NirmanSoudh, Bhubaneswar/ Engineer-in-Chief (RW), Odisha, Bhubaneswar/ E.I.C., Water Resources, Odisha, Bhubaneswar for favour of information and wide circulation.

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Sd/-O.P.Patel  
Chief Engineer, DPI & Roads, Odisha

Memo No. 40682 / Dt. 28.10.2017

Copy submitted to the Chief Engineer, R.D.Q. & P, / Chief Engineer, Rural Works-I /II, / Chief Engineer, N.H, / Chief Engineer, P.H (Urban), Odisha, Bhubaneswar, / M.D, O.B & CC Ltd. Bhubaneswar for of information and wide circulation.

Sd/-O.P.Patel  
Chief Engineer, DPI & Roads, Odisha

Memo No. 40683 / Dt. 28.10.2017

Copy forwarded to all Collectors / all Superintending Engineers under (R&B) / all Superintending Engineers under Rural Works / all Superintending Engineers under National Highways / all Superintending Engineers under Minor Irrigation / all Executive Engineers under (R&B) wing for information and wide publication.

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**CHECK LIST TO BE FILLED UP BY THE BIDDER**

Sl. No	Particulars	Reference to DTCN Clause no.	Whether furnished		Refer Page no.
			Yes	No	
01.	Online Payment of cost of Tender paper Rs..10,000.00	04			
02.	Online Payment of Bid Security	06			
03.	Additional Performance Security in case the bid price/rate is less than the estimated cost put to Bid	28 (iii)			
04.	Copy of valid Registration Certificate	07			
05.	Copy of valid GST Registration Certificate and GSTIN	07			
06.	Copy of PAN Card	07			
07.	No Relationship Certificate in Schedule – A	13			
08.	Certificate of employment of Graduate Engineer / Diploma Holders Schedule-B	84			
09.	List of Plant and Equipments <sup>1</sup> to Be Deployed on the Contract Work Annexure-I of Schedule-C <sup>2</sup>	10			
10.	Capacity of other plants and equipments Annexure-II of Schedule-C	10			
11.	Certificate by the Executive Engineer under whom the machineries/ equipments are deployed as per Annexure-III of Schedule-C	10			
12.	Time Schedule for movement of equipments / machineries available with the Bidder from one site to work site as per Annexure-IV of Schedule-C	10			

<sup>1</sup> Proof of ownership of Tools & Plants and machineries are to be furnished in shape of copy of invoices / required sale deed in case of 2<sup>nd</sup> purchase / required lease deed with owner ship documents of the leaser duly attested.

<sup>2</sup> In case of centering & shuttering materials certificate of the Executive Engineer of Works Department within 90 days of last date of receipt of Bid is allowed.

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13.	Works Experience Certificate of projects <b>executed</b> that are similar in nature to the work Schedule-D1	14			
14.	Works Experience Certificate of projects in progress that are similar in nature to the work Schedule-D2	14			
15.	Information regarding current litigation, debarring / expelling of the Bid or abandonment of the work by the Bidder Schedule-E	11			
16.	Affidavit Schedule-F	11			
17.	Statement showing the value of existing commitments and on going works as well as stipulated period of completion counter signed by Executive Engineer. Scheduled -G	12			
18.	Total value of Civil Engineering construction work performed in the last five year with certificate from Chartered Accountant. Scheduled -H	12			
19	Bid Capacity	12			

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## Bid Data

Clause No.	Relevant data
1	<p><u>Eligible Bidders:</u></p> <p>Super Class contractors registered with the State Governments and contractors of equivalent Grade / class registered with Central Government / MES / Railways for execution of civil works on production of definite proof from the appropriate authority in prescribed form</p> <p><u>Name of the Work :</u></p> <p>Construction for Widening and Strengthening of Existing Carriageway to Two Lane for Bhadrak-Anandpur Road (0/000 km to 43/000 km) of SH - 53 (Balance Work) ; PACKAGE No. OSRP-CW-P1-P02(Balance)</p> <p><b>Scope of Work: As provided in Drawing -Volume-I &amp; Volume -II</b></p> <p><u>Estimated cost :</u></p> <p>Rs. 34,79,07,000.00 (Rupees Thirty Four crore seventy nine lakh seven thousand)</p> <p><u>BID Identification No. :</u> CE-DPI &amp; R-21/2017-18</p> <p><u>Officer Inviting Bid:</u></p> <p>Chief Engineer (DPI &amp; Roads), Odisha, Nirman Soudha, Bhubaneswar Ph: 0674-2393122 Email: <a href="mailto:pmuosrp@gmail.com">pmuosrp@gmail.com</a></p>

  
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1 Contd.	<p><u>Executive Engineer concerned</u></p> <p>(a) Executive Engineer concerned – Executive Engineer, Contract Management, PMU, HQ at Bhubaneswar.</p> <p>(b) Employer’s Representative – Executive Engineer, Bhadrak (R&amp;B) Division, Bhadrak</p> <p>(c) Engineer-in-charge of this work – Resident Engineer-P02 LEA Associates South Asia Pvt Ltd Kalyani Nagar, Bhadrak</p> <p><u>Accepting Authority ( also referred to as Employer in the document)</u> Chief Engineer (DPI &amp; Roads), Odisha</p> <p><i>Note: Any change in the authorities or powers of the officers on account of any order of the Government, shall be subsequently effected accordingly in the contract.</i></p>
2	<p>Bid documents are available from 10.00AM of 02.11.2017 up to 5.00PM of 16.11.2017</p> <p>Last date &amp; time of submission of Bid: Time 11.00 AM on Date:17.11.2017</p>
3	Opening of Technical Bid Documents (Cover-I) at 11.15 Hours on 17.11.2017
4	Cost of Bid Document : Rs.10,000.00 to be remitted online
6	<p>Bid Security to be remitted on line for Rs. 34, 37, 000/- (Additional 1% Bid Security i.e. additional amount of Rs. 34,37,000/- , Totalling to Rs. 68,74,000/- if machineries are deployed outside the State)</p> <p><i>Note: Bid Security and Earnest Money Deposit mean the same for the purpose of this Bid.</i></p>
8	Time Period: 11 Calendar months
9	Bid validity: 90 days
10 (v)	Minimum period of contract / agreement / lease deed of equipment and machineries : 11 (Eleven calendar months)

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12	<p>For calculation of B, the period of completion of works shall be 11 months. The Bidder shall submit the Bid Capacity calculation.</p> <p>Note: <i>Joint ventures are not allowed. Hence Bid capacity for JV does not arise.</i></p>
14 (i)	<p>Bidder shall provide Construction Experience of ROAD / BRIDGE WORKS ONLY for this Bid. Similar nature of work means experience in execution of following items of road works and CD works, in any one year.</p> <p>(i) Value of work to be considered as similar work: Rs. 14.00 crore  (ii) Items GSB &amp; WMM : 18000 cum  (iii) Items BM, DBM, SDBC &amp; BC : 4600 cum  (iv) Items Concrete (M 20 and above) : 3600 cum</p> <p>The bidder in its name should furnish list of similar nature of work satisfactorily completed in Schedule-D1 and list of works in progress in Schedule-D2.</p>
23	<p>Refer to <b>Drawing -Volume-I &amp; Volume -II</b> of the Bid Document.</p> <p>The scope of the work has been provided in the Volume-I. Before commencement of the work, the contractor shall record the status of balance works jointly confirmed by the Engineer-in-Charge and the Employer's Representative i.e. Executive Engineer, Bhadrak (R&amp;B) Division, Bhadrak, along with Video Recording of the entire stretch.</p>
28(iii)	<p>Amount of Additional Performance Security:  <i>Differential cost i.e. Estimated cost put to tender (Rs. 34,79,07,000.00 ) minus the amount quoted by the bidder rounded upto three digits.</i>  Pledged in favour of : Executive Engineer, PMU , OSRP,  Payable at : Bhubaneswar  Type of instrument: <i>Term Deposit Receipt</i></p>
34.(iv)	<p>The security will be refunded after a <b>period of 365 days</b> of completion of the work and payment of the final bill.</p>
96	<p>Defect Liability Period : 365 days</p>

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## DETAILED TENDER CALL NOTICE FOR ROAD AND BRIDGE WORKS.

### General Conditions

1. Sealed PERCENTAGE RATE BIDS are invited ONLINE in double cover system from eligible Bidders to be eventually drawn in P.W.D. FORM P-1 for the work and estimated cost as mentioned in Bid Data. The procedure to participate in ONLINE bidding process-e-Procurement is attached at Appendix-I to the DTCN. Procedure for Electronic receipt, accounting and reporting of Cost of Tender Paper and Bid Security on submission of bids has been provided at Appendix – II to the DTCN.
  - i. The adopted format for percentage rate is same as that of the form adopted for item rate Bids but the word “Item rate” shall be replaced by “Percentage rate” and the contract will be named as P-1.
  - ii. Bids from Joint Ventures are not allowed.
2. The Bid documents are available from official website of Government: <https://Bidsodisha.gov.in> during the time and date as mentioned in Bid Data.

The last date and time of submission of Bid has been mentioned in Bid Data.
3. The Technical Bid documents (Cover-I) will be opened by the assigned officer in the office of the Engineer-in-Chief (Civil), Odisha at the time and date as mentioned in Bid Data in the presence of the bidders or their authorised representatives who wish to attend.
4. The cost of Bid documents is to be remitted online towards cost of each bid respectively separately for the amount as mentioned in Bid Data.
5. The bid is to be submitted in two covers.
  - i. Cover-I is to contain scanned GST Registration Certificate and GSTIN, scanned copy of registration certificate, PAN card, undertaking/certificates duly filled, affidavit, work experience certificate and documents required as per the relevant clauses of this DTCN. Also the foreign companies/bidders from outside the State who intend to participate in the tender and who have not been registered under the VAT Act as they have not started any business in the State up to 30.06.2017,

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are allowed to participate in the tender without having any VAT clearance certificate subject to condition that they should submit the undertaking in the form of an Affidavit as per Schedule-G.

- ii. Cover-II is to contain the Price Bid and Scanned copy of Additional Performance Security duly filled in and signed by the bidder.
6. The bidder shall remit the Bid Security online as part of bid of the amount as specified in the Bid Data. Bidders desirous to hire machineries or equipments from out side the State or owned but deployed outside the State are required to furnish the Bid Security online as specified in the Bid Data and as per the above terms and conditions.
  7. The lowest preferred bidder is required to produce documents viz. original Registration, GST Registration Certificate, GSTIN, PAN card after opening of Technical Bid for verification purpose in the latter stage along with the original documents relating to ownership and hiring of plants and machineries mentioned at Annexure-I of Schedule-C, within five days from the date of opening of the tender (price bid). Furnishing scanned copy of such documents along with the Technical Bid is mandatory otherwise his/ her bid shall be declared as nonresponsive and thus liable for rejection.
  8. The work is to be completed in all respects within the time period as specified in the Bid Data. Bidders whose bid is accepted must submit a work programme at the time of execution of Agreement.
  9. All bids received will remain valid for a period as specified in the Bid Data after the deadline date for submission of bids and validity of bids can also be extended if agreed to by the bidder and the Department.
  10. The Contractors are required to furnish evidence of the following.
    - i. The Contractors are required to furnish evidence of ownership of principal machineries/equipment in Annexure-I of Schedule-C for which contractor shall have to secure minimum 80% of marks failing which the Bid shall be liable for rejection.
    - ii. In case the contractor executing several works he is required to furnish a time schedule for movement of equipment/machinery from one site to work site of the Tendered work in Annexure-IV of Schedule-C.

  
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- iii. The contractor shall furnish ownership documents for those machineries which he is planning to deploy for the tendered work if these are not engaged and produce certificate from the Executive Engineer as per Annexure – III of Schedule-C under whom these are deployed at the time of Biding as to the period by which these machines are likely to be released from the present contract. Certificate from the Executive Engineer of Government of Odisha or Engineer-in-Charge of the project (in case of non-Government projects) under whose jurisdiction the work is going on, shall not be more than 90 days old on the last date of receipt of Bid.
- iv. In case the contractor proposes to engage machineries and equipments as asked for in the Bid document, owned or hired but deployed out side the State, he/she is required to furnish additional 1% Bid Security. The entire bid security including the additional bid security shall stand forfeited in case the contractor fails to mobilize the machineries within a period as to be able to execute an item of work as per original programme which will be part of the agreement.
- v. The contractor intending to hire/lease equipments/machineries are required to furnish proof of ownership from the company/person providing equipments/machineries on hire/lease along with contracts/ agreements/lease deed and duration of such contract. The contracts/agreements/lease deed should be on long term basis for a minimum period of **as mentioned in Bid data** from the last date of receipt of Bid documents.
11. An applicant or any of its constituent partners of whose contract for any work has been rescinded or who has abandoned any work in the last five years, prior to the date of the bid, shall be debarred from qualification. The bidder is to furnish scanned copy an **affidavit** at the time of submission of bid about the authentication of bid documents including Bank guarantee. An **affidavit** to this effect is to be furnished in **Schedule-F**. **Non furnishing** of the scanned copy of information in **Schedule - E** and required affidavit in **Schedule – F**, the bid document will be **summarily rejected**.

12. **Bid Capacity**

Applicants who meet the minimum qualification criteria will be qualified only if their available bid capacity at the expected time of bidding is more than the total estimated cost of the works. The available bid capacity will be calculated as under.

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Assessed Available Bid Capacity= (A\*N\*2-B), where

A= Maximum value of works executed in any one year during the last five years (updated to the current price level)rate of inflation may be taken as 10 per cent per year(escalation factor) which will take into account the completed as well as works in progress,

B= Value at current price level of the existing commitments and ongoing works to be completed during the period of completion of works for which bids are invited as specified in the **Bid Data** and

N= Number of years prescribed for completion of the works for which the bids are invited. (for work completion period less than one year the value may be taken as one year)

*Note: In case of a Joint Venture the available bid capacity will be applied for each partner to the extent of his proposed participation in the execution of the works.*

The statement showing the value of existing commitments and ongoing works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer-in-Charge not below the rank of an Executive Engineer.

#### Escalation factor

Following enhancement factors will be used for the costs of works executed and the financial figures to a common base value for works completed in India.

<u>Year before</u>	<u>Multiplving factor</u>
One	1.10
Two	1.21
Three	1.33
Four	1.46
Five	1.61

(Applicant should indicate actual figures of costs and amounts for the work executed by them without accounting for the above mentioned factors)

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In case the financial figures and value of completed works are in foreign currency the above enhanced multiplying factors will not be applied. Instead current market exchange rate (State Bank of India B.C. selling rate as on the last date of submission of the bid) will be applied for the purpose of conversion of amount in foreign currency into Indian rupees.

The information on Bid Capacity as on the date of this bid is to be furnished as per the format in **Schedule –G**.

Total value of Civil Engineering construction work performed in the **last five years** are to be furnished for which **certificate from Chartered Accountant is to be furnished in Schedule –H**.

2012-2013-----  
2013-2014-----  
2014-2015-----  
2015-2016-----  
2016-2017-----

Base year shall be taken as 2017-18.

13. **No Relation certificate.**

The Bidder shall furnish a certificate along with the Bid to the effect that he is not related to any officer in the rank of an Assistant Engineer & above in the state P.W.D. or Assistant/Under Secretary & above in the Works Department. If the fact subsequently proved to be false, the contract is liable to be rescinded. The earnest money & the total security will be forfeited & he shall be liable to make good the loss or damages resulting for such cancellations. The proforma for no relationship certificate is contained in a separate sheet vide Schedule-A.

14. Each bidder is to submit a note regarding his experience along with the bid.

- i. On works as mentioned in Bid Data. The bidder should qualify the Criteria of Similar nature of work as mentioned in Bid Data failing which the bid is liable for rejection.
- ii. The bidder in its name should furnish list of similar nature of work satisfactorily completed in Schedule-D1 and list of similar nature of works in progress having completed more than 90% value of contract in Schedule – D2.

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*[Signature]*  
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15. If an individual makes the application, the individual should sign above his full type written name and current address.
16. If the application is made by proprietary firm, it shall be signed (with DSC) by the proprietor & furnish full type written name and the full name of his firm with its current address in a forwarding letter.
17. If the application is made by a firm in partnership, it shall be signed (with DSC) by a partner holding power of attorney for the firm in which case a certified copy of the power of attorney shall accompany the application. A certified copy of the partnership deed and current address of all partners of the firm shall also accompany the application.
18. If the application is made by a limited company or a corporation, it shall be signed (with DSC) by a duly authorized person holding power of attorney for signing the application in which case a certified copy of the power of attorney shall accompany the application. Such limited company or corporation will be required to furnish satisfactory evidence of its existence along with the technical bid.
19. The Bid should be strictly in accordance with the provisions as mentioned in the Bid Document. Any change in the wordings will not be accepted.
20. No bidder will be permitted to furnish their bid in their own manuscript papers. All information should be submitted online in English.
21. Submission of more than one Bid by a bidder for a particular work will liable for rejection of all such Bid papers.
22. **Percentage Rate Contract** (vide Works Department letter no.8310 dt.17.05.2006)

**In case of Percentage Rate Bid,**

- (i) The Bidder has to quote percentage excess or less over the estimated cost in the Price Bid appended to the tender document. The estimated cost is excluding GST. The rates of item basing on which estimated cost has been derived are excluding GST on different components to arrive at such rates.
- (ii) The Bidder participating for more than one work may offer conditional rebate. Rebate offer submitted in a separate letter duly scanned shall be opened, declared and recorded first. The rebate so offered shall be considered after opening of all packages called in the same Bid Notice. The Contractors who wish to Bid for

  
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two or more works shall submit separate Bid for each. Each Bid shall have the Bid Identification No., Name & Sl. No. of the work (as per IFB) to which they shall refer.

- (iii) The Bidder will quote percentage excess/less up to two decimal point only. If he writes the percentage excess/less up to three or more decimal points, the **second** decimal point shall only be considered without rounding off (vide Works Department O.M No- 7885 dtd. 23.07.2013).
- (iv) In the contract P-1, the contractor is required to maintain a certain rate of progress specified in the contract.
- (v) The quantities mentioned can be increased or reduced to the extent of 10% for individual items subject to a maximum of 5% over the estimated cost. If it exceeds the limit stated above, prior approval of competent authority is mandatory before making any payment.
- (vi) The period of completion is fixed and can not be altered except in case of exceptional circumstances with due approval of next higher authority.
- (vii) Bills for Percentage Rate Bids shall be prepared at the estimated rates for individual items only and the percentage excess or less shall be added or subtracted from the gross amount of the bill.

As per system requirement for ONLINE bidding, the bidder should follow the instructions as described below :

- a) Bidders are advised to submit only one Financial Bid (Cover-II) i.e. the original BOQ uploaded by publisher after entering the relevant fields without any alternation/ deletion / modification. Multiple BOQ submission shall lead to cancellation of Bid.
- b) GST as applicable on works contract shall be paid over the bill amount at the time of payment of bill.

23. The bidder shall carefully study the tentative drawings and specifications applicable to the contract as provided in the Bid Data and all other documents. Complaint at a future date that plans and specifications have not been seen by the bidders shall not be entertained.

  
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24. The drawings if any furnished with the bid are tentative and subject to revision or modification during the execution as per actual necessity and detail test conducted. But the rate quoted by the bidder will hold good in case of such modification of drawings during the time of execution and shall in no way invalidate the contract and no extra monetary compensation will be entertained. The work shall however be executed as per the Good for Construction (GFC) drawing submitted by the Contractor and approved by the Engineer-in-Charge.
25. Every bidder is expected to inspect the site of the proposed work before quoting his rates.

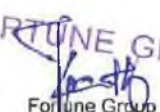
(i) The bidder should also inspect the quarries and approach roads to quarries and satisfy himself/themselves about the quality and availability of materials. In every case the materials must comply with the relevant specifications. Complaints at future date that the availability of materials at quarries has been misjudged can not be entertained.

(ii) Amendment to Para 3.4.16 (a) (vii) of OPWD Code Vol.-I by substitution:

For the purpose of estimate, the approved quarry lead is to be provided judiciously. Engineers in charge would be responsible for ensuring the quality of the materials supplied. The contractors would, however, be responsible for procurement of materials from authorized sources and voluntarily disclose the source of procurement for the purpose of billing. Besides, the bidder would be required to submit the details of quarry for procurement while submitting the bids.

26. The offer of bidder shall be inclusive of cost of construction and maintenance of island, ferry service, fair-weather road, service road, foot bridge, pylon base, winch stand and derrick stand etc. as required for the work, except for the items specified in the estimate.
27. Deleted here and covered at Clause 95.
28. (i) Amendment to Appendix – IX, Clause – 36 of OPWD Code Vol.-II by inclusion.

If the rate quoted by the bidder is less than 15% of the Tendered amount, then such a bid shall be rejected and the Bid shall be finalized basing on merits of rest of the bids. But if more than one bid is quoted at 14.99% (upto two numbers after the decimal will be considered) less than the estimated cost, the Bid accepting authority will finalize

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the Bid through a transparent lottery system, where all bidders / their authorized representatives, the concerned Executive Engineer and DAO will remain present.

(ii) Clause 36 of Appendix-IX of O.P.W.D. Code, Volume-II by inclusion.

If the rate quoted by the SC and ST Category Contractor comes to 14.99% (upto two numbers after the decimal will be considered) less than the estimated cost after availing 10% price preference as per Para-2 of Works Department Resolution No.27748 dtd.11.10.1977, then the Bid shall be finalized by the Bid accepting authority through a transparent lottery system along with other category of contractors whose rates are 14.99% less than the estimated cost” as per Works Department Memorandum No.10224 dtd.01.09.2015.

(iii) Amendment to Para-3.5.5 (v) of OPWD Code Volume-I by inclusion (Vide Works Department Office Memorandum 14299 dtd.03.10.2017 (Additional performance Security)

Additional Performance Security shall be obtained from the bidder when the bid amount is less than estimated cost put to tender. In such an event, only the successful bidder who has quoted less bid price/ rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security (APS) within seven days as specified in the Bid data, otherwise the bid shall be cancelled and the security deposit shall be forfeited. Further, proceeding for blacklisting shall be initiated against bidder.

(iv) If the Contractor fails to complete the work, the amount so furnished as Additional Performance Security (APS) will be forfeited in addition to the other penal clauses, if any, to be imposed.

29. In case of any discrepancy in printing or omissions of statutory specifications or any other part or portion of the approved document during download of the bid document, the decision of the officer inviting the bid will be binding on the bidder.
30. The Bid containing extraneous conditions not covered by the IFB Notice are liable for rejection and quotations should be strictly in accordance with the IFB Notice. Any change in the wording will not be accepted.
31. i) Schedule of quantities are accompanied in Cover-II (Price Bid). It shall be definitely understood that the Government does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable

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for alternation or omissions, deductions or alternations set forth in the conditions of the Contract and such omissions, deductions, additions or alternations shall no way invalidate the contract and no extra monetary compensation, will be entertained.

- ii) The quantity mentioned can be increased or decreased to the extent of 10% for individual items subject to a maximum of 5% over the estimated cost. If it exceeds the limit stated above, prior approval of competent authority is mandatory before making any payment.
  - iii) If any bonafide mistake is pointed out as regards the rate of analysis or specification there of in uploaded BOQ, in the post drawal stage of the Agreement, the same can be corrected in pursuance to Rule – 33 Appendix – IX of OPWD Code Vol.-II and payment if any made or that account shall be recovered from the subsequent Running Account Bill or any other dues arising out of in the said contract.
32. The authority reserves the right to reject any or all the Bids received without assigning any reasons thereof what so ever.
33. The bid security will be retained and dealt with as per the terms and conditions of the OPWD Code.
34. i) The bidder/Bidder whose bid has been accepted will be notified of the award by the Engineer-in- charge prior to expiration of the validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the conditions of Contract called the “Letter of Acceptance”) will state the sum that the Engineer-in-charge will pay the contractor in consideration of the execution, completion and maintenance of the Works by the contractor as prescribed by the contract (Hereinafter and in the contract called the “Contract Price”).
- ii) The notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security (Initial Security Deposit) and additional performance security as per Clause 28 of DTCN which including the amount already deposited as bid security shall be 2% of the value of the tendered amount (excluding 1% deposited towards hiring of equipments/ machineries from outside the State if any) and sign the agreement in the PWD Form P-1 for the fulfillment of the contract in the office of the Executive Engineer and payable at the place as specified in the Bid Data or as directed. The security deposit

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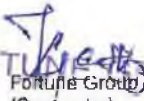


together with the earnest money and the amount withheld according to the provision of P1 agreement shall be retained as security for the due fulfillment of this contract and additional performance security in accordance with the provisions of the agreement.

- iii) The agreement will incorporate all correspondence between the officer inviting the bid and the successful bidder. Within 15 days following the notification of award along with the Letter of Acceptance, the successful bidder will sign the agreement and deliver it to the Engineer-in-Charge. Following documents shall form part of the agreement.
- a) The notice inviting bid, all the documents including additional conditions, specifications and drawings, if any, forming the bid as issued at the time of invitation of bid and acceptance thereof together with any correspondence leading thereto & required amount of performance security including additional performance security.
- b) Standard P.W.D. Form P-1 with latest amendments.
- iv) Failure to enter in to the required agreement and to make the security deposit as above shall entail forfeiture of the Bid Security. No Bid shall be finally accepted until the required amount of initial security deposit and additional performance security deposit are received by the Officer inviting the bid. The security will be refunded after a period mentioned in Bid Data, and will not carry any interest.
- v) As concurred by Law Department & Finance Department In their U.O.R. No 848 dtd.21.05.97 J.O.R.No.202 W.F.D. dtd.06.03.98 respectively the E.M.D. will be forfeited in case, where Bidders back out from the offer before acceptance of Bid by the competent authority.
- vi) **Amendment to Para 3.5.18 Note – viii of OPWD Code Vol.-I (Works Department Office memorandum No.12366 dt.08.11.2013)**

Before acceptance of Bid, the successful bidder will be required to submit a work programme and mile stone basing on the financial achievement so as to complete the work within the stipulated time and in case of failure on the part of the agency to achieve the mile stone, liquidated damage will be imposed.

35. That for the purpose of jurisdiction in the event of disputes if any of the contract would be deemed to have been entered in to within the State of Odisha and it is agreed that

  
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neither party to the contract will be competent to bring a suit in regard to the matter by this contract at any place outside the State of Odisha.

36. The contractor should be liable to fully indemnify the department for payment of compensation under workman Compensation Act. VIII of 1923 on any account of the workmen employed by the contractor and full amount of compensation paid will be recovered from the contractor.
37. Bidders are required to abide by the fair wages clause as introduced by Govt. of Odisha, Works Department Letter No.-VIII-R 8/5225 Dtd. 26.02.55 and No. IIM- 56/628842(5) Dtd.27.09.61 as amended from time to time.
38. In case of any complaint by the labour working about the non payment or less payment of his wages as per latest minimum Wages Act, the Executive Engineer will have the right to investigate and if the contractor is found to be in default, he may recover such amount due from the contractor and pay such amount to the labour directly under intimation to the local labour office of the Govt. The contractor shall not employ child labour. The decision of the Executive Engineer is final and binding on the contractor.
39. The contractor shall bear cost of various incidentals, sundries and contingencies necessitated by work in full within the following or similar category.
  - a. Rent, royalties and other charges of materials, GST, ferry, tolls conveyance charge and other cost on account of land and building including temporary building and temporary electric connection to work site as well as construction of service road and diversion road and its maintenance till completion of work as required by the bidders for Collection of materials, storage, housing of staff or other purpose of the work. No bidder will however be liable to pay Govt. for temporary occupation of land owned by Govt. at the site of the work.
  - b. Labour camps or huts necessary to a suitable scale including conservancy and sanitary arrangements therein to the satisfaction of the local health authorities.
  - c. Suitable water supply including pipe water supply wherever available for the staff and labour.
  - d. Fees and duties levied by the municipal, canal or water supply authorities.
  - e. Suitable equipments and wearing apparatus for the labour engaged in risky operations.

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- f. Suitable fencing barriers, signals including paraffin and electric signal where necessary at works and approaches in order to protect the public and employees from accidents.
- g. Compensation including the cost of any suit for injury to persons or property due to neglect of any major precaution also become payable due to operation of the workmen compensation act.
- h. The contractor has to arrange adequate lighting arrangement for the work where ever necessary at his own cost.
40. After the work is completed, all surplus materials should be removed from the site of work. Preliminary work such as vats, mixing platforms etc. should be dismantled and all materials removed from the site and premises left neat and clean, and this shall be incidental to the work.
41. No payment will be made for bench marks, level pillars profiles and benching and leveling the ground where required. The percentage rate to be quoted should be inclusive of carriage of all materials and incidental to the work.
42. It should be understood clearly that no claim what-so-ever will be entertained to extra items of works, extra quantity of any item besides agreement quantity unless written order is obtained from the Engineer-in-charge and rate settled before the extra items of work or extra quantity of any items of work is taken up.
43. The bidder shall have to abide by the C.P.W.D. safety code rules introduced by the Government of India, Ministry of work Housing and Supply in their standing order No-44150 dtd.25.11.57.
44. Bid documents consisting of plans, specifications, the schedule of quantities and the set of terms and conditions of contract and other necessary documents can be seen in all the offices issuing the documents and office of the Engineer-in-Chief (Civil) during office hours everyday except on Sundays and Public Holidays till last date of sale and receipt of bid documents. Interested bidders may obtain further information at the same address. But it must be clearly understood that the bids must be received in order and according to the instructions.
45. Bidders are required to go through each clause of P.W.D. Form P-1 carefully in addition to the clause mentioned herein before Biding. In case of ambiguity, the clauses of P.W.D Form P-1 with latest amendments shall **supersede** the condition of D.T.C.N.

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46. All materials and works for road and bridges should conform to relevant Codes published by BIS and IRC. Specification for Road & Bridge work (5<sup>th</sup> Revision) issued by MoSRT&H, Govt. of India along with the shall be the guiding book for execution, quality assurance, specification and measurement for all items of Road & Bridge works.
47. Steel shuttering & centering shall be used which shall be lined with suitable sheeting and made leak proof and water tight.
48. The Department will have the right to inspect the scaffolding, centering and shuttering made for the work and can reject partly or fully such structures if found defective in their opinion.
49. Concrete should be machine mixed unless otherwise ordered in writing by the Engineer-in-Charge. The contractor should arrange his own batch mix plant, vibrator, and pumps etc, for this purpose at his own cost.
50. Cement shall be used by weight.
51. The bidder should arrange the materials like Steel, Cement, paint and bitumen etc. of approved quality and specification at his own cost for completion of the work with the time schedule. No extension of time will be granted on the application of the bidder due to delay in procurement of materials.
52. The bidder will be responsible for the loss or damage of any departmental materials during transit and in the execution of the work due to reasons what – so-ever and the cost of such materials will be recovered from the bills at stock issue rates or market rates whichever is higher.
53. If the bidder removes Government materials supplied to him from the site of work with a view to dispose of the same dishonestly, he shall be in addition to any other liability civil or criminal arising out of his contract be liable to pay a penalty equivalent to five times of the price of the materials according to the stock issue rate or market rate whichever is higher. The penalty so imposed shall be recovered at any time from any sum that may then or at any time thereafter become due to the bidder or from his security deposit or from the proceeds of sale thereof.
54. The selected bidder may take delivery of departmental supply according to his need for the work issued by the Sub-Divisional office in-charge subject to the availability of the materials. The bidder shall make all arrangement for proper storages of materials but no cost for raising shed for storage, pay of watchman etc. will be borne by the Department. The Department is not responsible for considering the theft of materials at site. It is the


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contractor's risk. Under any such plea if the bidder stops the work, he shall have to pay the full penalty as per clause of P-1 agreement.

55. DELETED (As Department will not supply any material).
56. DELETED (As Department will not supply any material).
57. DELETED (As Department will not supply any material).
58. DELETED (As Department will not supply any material).
59. The tentative alignment of the proposed bridge has been shown in the enclosed drawing. However, the department has got the right to shift the actual bridge position within a reasonable range in both U/s and D/s.
60. The contractor should at his own cost arrange necessary tools and plants required for the efficient execution of work and the rates quoted should be inclusive of the running charges of each plant and cost of conveyance.
61. After completion of the work the contractor shall arrange at his own cost all requisite equipments for testing one unplugged well and specified span free of cost as directed by the Engineer-in-Charge and bear the entire cost of the test.
62. No extra payment will be made for the jungle clearance for taking earth from the borrow areas. Earth work from cutting shall be economically utilized in filling.
63. If required the stack of road metal and gravel will be measured in boxes of 1.5m × 1.5 M × 0.5M which will be taken as 1.5m × 1.5M × 0.44M = 1 Cum. The soling stones will be measured in the suitable stacks with deduction for voids @ 1/6 of volume or more depending upon the looseness of stacking which would be determined on actual observation and deduction.
64. The machineries, if available, with the department may be supplied on hire as per normal hire charges of Government in force at the time of execution of work subject to the condition that the contractor will execute in advance an agreement with the Engineer-in-Charge.
65. In the event of any delay in the supply of Department road roller for unavoidable reasons, no extension of time will be granted to the contractor under any circumstances.

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66. Sinking of wells shall be measured as per MoSRT&H Specifications for Road & Bridge works (5<sup>th</sup> Revision).
67. All method of sinking including pneumatic sinking by employment of divers and other equipment shall be included in the rate. Removal of trees, logs of trees or isolated boulders and de-silting of sand or earth from existing well, rectification of tilt and shift if any, etc. shall also be included within the rate.
68. The depth of foundation indicated on the drawing are provisional but these may be altered if necessary in the light of the nature of strata indicated by boring which must be taken in advance of actual execution of the foundation.
69. When resort has to be made for sinking the wells by air lock and vacuum chamber method rates there of shall be pre-decided by authority accepting the Bid.
70. Construction of coffer dam or island or the work of open excavation or dressing or labour for laying well curbs shall be included in the rate.
71. For concreting the bottom plugs of well under the method of providing concrete should be either with tremie or any other approved method as well be directed by the Engineer-in charge with 10% extra cement to be used for under water concreting without any extra cost to the Department.
72. No claim will be entertained in respect of difficulties during sand blowing met with during sinking of wells.
73. No part of the bearing for the superstructure shall be allowed to rest on the noses of the piers.
74. Tor Steel mesh reinforcement shall be provided in the concrete of the girders on the caps of the piers / abutments immediately in contact with the bearing to ensure proper distributions of heavy load.
75. Lugs and grooves shall be provided in the bearings to prevent them from skewing and getting out of alignment.
76. Inspection by the Director General of Supplies and Disposals of the bearing during manufacture and X-Ray or Gama Ray examination of castings thickness more than 8 inches and load testing of bearing if considered necessary shall have to be carried out at the contractor's cost .The same procedure for testing may have to be followed for ribbed bearing manufactured by widening.

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77. a) It should be clearly understood that the joints of the bars are to be provided with lapping, welds or bolts nuts as will be directed by the Engineer-in-charge.
- b) Concrete test specimens 150mm × 150mm × 150mm in size (whether plain or reinforced concrete) for the testing shall be taken for each structural member by a representative of the contractor in the presence of responsible officer of the rank not lower than that of an Assistant Executive Engineer or sub-Divisional Officer. The contractor shall bear the cost so involved in testing. The test specimen in cube should be carried out in the Departmental Quality Control and Research Laboratory of Cuttack or Bhubaneswar. Test should be carried out in accordance with the stipulation in Bridges code section-III.
- c) Test specimens shall be formed carefully in accordance with the standard method of taking test specimen and no plea shall be entertained later on the grounds that the casting of the test specimen was faulty and that the result of the specimen did not give a correct indication of the actual quality of concrete.
- d) Plain concrete and reinforced concrete specimens will be tested in Government Test Houses at Alipore or Quality Control and Research Laboratory at Bhubaneswar. Cost of testing of all specimens and samples will be borne by the Contractor.
- e) The construction of well staining by injecting cement or grout in coarse aggregate placed in position shall not be permitted.
78. The thickness of cement concrete in top plugging should be as per Departmental drawing.
79. In well sinking, the maximum tolerance permissible in tilt is 1:80 and the shift is 150mm to the normal direction. Where it is not feasible to work these tolerance the contractor shall carry out suitable remedial measures as may be directed by the Engineer-in-charge to overcome the adverse effects of tilts and shifts without any extra cost to the Department and without any damages to the well. Any additional work necessary consequent upon the excess tilt and shift shall be carried out by the contractor at no extra cost to the Department.
80. Concrete of strength below of the required strength (as determined by actual tests) shall not be accepted.
81. If the well is beyond rectification the well shall be rejected, the well has to be abandoned and another well to be sunk at a suitable location at the cost of the Contractor. The tilt

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and shift of the well including compensation is to be abided by the clauses of MoSRT&H Specification for Roads & Bridge works (5<sup>th</sup> Revision).

82. No claim for carriage of water what-so-ever will be entertained as this has been included in the estimate and the bidder has to quote his / their rate accordingly.
83. The contractor shall employ one or more Engineering Graduate or Diploma holders as apprentice at his cost if the work as shown in the Bid exceeds Rs.2,50,000/-.The apprentices will be selected by the Chief Engineer. The period of employment will commence within one month after the date of work order and would last till the date, when 90% of the work is completed. The fair wage to be paid to the apprentices should not be less than the emolument of personnel of equivalent qualification employed under Government. The number of apprentices to be employed should be fixed by the Chief Engineer in the manner so that the total expenditure does not exceed one percent of the tendered cost of the work.
84. Super class contractor shall employ under himself two Graduate Engineer and two Diploma holders belonging to the State of Odisha. Special class contractor shall employ under him one graduate Engineer and two Diploma Holder belonging to the state of Odisha. Like wise 'A' class contractor shall employ under him one Graduate Engineer or two Diploma Holders belonging to state of Odisha. The contractor shall pay to the Engineering personnel monthly emoluments which shall not be less than the emoluments of the personnel of equivalent qualification employed under the State Govt. of Odisha. The Engineer-in Chief (Civil), Odisha may however assist the contractor with names of such unemployed Graduate Engineers and Diploma Holders if such help is sought for by the contractor .The names of such Engineering personnel appointed by the Contractors should be intimated to the Bid receiving authority along with the Bid as to who would be supervising the work. Each bill of the Super Class, Special Class or 'A' Class Contractor shall be accompanied by an employment Roll of the Engineering personnel together with a Certificate of the Graduate Engineer or Diploma Holder so employed by the contractor to the effect that the work executed as per the bill has been supervised by him. (Vide Works Department No. Codes M-22/91-15384 dated 9.7.91). The required certificate is to be furnished in the proforma contained in a separate sheet vide **Schedule-B**.
85. It is the responsibility of the contractor to procure and store explosive required for blasting operation. Department may render necessary possible help for procuring license.
86. Deleted.

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87. **Amendment of existing Clauses :-** By admission of a tender for the work, a tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the work, about the quality and availability of the required quantity of material including the wheat/ rice referred to above, medical aid, labour and food stuff etc., and that rates quoted by him in the tender will be adequate to complete the work according to the specifications attached there to and that he had taken in to account all conditions and difficulties that may be encountered during its progress and to have quoted rates including labour and materials, octroi ,other duties, lead, lifts, loading and unloading, freight for all materials and all other charges necessary for the completion of the work, to the entire satisfaction of the Engineer-in -Charge of the work and his authorized subordinates. After acceptance of the contract rate Government will not pay any extra charges for any reason in case the contractor claims later on to have misjudged as regard availability of materials, labour and other factors. The rates quoted by the Contractor shall be excluding GST. GST as applicable for works contract shall be payable to Contractor on bill amount..
88. The prevailing percentage of I. T. Department of the gross amount of the bill towards income tax will be deducted from the contractor's bill.
89. 88. Prevailing rate of GST as applicable under Act on the gross amount of the bill will be deducted from the contractor's bill as tax deduction at source (TDS) as per rules.
90. The contractor is required to pay royalty to Govt. towards use of minor minerals as mentioned below and produce such documents in support of their payment to the concerned Executive Engineer with their bills, falling which the amount towards royalties of different materials as utilized by them in the work will be recovered from their bills and deposited in the Government revenue. This is as per the Gazette Notification No.2280 dtd.15.12.2016 of Steel & Mines Department, Government of Odisha.

The royalty will be recovered from the work bill of the Contractor at the following rates

The royalty will be recovered from the work bill of the contractor at the rates as per OMMC Rules 2016 which has come into force w.e.f 15.12.2016 as per the Odisha Gazette No.2280 dt.15.12.2016 which is communicated vide Works Department letter No.918 dt.16.01.2017. Any revision in rates of royalty during execution of work, the such revised royalty shall be recovered from contractors bill.

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91. CESS @ 1 (one)% of the amount of each bill shall be proportionately deducted from the Contractor's bill at the time of making payment of each bill.
92. Under no circumstances interest is chargeable for the dues or additional dues if any payable for the work.
93. Under section 12 of contractors labour (Regulation and Abolition) Act. 1970 the contractor who undertakes execution of work through labour should produce valid license from licensing authorities of labour Department.
94. **Sample of all material** - Before procurement of any item for the work, the contractor shall supply samples of all materials for testing and acceptance as may be requiring by the concerned Executive Engineer.
95. **Trial Boring** - The foundation level as indicated in the body of the departmental drawing is purely tentative and for the general guidance only. The Department has no responsibility for the suitability of actual strata at the foundation level. The contractor has to conduct his own boring before starting the work and get the samples tested at his own cost to ascertain the S.B.C. and credibility of the strata at founding level. While quoting his rates for Bid the contractor shall take in to account of the above aspects.
96. The defect liability period for the work is for a period mentioned in the Bid Data from the date of successful completion of the work. Any defects, shrinkage or other faults which may be noticed within the period mentioned in the Bid Data from the completion of the work arising out of defective or improper materials or workmanship timing are upon the direction of the Engineer-in-Charge to be amended and made good by the contractor at his own cost unless the Engineer for reasons to be recorded in writing shall be decided that they ought to be paid for and in case of default Department may recover from the contractor the cost of making good the works.
97. From the commencement of the works to the completion of the same, the works are deemed to be under the control of the contractor. The contractor is to be held responsible to make good all injuries, damages and repairs occasioned or rendered necessary to the same by fire or other causes and they hold the Govt. of Odisha harmless for any claims for injuries to person or structural damage to property happening from any neglect, default, want of proper care or misconduct on the part of the contractor or any one in his employment during the execution of the work. Also no claim shall be entertained for loss due to earthquake, flood, cyclone, epidemic, riot or any other calamity whether natural or incidental damages so caused will have to be made good by the contractor at his own cost.

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98. **Price variation / escalation clause due to increase or decrease in Rate of minimum wages, principal materials, POL & other materials : (Based on amendment of codal / contractual provisions regarding price variation / escalation clause vide Office Memorandum No-12606 /W dt.24.12.2012 of Works Department, Government of Odisha).**

Contract price shall be adjusted for increase or decrease in rates and price of Labour, Cement, Steel, Bitumen, Pipes, POL & other material component in accordance with the following principles and procedures as per formula given below:-

- 98(a) (i): REIMBURSEMENT/RECOVERY DUE TO VARIATION IN PRICES OF MATERIALS OTHER THAN (STEEL, CEMENT, BITUMEN, PIPES & P.O.L.).

If during the progress of the work the price of any materials (Excluding the cost of steel cement, bitumen & P.O.L.) incorporated in the work (not being materials supplied from the Engineer-in-charge's store) in accordance with clause there of increases or decreases as a result of increase or decrease in the Average wholesale price Index (all commodities), and the contractor there upon necessarily and properly pays in respect of that materials incorporated in the work such increased or decreased price, then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be, such an amount, as shall be equivalent to the plus or minus difference of 85% in between the Average Wholesale price Index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the bid was received (last date of receipt) as per the formula indicated below provided that the work has been carried out within the stipulated time or extension thereof as are not attributable to him. If penalty is levied for delayed completion of the work, the contractor shall not be eligible to get price escalation on the above materials on the value of works executed during the extended period.

This clause will be applicable to the contracts where original stipulated period of completion is more than 18 months.

In the situation where the period of completion is initially stipulated in the agreement as less than 18(eighteen) months but subsequently the completion period has been validly extended on the ground that the delay in completion is not attributable to the contractor and in the result the total period including the extended period stands more than 18(eighteen)months or more, price escalation for other materials is admissible only for the remaining period excluding 18(eighteen)months there from.

**Formula to calculate the increase or decrease in the price of materials:**

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Price adjustment for increase or decrease in cost of materials other than cement, steel, bitumen, pipes and POL procured by the contractor shall be paid in accordance with the following formula:

$$V_m = 0.85 \times P_m/100 \times R \times (M_i - M_0)/M_0$$

$V_m$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates of materials other than cement, steel, bitumen, pipes and POL.

$R$  = Value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schedule of rate/ derived rates.

$M_0$  = The all India wholesale price index (all commodities) prevailed during the quarter of last date of receipt of bids (as published by the Economic Adviser to Govt. of India, Ministry of Industry and commerce, New Delhi).

$M_i$  = The all India wholesale price index (all commodities) for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry and commerce, New Delhi. In respect of the justified period extended for completion of the work, the index prevailing at the time of stipulated date of completion or the prevailing index of the period under consideration, whichever is less, shall be considered.

$P_m$  = Percentage of material component (other than cement, steel, bitumen, pipes and POL) of the work, as indicated in clause -98 (d) below.

**(a)(ii): REIMBURSEMENT/ RECOVERY OF DIFFERENTIAL COST DUE TO VARIATION IN PRICES OF PRINCIPAL MATERIALS (STEEL, CEMENT, BITUMEN AND PIPES NOT ISSUED BY DEPARTMENT) AFTER SUBMISSION OF BID:**

If after submission of the Bid, the prices of Steel, Cement, Bitumen and Pipes ( not being supplied by the Department) increases/ decreases beyond the price(s) prevailing at the time of the last date for submission of Bids including extension for the work, the contractor shall be eligible to get differential cost due to such hike on the value of works executed during the stipulated period and during the extended period when the reason of delay in completion of the work is not attributable to the Contractor. If penalty is levied for delayed completion of the work, the contractor shall not be eligible to get price variation on the above materials on the value of works executed during the extended period.

  
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Reimbursement in case of differential cost due to increase in prices of cement, steel, bitumen and pipes are to be made by the Executive Engineer with prior approval of Bid accepting authority subject to following conditions:

- 1) Contractors have to submit the vouchers showing procurement of different materials from authorized dealers for the said work.
- 2) Differential cost will be allowed only for the works which are progressed as per the approved work programme / revised work programme duly approved by the Engineer in charge.

Recovery in case of decrease in prices of cement, steel, bitumen & pipes shall be made by concerned Executive Engineer from the Contractor immediately.

The increase/decrease in prices of cement, steel, Bitumen and Pipes for reimbursement/recovery shall be determined as follow.

a) **Adjustment towards differential cost of cement:**

$V_c = (C_i - C_0) / C_0 \times \text{Actual quantity of cement utilized in the work during the quarter under consideration} \times \text{base price of cement as prevailing on the last stipulated date of receipt of Bid including extension, if any.}$

$V_c = \text{Differential cost of cement i.e. amount of increase or decrease in rupees to be paid or recovered.}$

$C_i = \text{All India Wholesale price index for cement for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry and commerce, New Delhi.}$

$C_0 = \text{All India Wholesale price index ( as published by Economic Adviser, Govt. of India, Ministry of Industry and commerce, New Delhi) for cement as prevailing on the last stipulated date of receipt of Bid.}$

b) **Adjustment towards differential cost of Steel**

$V_s = (S_i - S_0) \times \text{Actual quantity of steel utilized in the work during the quarter under consideration.}$

  
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$V_s$ = Differential cost of Steel i.e. amount of increase or decrease in rupees to be paid or recovered.

$S_i$ = Cost of the Steel as prevailed during the period under consideration as fixed by Steel Authority of India.

$S_o$ = Base price of Steel prevailing as on the last date of submission of Bid including extension, if any.

**c) Adjustment towards differential cost of Bitumen.**

$V_b = (B_i - B_o) \times$  Actual quantity of Bitumen utilized in the work during the quarter under consideration.

$V_b$ = Different cost of Bitumen i.e. amount of increase or decrease in rupees to be paid or recovered.

$B_i$ = Average cost of Bitumen prevailed during the period under consideration as fixed by IOCL/BPCL/HPCL.

$B_o$ =Base price of bitumen as prevailing on the last stipulated date of receipt of Bid including extension, if any.

**d) Adjustment towards differential cost of pipes.**

$$V_p = 0.85 \times P_p / 100 \times R (P_i - P_o) / P_o$$

$V_p$ = Differential cost of pipe i.e. amount of increase or decrease in rupees to be paid or recovered during the quarter under consideration.

$P_p$ = Percentage of pipe component of the work as indicated in the clause 98 (d).

$R$ = Value of work done during the quarter under consideration excluding the value of work executed under extra items, if any, at prevailing schedule of rates or derived rate.

$P_i$ =All India Whole sale price index for the period under consideration as published by Economic Advisor, Govt. of India, Ministry of Industry and Commerce, New Delhi, for the type of pipe under consideration.

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P<sub>0</sub>= All India Wholesale price index (as published by Economic Advisor, Govt. of India, Ministry of Industry and Commerce, New Delhi) as on the last stipulated date of receipt of Bid including extension, if any, for the type of pipe under consideration.

**98(b): REIMBURSEMENT/ REFUND DUE TO STATUTORY RISE IN COST OF MINIMUM WAGES BY GOVERNMENT:**

If after submission of the Bid, the wages of labour increases or decreases as a direct result of the coming into force of any fresh law, or statutory rule or order beyond the wages prevailing at the time of the last date of submission of Bids including extensions, the contractor shall be eligible to get escalation due to such hike on the value of works executed during the stipulated period and during the validly extended period when the delay in completion is not attributable to the Contractor. If penalty is levied for delayed completion of the work, the contractor shall not be eligible to get escalation on labour on the value of works executed during the extended period.

The contractor shall, within a reasonable time of his becoming aware of any alteration in the price of any such wages of labour, give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition together with all information relating thereto which he may be in a position to supply. Engineer-in-Charge may call books of account and other relevant documents from the contractor to satisfy himself about reasonability of increase in prices of wages and actual payment thereof for this purpose, the labour component of the work executed during period under consideration shall be the percentage (as specified in table below) of the value of work done during that period and the increase/decrease in labour shall be considered on the cost of minimum daily wages of any unskilled labourer, fixed by the Government of Odisha under Minimum wages act.

**The compensation for escalation for labour shall be worked out as per the formula given below:**

$$V_1 = 0.85 \times P_1 / 100 \times R \times (L_1 - L_0) / L_0$$

V<sub>1</sub> = increase or decrease in the cost of work during the quarter under consideration due to changes in rates of minimum wages.

R= Value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schedule of rate/ derived rates.

L<sub>0</sub>= the minimum wages for labour as notified by State Government, as prevailing on the last stipulated date of receipt of Bid including extension, if any.

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$L_i$  = the minimum wages for labour as notified by State Government & as prevailed on the last date of the quarter previous to the one under consideration. In respect of the justified period extended, the minimum wage prevailing on the last date of quarter previous to the quarter pertaining to stipulated date of Completion or the minimum wage prevailing on the last date of the quarter previous to the one under consideration, whichever is less, shall be considered.

$P_1$  = Percentage of labour component of the work, as indicated in the clause 98 (d).

**98(c): REIMBURSEMENT/REFUND DUE TO VARIATION IN PRICES OF P.O.L.:**

Similarly, if during the progress of work, the prices of Diesel, Petrol, Oil and Lubricants increases or decreases as a result of the price fixed thereof by the Government of India and the Contractor thereupon necessarily and properly pays such increased or decreased price towards Diesel, Petrol, Oil and Lubricants used in the execution of the work, then he shall be entitled to reimbursement or liable to refund, quarterly, as the case may be such an amount as shall be equivalent to the plus or minus difference of 85% in between the price of P.O.L., which is operating for the quarter under consideration and that operated for the quarter of last date of receipt of bids as per the formula indicated below provided that the work has been carried out within the stipulated time or extension thereof as are not attributable to him. If penalty is levied for delayed completion of the work, the contractor shall not be eligible to get price escalation on POL on the value of works executed during the extended period.

**Formula to calculate the increase or decrease in the price of P.O.L.:**

$$V_f = 0.85 \times P_f / 100 \times R \times (F_i - F_o) / F_o$$

$V_f$  = Increase or decrease in the cost of work during the quarter under consideration due to Changes in rates for P.O.L.

$P_f$  = Percentage of P.O.L. component of the work, as indicated in clause-98 (d) below

$R$  = Value of work done during the quarter under consideration excluding the work executed under extra items if any at prevailing schedule of rate/ derived rates.

$F_i$  = All India Wholesale price index for Fuel, Oil & Lubricant (High Speed Diesel) for the quarter under consideration as published by Economic Adviser, Govt. of India, Ministry of Industry And Commerce, New Delhi. In respect of the justified period

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extended, the rates prevailing at the time of stipulated date of completion or the prevailing rates of the period under consideration, whichever is less, shall be considered.

$F_0$  = All India Whole sale price index for Fuel, oil & lubricant (*High Speed Diesel*) as prevailing on the last stipulated date of receipt of Bid including extension, if any.

**98(d): The following percentages will govern the price adjustment for the entire contract for different types of works as applicable given in the following table:**

**PERCENTAGE TABLE**

Sl No	Category of Works		% Component ( Cost wise)		
			Labour (P <sub>l</sub> )	POL (P <sub>r</sub> )	Steel + Cement + Bitumen+ Other Materials*
1.	R&B Works (% of Component)	Road Works	5	5	90
		Bridge Works	25	5	70
		Building Works	25	-	75
2.	Irrigation Works (% of Component)	Structural Work	20	5	75
		Earth, Canal & Embankment Work	25	10	65
3.	PH Work	Structural Work	25	5	70
		Pipeline Work	5	-	Pipe-70% *Other materials-25%
		Sewer line	10	-	Pipe-70% *Other materials-20%

*\*Note: - Further break up may be worked out considering the consumption of Cement, Steel, Bitumen and pipe in the concerned works for the period under consideration.*

**98(e): APPLICATION OF ESCALATION CLAUSE:**

- (i) The contractor shall for the purpose of availing reimbursement/refund of differential cost of steel, bitumen, cement, pipe, POL and wages , keep such books of account and other documents as are necessary to show that the amount of increase claimed or reduction available and shall allow inspection of the same by a duly authorized representative of Government and further, shall at the request of the Engineer-in-charge, furnish documents to be verified in such a manner as the Engineer-in-charge may require any document and information kept. The contractor shall within a reasonable time of 15 days of his becoming aware of any alteration in the price of such material, wages of labour and/or price

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of P.O.L. give notice thereof to the Engineer-in-charge stating that the same is given pursuant to this condition alongwith information relating there to which he may be in a position to supply.

(ii) The compensation for escalation shall be worked out at quarterly intervals and shall be with respect to the cost of work done as per bills paid during the three calendar months of the said quarter. The first such payment shall be made at the end of three months after the month (excluding the month in which Bid was accepted) and thereafter at three months interval. At the time of completion of the work, the last period for payment might become less than 3 months, depending on the actual date of completion.

99. For diversion road the contractor will have to make his own arrangement to make the same in private land if necessary for which agreement of such land by the side of C.D. works and the rental charges for such private land shall be borne by the contractor including the proper maintenance with lighting arrangements during the night time and signaling during day time and barricading etc. till the C.D. works are opened to the traffic. No extra cost will be paid to the contractor for the above rental charges etc. His rate in the Bid shall include this arrangement, rental charges for the land and maintenance, safety arrangements, lighting and removal of such temporary road crust from the private land to bring the land to its original condition etc. complete.
100. The contractor has to arrange the land required for borrowing earth if necessary for the road work at his cost. No extra payment by the Department will be made on this account and no claim what-so-ever will be entertained on this ground. The rate quoted by the contractor should be inclusive of all such charges.
101. Where it will be found necessary by the Department, the Officer-in-Charge of the work shall issue an Site Order book to the contractor to be kept at the site of the work with pages serially numbered. Orders regarding the work whenever necessary are to be entered in this book by the P.W.D. Officer-in-Charge with their dated signatures and duly noted by the contractor or his authorized agents with their dated signature. Orders entered in this book and noted by the contractor's agent shall be considered to have been duly given to the contractor for following the instructions of the Department. The Site Order Book shall be the property of the P.W.D. and shall not be removed from the site of work without written permission of the Engineer (Executive Engineer) and to be submitted to the Engineer-in-charge every month.
102. The bidder should conduct three bores at each pier and S.B.C. of soil at foundation level and abutments location and furnish the test results in conformity with I.R.C. code at his

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own cost before execution of the work and rate quoted by the contractor should be inclusive of such bores and S.B.C. tests etc. without any extra cost to the Department.

103. The details of foundation, sub-structure and floor protection for execution shall be done in accordance with the test results thus obtained.
104. The contractor shall have no claim what so ever for the extra quantity of work to be executed in view of above possible changes and payments is to be made as per Clause 10 of the P-1 Contract.
105. Over and above these conditions, the terms and conditions and rules and regulations and specifications as laid down in Odisha P.W.D. Code, Bridge code and MoSRT&H Specifications with latest revision / amendment are also binding on the part of the contractor.
106. No part of the contract shall be sublet without written permission of the concerned Executive Engineer or transfer be made by power of Attorney authorizing others to receive payment on the contractor's behalf.
107. The contractor should attach the certificate in token of payment deposit with the registration authority as per recent circular of the Government relating to his registration.
108. Any damages caused by natural calamities should be done by the contractor at his own cost. The Department will not be any way responsible for the same and will not pay any cost towards the repair done by the contractor.
109. The rate quoted by the contractor shall cover the latest approved rates of labours, materials, P.O.L. and Royalties. Arrangement of borrow areas; land, approach road to the bridge site etc. are the responsibility of the contractor.
110. The concrete items wherever dewatering is imperatively necessary the term dewatering shall mean the execution or operation of the items due to standing water as well as due to percolation of water. The quoted rate will be inclusive of this.
111. The materials, borrow areas and hutments at site should be arranged by the contractor at his own cost. No future complaint on this account shall be entertained.
112. The contractor shall make requisition of claim book from the date of commencement of the work from the Department and shall maintain in proper P.W.D. form with pages serially numbered in order to record items of works are not covered by his contract and

claimable as extra. Claims shall be entered regularly in this book under the dated signature of the contractor or his duly authorized agents at the end of each month. A certificate should be furnished along with the claim to the effect that he has no other claim beyond this claim up-to-date. If in any month there are no claims to record, a certificate to that effect should be furnished by the contractor in the claim book. Each claim must be defined and should be given as far as possible regarding the quantities as well as the total amount claimed. The claim book must be submitted by the contractor regularly by 10<sup>th</sup> and 16<sup>th</sup> days of each month for orders of the Engineer-in-Charge or competent authority. Claims not made in this manner or the claim books not maintained from the commencement of the work are liable to be summararily rejected. The claim books are the property of the P.W.D. and shall be surrendered by the contractor to the Engineer-in-charge after completion of the work or before recession of the contract by the Department which ever is earlier for record.

113. Number of tests as specified in I.R.C./MoSRT&H/I.S.I specification required for the construction of roads /bridges / buildings or any other structural works will be conducted in any Govt. Test House / Departmental laboratories/reputed material testing laboratory as to be decided by the Engineer-in-charge. Testing charges including expenditure for collection / transportation of samples /specimens etc. will be borne by the contractor. The collection of samples and testing are to be conducted for both prior to execution and during execution as may be directed by the Engineer-in-charge and on both the accounts the cost shall be borne by the contractor.
114. i) Besides, the firm / contractor shall install full fledged field laboratory at work site for conducting required tests as per IRC/MoSRT&H/ISI requirements at his own cost for providing sufficient opportunity for checking from time to time.
- ii) An Engineering personnel of the executing agency should be present at work site at the time of visit of high level inspecting officers in the rank of Chief Engineer and above.
- iii) After completion of the road in all respects the road furniture's should be affixed by the executing agency indicating locations like school, hospital, No-horn etc.

115. **Condition for issue of plant & machinery to contractor on hire :-**

Tools & plants will be issued to the contractor only if it is desirable in the interest of Govt. works and if these can be spared without inconvenience to the Department. The Sanction of the Superintending Engineer shall be necessary in each case. The contractor shall arrange his programme of work according to the availability of the plant & machinery & no claim will be entertained for any delay in supply by the Department.

  
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An agreement shall be entered in to by the contractor to the effect that these hire charges are recoverable from the bills of the contractor regularly and the final payment for the work including refund of security deposit will not be made until the total amount due to the Government on account of hire of machinery etc. is recoverable in full. Full amount of hire charges due from the contractor at any contract at any time shall be recovered from his next subsequent bill.

All transit and incidental charges in connection with the dispatch of tools and plants and machineries from workshop shed/ deposit return there to, will be borne by the contractor.

The hire charge shall be recovered at the prescribed rates from and inclusive of the date, the plant and machinery is made over up to and inclusive of the date of its return, even though the same day it may not have been utilized for any reason except for a major break down which may take more than 72 hours for repairs. The contractor shall immediately intimate in writing to the Engineer –in-charge when any plant or machinery goes out of order requiring major repairs.

The hire charges are for clock hours. In case of tar boilers, hot mix plant and any other machinery requiring similar preparation the working hour will include the time required to make up the boiler temperature and bring plant to the operating conditions before the actual start of work.

The machine will work in shifts of 8 hours each. Extra charges towards overtime wages of any of the operating and maintenance staff will be leviable. These charges will be fixed by the Engineer-in-charge from time of time. In no case the tools and plants shall be operated beyond 8 hours in any shift without prior written permission of the Engineer-in-charge.

The contractor shall release the plant and machinery as and when required for periodical servicing and maintenance. He shall also provide for any labour and water source for washing the plants. In the case of Concrete mixtures, pavers and similar such type of equipments, the contractor shall arrange to get the hopper cleaned and the drums etc. washed at the close of work each day.

The plant and machinery once issued to a contractor shall not be returned by him on account of lack of arrangement of labour and material etc. on his part. The same will be returned only when they do not require or when in the option of Engineer-in-charge the work or a portion of work for which issued is completed.

  
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The tools and plants shall while in transit and in the custody of contractor be at his sole risk and responsibility for damages and / or loss except fair wear and tear. The damage or loss as assessed by Engineer-in-charge shall be made good by the contractor. In the event of a disagreement as to the extent of damage or the value of article lost, the decision of superintending Engineer shall be final. The contractor shall on or before the supply of plant and machinery sign an agreement in indemnifying the Govt. against loss or damage to the machine. The Contractor shall also be responsible for any claim for compensation for loss of life, injury or damages to property etc. arising from any cause what-so-ever. The contractor shall provide full time choukidar for guarding the plant and machinery at site.

If the articles are not returned within the date originally specified or extended by the Engineer-in-charge, in addition to the normal hire charge, a surcharge equal to 10% of the hire charges will be levied for the period that the machinery is not returned. Such period will be treated as working time. In the event of the non-return of the machinery, the full value of the articles at the current market price will be recovered from the contractor's outstanding bills or any bills that may become due in respect of his other work under the state public works Department. The decision of the superintending Engineer shall be final in case of dispute.

  
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## FORM OF AGREEMENT

The contractor shall, before taking the possession of the machinery, enter in to an agreement with the Engineer-in-charge or his nominees in the form attached.

Log Books for recording the hours of daily works for each of the plant and machinery supplied to the contractor will be maintained by the Department will be attested by the contractor or his authorised agent daily. In case of contractor contests the correctness of the entries and / or fails to sign the log book, the decision of the Engineer-in-charge shall be final and binding on him. Hire charges will be calculated according to the entries in the logbook and will be binding on the contractor.

### AGREEMENT FOR HIRING OF GOVERNMENT TOOLS & PLANTS.

This agreement made the \_\_\_\_\_ Two Thousand \_\_\_\_\_ between \_\_\_\_\_ (here-in-after referred to as "the hirer" which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assigns) of the one part and the Govt. of Odisha (here in after referred to as the Governor which expression shall unless excluded by or repugnant to the context include his successors in office as assigns) of the other part.

Where as the hirer desirous of hiring the tools and plants of the P. W. Department of the Odisha Govt. and more particularly specified in the schedule here under between here in after referred to as "the tools and plants".

And where as Government has agreed to let in hire the tools and plants to the hirer on the terms and conditions here in after mentioned.

Now it is here by and between the parties here to as follows :-

(a) In consideration of agreement that hire charges be recovered from their bill for work executed on which this machinery will be used or any other than standing in the names of contractors in the book of the Department or any other Government Department. The Govt. agrees to let the hirer tools and plants for the period to be computed from the date of delivery of the tools and plant to the hirer at the P.W. Department workshop at **headquarters of concerned Executive Engineer as per Contract Data.**

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- (b) The rate of higher charges will be as mentioned in the schedule attached.
- (c) The hirer shall not transfer, assign or sublet or in any way part with the tools and plants or any part there-of without the previous written approval of the Engineer-in-charge
- (d) On the expiry of the period of the hire, the hirer shall return the tools and plants to the Public Works Department. & workshop / store at **headquarters of concerned Executive Engineer as per Contract Data** in the same good condition in which they were received by him.
- (e) In the event of the tools and plants not being returned on the expiry of the above-mentioned period, the hirer shall without prejudice and any other liability pay to the Government on account equivalent to the rate of hire specified for the working period and an increase of ten percent.
- (f) The tools and plants shall be open for inspection at all times to the officers of the Government.
- (g) The hirer shall not operate the tools and plants so hired for more than one shift / two shifts of 8 hours each per day without the prior sanction of the Engineer-in-charge. If the hirer operates the tools and plants beyond the aforesaid limit without the prior sanction of the Assistant Engineer, he shall pay to Government additional hire charges as well as over time charges for staff for such excess operation at the rate approved by the Engineer-in-charge from time to time.
- (h) In case of breakdown, repairable at the site within a period of three days hire charges as specified in the schedule will be levied except in case of major repairs.
- (i) Normally the tools and plants will be supplied with operating staff.
- (j) The hirer shall be responsible for any claims for compensation for loss of life, injury or damage to property etc. arising due to any causes what-so-ever during the period of the machinery is in his charge.
- (k) All municipal or other dues and taxes payable on account of the use or operation of the tools and plants for the period of hire shall be defrayed by the hirer.
- (l) The hirer shall make good any loss or damages arising out of causes other than fair wear and tear to the tools and plants during the period of hire. The cost recoverable from the hirer shall be the full replacement value as determined by the Engineer-in-charge. In the event of any loss or damage not being made good by the hirer to the satisfaction of

  
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the said Engineer-in-charge the office shall be at liberty to make good himself such loss or damage and recover the cost thereof from the hirer. The hirer shall pay to the Engineer-in-charge such an amount as shall be necessary to make good the loss or damage failing which the same will be recovered from his dues as in case of hire charges.

(m) On the breach of any terms or conditions of this agreement by the hirer the Engineer-in-charge shall be entitled to demand the return of tools and plants and the hirer shall return the tools and plants within 72 hours from the date of receipt of such order in writing. In case of failure on the part of the hirer to comply with such order he shall be liable to pay such penalty as may be imposed by the Engineer-in-charge for the period the tools and plant are detained provided that the maximum penalty shall not exceed the cost replacement of the tools and plants .

(n) In case of any disputes between the hirer and the Government, the decision of the Superintending Engineer shall be final.

(o) This agreement shall be operated by the Engineer-in-charge on behalf of the Government and the term Engineer-in-charge shall include all officers duly authorized by him to exercise powers on his behalf.

#### THE SCHEDULE

Serial No.	Description and Name of the articles .	No.	Amount of hire per hour .	Remarks.

In witness where of the hirer and the Engineer-in-Charge has for and on behalf of the Governor of the State has set their respective hand, the day and the year here in above written.

Signed by:

1. \_\_\_\_\_ 2. \_\_\_\_\_

Signed sealed and delivered in the presence of

1. \_\_\_\_\_ 2. \_\_\_\_\_

  
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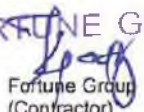
  
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116. The agency will be responsible for traffic management and maintenance of the stretch of the road (for which the Bid has been invited) at his own cost during the period of execution.
117. Even though qualified criteria are met, the bidders may be disqualified for the following reasons.
- (a) Making a false statement or declaration.
  - (b) Past record of poor performance.
  - (c) Past record of abandoning the work half way/ recession of contract.
  - (d) Past record of in-ordinate delay in completion of the work.
  - (e) Past history of litigation.
118. The information furnished must be sufficient to show that the applicant is capable in all respects to successfully complete the envisaged work.
119. In case the 1<sup>st</sup> lowest Bidder or even the next lowest Bidders withdraw in series one by one, thereby facilitating a particular Bid for award, then they shall be penalized with adequate disincentives with forfeiture of Bid Security unless adequate justification for such back out is furnished. Appropriate action for black listing the Bidders shall also be taken apart from disincentivising the Bidder.
120. ADDENDUM TO THE CONDITION OF PI CONTRACT

Clause-2 (a) of P-1 Contract:-TIME CONTROL (Vide Works Department Office Memorandum No.24716 dt.24.12.2005 and No.8310 dt.17.05.2006):-

**2.1. Progress of work and Re-scheduling programme.**

- 2.1.1. The Employer shall issue the letter of acceptance to the successful contractor. The issue of the letter of acceptance shall be treated as closure of the Bid process and commencement of the contract.
- 2.1.2. As per amendment to Para-3.5.18 Note-VIII of O.P.W.D. Code Volume-I, before acceptance of the Bid. The successful bidder will be required to submit a work programme and Milestone basing on the financial achievement so as to complete the work within the stipulated time and in case of failure on part of the agency to achieve the Milestone Liquidated damages will be imposed. .

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- 2.1.3. To ensure good progress during the execution of the work the contractors shall be bound in all cases in which the time allowed for any work exceeds one month to complete, 1/4<sup>th</sup> of the whole time allowed under the contract has elapsed, 1/2 of the whole of the work before 1/2 of the whole time allowed under the contract has elapsed, 3/4<sup>th</sup> of the whole of the work before 3/4<sup>th</sup> of the whole time allowed under the contract has elapsed.
- 2.1.4. If at any time it should appear to the Engineer-in-Charge that the actual process of the work does not conform to the programme to which consent has been given the Contractor shall produce, at the request of the Engineer-in-Charge, a revised programme showing the modifications to such programme necessary to ensure completion of the works within the time for completion. If the contractor does not submit an updated Programme within this period, the Engineer-in-Charge may withhold the amount of 1% of the contract value from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.
- 2.1.5. An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.
- 2.1.6. The Engineer-in-Charge's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer-in-Charge again at any time. A revised Programme is to show the effect of Variations and Compensation Events.

## 2.2. Extension of the Completion Date.

- 2.2.1. The time allowed for execution of the works as specified in the Contract data shall be the essence of the Contract. The execution of the works shall commence from the 15<sup>th</sup> day or such time period as mentioned in letter of Award after the date on which the Engineer-in-Charge issues written orders to commence the work or from the date of handing over of the site whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid, Government shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money & performance guarantee / Security deposit absolutely.
- 2.2.2. As soon as possible after the Contract is concluded the Contractor shall submit the Time & Progress Chart for each milestone and get it approved by the Department. The Chart

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shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time imposed in the contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate programme has been agreed upon) complete the work as per milestone given in contract data.

- 2.2.3. In case of delay occurred due to any of the reasons mentioned below, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.
- i) Force majeure, or
  - ii) Abnormally bad weather, or
  - iii) Serious loss or damage by fire, or
  - iv) Civil commotion, local commotion of workmen, strike or lockout affecting any of the trades employed on the work, or.
  - v) Delay on the part of other contractors or tradesmen engaged by Engineer-in-Charge in executing work not forming part of the Contract.
  - vi) In case a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost, or
  - vii) Any other cause, which, in the absolute discretion of the authority mentioned, in Contract data is beyond the Contractors control.
- 2.2.4. Request for reschedule and extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.
- 2.2.5. In any such case a fair and reasonable extension of time for completion of work may be given. Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing, within 3 months of the date of receipt of such request. Non-application by the contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-in-Charge and this shall be binding on the contractor.

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### 2.3. Compensation for Delay.

- 2.3.1. If the contractor fails to maintain the required progress in terms of clause 2 of P-1 Contract or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Superintending Engineer (whose decision in writing shall be final and binding) may decide on the amount of Bided value of the work for every completed day / month (as applicable) that the progress remains below that specified in Clause 2 of P-1 Contract or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified. Compensation @ 1.5% per month is for delay of work, and delay is to be computed on per day basis, provided that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the tendered value of work.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Government. In case, the contractor does not achieve a particular milestone mentioned in contract data, (which is in this case the original work programme furnished by the Contractor and approved by the Engineer-in-Charge which formed a part of agreement) or the rescheduled milestone(s) in terms of Clause 2.5 of P-1 Contract, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time. Withholding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However no interest whatsoever shall be payable on such withheld amount.

### 2.4. Bonus for early completion

- 2.4.1 Amendment to Para 3.5.5 (v) Note – iii of OPWD Code Vol.-I by inclusion

For availing Incentive Clause in any project which is completed before the stipulated date of completion, subject to other stipulations it is mandatory on the part of the concerned Executive Engineer to report the actual date of completion of the project as soon as possible through Fax or e-mail so that the report is received within 7 (seven)

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days of such completion by the concerned Superintending Engineer, Chief Engineer & the Administrative Department.

The incentive for timely completion should be on a graduated scale of 1 (one) percent to 5 (five) percent of the contract value. Assessment of incentives may be worked out for earlier completion of work in all respect in the following scale.

- Before 30% of contract period = 5% of Contract Value
- Before 20% to 30% of the contract period = 4% of contract value.
- Before 10% to 20% of the contract period = 3 % of contract value.
- Before 5% to 10% of the contract period = 2% of contract value.
- Before 5% of the contract period = 1% of contract value.

The amount of bonus, if payable shall be paid along with final bill after completion of work.

## 2.5 Management Meetings.

- 2.5.1. Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.
- 2.5.2 The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

### Clause-2 (b) of Percentage Rate P-1 Agreement: - Rescission of Contract (Amendment as per letter No.10639 dt.27.05.2005 of Works Department, Odisha):-

To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Executive Engineer shall be conclusive evidence), 20% of the value of left over work will be realised from the contractor as penalty.

- 121 A contractor may be black listed as per amendment made to Appendix XXXIV to OPWD Code Vol.-II on rules for black listing of Contractors vide letter no.3365 dt.01.03.2007 of Works Department, Odisha.

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As per said amendment a Contractor may be blacklisted

- a. Misbehavior/ threatening of Departmental & supervisory officers during execution of work/ Biding process.
- b. Involvement in any sort of Bid fixing.
- c. Constant non-achievement of milestones on insufficient and imaginary grounds and non-adherence to quality specifications despite being pointed out.
- d. Persistent and intentional violation of important conditions of contract.
- e. Security consideration of the State i.e. any action that jeopardizes the security of the State.
- f. Submission of false/ fabricated / forged documents for consideration of a Bid.
- g. Non submission of Additional Performance Security (APS) within stipulated period as specified in Clause 28 (iii) as per Works Department Office Memorandum No.14402 dtd.06.10.2017.

122 **EIGIBILITY CRITERIA:** - To be eligible for qualification, applicants shall furnish the followings.

- a. Required Bid Security as per the clause No. 06 and Cost of Bid document as per Clause No.04.
- b. Scanned Copy of valid Registration Certificate, Valid GST Registration Certificate and GSTIN, PAN card along with the Bid documents as per Clause No.07.
- c. Information regarding (i) Evidence of ownership of principal machineries / equipments in Schedule-C as per Annexure-I of Schedule-C (ii) Annexure-III of Schedule-C & (iii) Annexure-IV of Schedule-C if required as per Clause No.10. scanned copy of all documents are to be furnished with the bid.
- d. Information in scanned copy regarding current litigation, debarring / expelling of the applicant or abandonment of work by the applicant in schedule "E" and affidavit to that effect including authentication of Bid documents and Bank guarantee in schedule "F" as per clause 11.
- e. Submission of original bid security and Bid paper cost as prescribed in the relevant clause of DTCN after last date and time of submission of bid but before the stipulated date & time for opening of the bid.
- f. Submission of the required information on his/their available bid capacity at the expected time of bidding as per Clause 12.

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- g. Required Additional Performance Security in case the bid price/ rate is less than the estimated cost put to Bid as per Clause No.28(iii).
- h. Information regarding experience in similar nature of works in Schedule-D1 and list of works in progress in Schedule-D2 as per Clause No.14 with scanned copy of experience certificate issued by the Engineer-in-Charge not below the rank of Executive Engineer.
- i. Qualifying the criteria of similar nature of work as per Clause No.14.

**The bidder who meets the above minimum eligible criteria shall be qualified.**

**Total: - 122 (One hundred twenty Two) clauses only in General Conditions.**

**Special Conditions:**

- A. All reinforcement steel and structural steel shall be procured from primary producers of steel-SAIL/RINL/TATA/JINDAL STEEL/ SHYAM STEEL.
- B. In case of exigency, other brands (primary procedures) of steel may be used with proper justification and prior approval of competent authority satisfying the tests as required by BIS's Code.
- C. The Cement of the companies having their own manufacturing units in the State of Odisha is to be used in all works.

**D. Engineer-in- Charge**

The Employer shall engage a Construction Supervision Consultant (CSC) for supervision, monitoring, quality & safety of the works vide relevant clauses of P-I agreement. The CSC shall be responsible to process approval & issue of good for construction drawings, supervision of works, testing of materials in Contractor's laboratory/ Govt. laboratory/ Govt. Engineering Colleges and acceptance of quality of materials and works. The CSC shall be the Engineer-in-Charge of the Contract and report to the Employer as per the scope of services of CSC contract. The contractor shall comply to the above arrangement for Supervision of works and provide the data and facilities required to ensure implementation of the works as per the specification of 5<sup>th</sup> Revision of MoRT&H.

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The roles and responsibilities of the Engineer-in-Charge is given below.

1. The Employer shall appoint the Engineer-in- Charge who shall carry out the duties assigned to him in the Contract. The Engineer-in- Charge's staff shall include suitably qualified Engineers and other professionals who are competent to carry out these duties.
2. The Engineer-in- Charge shall have no authority to amend the Contract.
3. The Engineer-in- Charge may exercise the authority attributable to the Engineer-in- Charge as specified in or necessarily to be implied from the Contract. If the Engineer-in- Charge is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer-in- Charge.
4. However, whenever the Engineer-in- Charge exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.

Except as otherwise stated in these Conditions:


- (a) whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer-in- Charge shall be deemed to act for the Employer;
- (b) the Engineer-in- Charge has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract; and
- (c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer-in- Charge (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances.
- (d) Any act by the Engineer-in- Charge in response to a Contractor's request except otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer-in- Charge shall obtain the specific approval of the Employer before taking action under the-following Sub-Clauses of these Conditions:

- (a) Agreeing or determining an extension of time and/or additional cost.

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- (b) Instructing a Variation, except;
  - (i) in an emergency situation as determined by the Engineer-in- Charge, or
  - (ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.
- 5. Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer-in- Charge, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer-in- Charge, be necessary to abate or reduce the risk.

The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer-in- Charge. The Engineer-in- Charge shall determine an addition to the Contract Price, in respect of such instruction and shall notify the Contractor accordingly, with a copy to the Employer.

- 6. The Engineer-in- Charge may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident Engineer-in- Charge, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties.
- 7. However, unless otherwise agreed by both Parties, the Engineer-in- Charge shall not delegate the authority to determine any matter.
- 8. The Contractor shall comply with the instructions given by the Engineer-in- Charge or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer-in- Charge or a delegated assistant:
  - (a) gives an oral instruction,
  - (b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and
  - (c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

then the confirmation shall constitute the written instruction of the Engineer-in- Charge or delegated assistant (as the case may be).

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9. If the Employer intends to replace the Engineer-in- Charge, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer-in- Charge. If the Contractor considers the intended replacement Engineer-in- Charge to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.
10. The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer-in- Charge's instructions, and shall remedy any defects in the Works.
11. The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.
12. All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank.
13. The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.
14. The Contractor shall, whenever required by the Engineer-in- Charge, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer-in- Charge.
15. If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:
16. The Contractor shall submit to the Engineer-in- Charge the Contractor's Documents for this part in accordance with the procedures specified in the Contract; prior to the commencement of the tests on completion, the Contractor shall submit to the Engineer-in- Charge the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over until these documents and manuals have been submitted to the Engineer-in- Charge.

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17. The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract. Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer-in- Charge for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. The Contractor shall not, without the prior consent of the Engineer-in- Charge, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer-in- Charge's prior consent, and the Engineer-in- Charge shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions.

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer-in- Charge has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

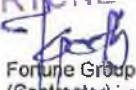
18. The Contractor shall, as specified in the Contract or as instructed by the Engineer-in- Charge, allow appropriate opportunities for carrying out work to:

- (a) the Employer's Personnel,
- (b) any other contractors employed by the Employer, and
- (c) the personnel of any legally constituted public authorities,

who may be employed in the execution on or near the Site of any work not included in the Contract.

19. If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer-in- Charge in the time and manner stated in the Specification.

20. The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer-in- Charge with the knowledge of the Employer. The Contractor shall be responsible for the correct positioning of all parts of the

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Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

21. The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer-in- Charge shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer-in-Charge for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer-in- Charge, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

22. The Contractor shall be deemed to:

- (a) have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and
- (b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters.

23. Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

24. The Contractor shall not interfere unnecessarily or improperly with:

- (a) the convenience of the public, or
- (b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

25. The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

26. The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

  
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27. The Contractor shall be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

28. The Contractor shall be responsible for keeping unauthorised persons off the Site, and authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer-in-Charge, as authorised personnel of the Employer's other contractors on the Site.

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## APPENDIX – I

### Procedure to participate in online bidding e-procurement

1. **PARTICIPATING IN THE BID IN THE E-PROCUREMENT PORTAL:** The Contractor/Bidder intending to participate in the bid is required to register in the Portal using his /her active personal/ official e-mail ID as his Login ID and attach his/her valid Digital Signature Certificate (DSC) to his/her unique Login ID. The DSC used must be of appropriate class (Class II or Class III) issued from a registered Certifying Authority such as n-Code, Sify, TCS, MTNL etc. He/ She has to submit the relevant information as asked for about the firm/ contractor. The portal registration of the bidder/ firm is to be authenticated by the State Procurement Cell after verification of original valid certificates/ documents such as (i) PAN and (II) Registration Certificate (RC)/ GST Registration Certificate and GSTIN (for procurement of goods) of the concerned bidder. The time period of validity in the portal is at par with validity of RC/ GST Registration Certificate and GSTIN. Any change of information by the bidder is to be re-authenticated by the State Procurement Cell. After successful authentication bidder can participated in the online bidding process. Contractor not regisertered with Government of Odisha, can participate in the e-procurement after necessary enrolement in the portal but have to subsequently register themselves with the appropriate registering authority of the Sate Government before award of the work as per prevalent registration norms of the State.
  - a. To log on to the portal the Contractor/Bidder is required to type his/her *username* and password. *The system will again ask to select the DSC and confirm it with the password of DSC.* For each login, a user's DSC will be validated against its date of validity and also against the Certificate Revocation List (CRL) of respective CAs stored in system database. The system checks the unique ID, password and DSC combination and authenticates the login process for use of portal.
  - b. The tender documents uploaded by the Tender Inviting Officer in the website <https://tendersodisha.gov.in> will appear in the section of "Upcoming Tender" before the due date of tender sale. Once the due date has arrived, the tender will move to "Active

  
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Tender” Section of the *homepage*. Only a small notification will be published in the newspaper specifying the work details along with *mention* of the specific website for details. The publication of the tender will be for specific period of time till the last date of submission of bids as mentioned in the ‘Invitation for Bid’ after which the same will be removed from the list of Active tenders. Any bidder can view or down load the bid documents from the web site.

- c. Contractor exempted from payment of Bid Security will be able to participate in the tender directly by uploading documentary evidences towards his eligibility for such exemption.
  - d. The *software* application has the provision of payment of cost of tender document through payment gateways of *authorized* bankers by directly debiting the account of the bidders.
- 1.1. Furnishing scanned copy of such documents is mandatory along with the tender documents otherwise his/her bid shall be declared as non-responsive and thus liable for rejection. Bidders participating through Joint Venture shall declare the authorized signatory through Memorandum of Understanding duly registered and enroll in the portal in the name and style of the joint venture company. It is mandatory that the DSC issued in the name of the authorized signatory is used in the portal.
  - 1.2. In the case of any failure, malfunction, or breakdown of the electronic system used during the e-procurement process, the tender inviting officer shall not accept any responsibility for failures or breakdowns other than in those systems strictly within their own control.
  - 1.3. Any third party/company/person under a service contract for operation of e-procurement system in the State or his/their subsidiaries or their parent companies shall be ineligible to participate in the procurement processes that are undertaken through the e-procurement system irrespective of who operates the system.

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- 1.4. For submission of Bids through the E-Procurement Portal, the bidder shall upload the scanned copy/copies of document in prescribed format wherever warranted in support of eligibility criteria and qualification information. The on line bidder shall have to produce the original documents in support of the scanned copies and statements uploaded in the portal before the specified date as per DTCN.
- 1.5. Each bidder shall submit only one bid for one package. A bid is said to be complete if accompanied by cost of bid document and appropriate bid security. The system shall consider only the last bid submitted through the E-Procurement portal.
- 1.6. The bidder may ask question related to tender online in the e-procurement portal using his/her DSC, provided the questions are raised within the period of seeking clarification as mentioned in tender call notice/Bid. The Officer inviting the Bid/ Procurement Officer-Publisher will clarify queries related to the tender.
- 1.7. The details of drawings and documents pertaining to the works available with the officer inviting the Bid as well as in the office of the Superintending Engineer and Executive Engineer as mentioned in the Contract Data will be open for inspection by the bidders. The bidder is required to download all the documents for preparation of his bid. It is not necessary for the part of the Bidder to upload other Bid documents (after signing) while uploading his bid. He is required to upload documents related to his eligibility criteria and qualification information and Bill of Quantities duly filled in. It is assumed that while participating in the bid, the bidder has referred all the drawings and documents. Seeking any revision of rates or backing out of the bid claiming for not having referred to any or all documents provided in the Bid by the Officer Inviting the Bid will be construed as plea to disrupt the bidding process and in such cases the bid security shall be forfeited.
- 1.8. Any addendum/corrigendum/cancellation of tender shall be published in the website <https://tendersodisha.gov.in>, notice board and through paper publication and such notice shall form part of the bidding documents.

  
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1.8.1. The system generates a mail to those bidders who have already uploaded their tenders and those bidders if they wish can modify their tenders. The bidders are required to which the website till last date and time of bid submission for any addendum/ corrigendum/ cancellation thereof. Tender inviting authority is not responsible for communication failure of system generated mail.

All the volumes/documents shall be uploaded / provided in the portal by the Officer inviting the bid. The bidder shall carefully go through the document and prepare the required documents and up load the scanned documents in Portable Document Format to the portal in the designated locations of Technical Bid. He will fill up the rates of items or percentage in the BOQ down loaded for the work in designated Cell and up loads the same in designated locations of Financial Bid. Bidders are to submit only the original BoQ uploaded by publisher after entering the relevant fields without any alteration/deletion/modification. Multiple BoQ submission shall lead to cancellation of bid. In case of item rate tender, bidders shall fill in their rates other than Zero value in the specified cells. In the percentage rate tender, the bidder quoting Zero value is valid and will be taken as Schedule of Rates. Submission of document shall be effected by using DSC of appropriate class.

2. **PAYMENT OF BID SECURITY AND COST OF BID DOCUMENTS:** The Bidder shall furnish, as part of his Bid, a Bid security for the amount mentioned under NIT/Contract Data in online mode. Non-submission of bid security within the designated period shall debar the bidder from participating in the on-line bidding system and his portal registration shall be cancelled. His name shall also be informed to the registering authority for cancellation of his registration.

2.1 The Bid Security payable along with the bid is 1% of the estimated contract value (ECV) or as mentioned in the bid document.

2.2 Deleted.

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2.3 The tender accepting authority will verify the originals of all the scanned documents of the successful lowest bidder only within 5 days of opening of the tender (price bid). In the eventuality of failure on the part of the lowest successful bidder to procedure the original documents, he will be debarred in future from participating in tender for 3 years and will be black listed by the competent authority. In such as situation, successful L-2 bidder will be required to produce his original documents for consideration of his tender at the negotiated rate equal to L1 bidder.

2.4 Contractor exempted from payment of Bid Security will be able to participate in the tender directly by uploading documentary evidences towards his eligibility for such exemption.

2.5 Government of Odisha has introduced e-payment gateway in to the portal for payment of cost of Bid and Bid Security. The process of using e-payment gateway is mentioned in the "Procedure for Electronic receipt, accounting and reporting of Cost of Tender Paper and Earnest Money Deposit on submission of bids".

3. **FORMAT AND SIGNING OF BID:** (Logging to the Portal)-The Contractor/ Bidder is required to type his/her Login ID and Password. The system will again ask to select the DSC and confirm it with the password of DSC as a second stage authentication. For each login, a user's DSC will be validated against its date of validity and also against the Certificate Revocation List (CRL) of respective CAs stored in system database. The system checks the unique Login ID, Password and DSC combination and authenticates the login process for use of portal.

The bidder can download the tender of his choice and save it in his system and undertake the necessary preparatory work off-line and upload the completed tender at his convenience within the final date and time of submission. The bidder shall only submit single copy of the required documents and Price Bid in the portal. In the Financial bid, the bidder can not leave any figure blank. He has to only write the figures, the words will be self generated. The Bidders are advised to up load the completed Bid document well ahead of the last date & time of receipt to avoid any last moment problem of power failures etc.

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- 1.9. The Bidder shall go through the Bid carefully and list the documents those are asked for submission. He shall prepare all documents including Declaration form, price bid etc and store in the system.
- 1.10. The bidder shall log on to the portal with his DSC and move to the desired tender for up loading the documents in appropriate place one by one simultaneously checking the documents. Once the Bidder makes sure that all the documents have been up-loaded in appropriate place he clicks the submit button to submit the bid to the portal.
- 1.10.1. The bids once submitted can not be retrieved or corrected. Tender cannot be pre-opened and cannot be submitted after due date and time. Therefore only after satisfying that all the documents have been uploaded, the Bidder should activate submit button.
- 1.10.2. In the e-procurement process each processes are time stamped. The system can identify each individual who has entered in to the portal for any bid and the time of entering in to the portal.
- 1.10.3. The Bidder should ensure clarity of the document up loaded by him to the portal especially the scanned documents by taking out sample printing. Non-submission of legible documents may render the bid non-responsive. However, the Officer inviting the Bid if so desires can ask for legible copies or original copies for verification with in a stipulated period provided such document in no way alters the Bidder's price bid. If the Bidder fails to submit the original documents with in the stipulated date, his bid security shall be forfeited.

#### **SUBMISSION OF BIDS:-**

- 1.11. The bidder shall carefully go through the tender and prepare the required documents. The bid shall have a Technical Bid and a Financial Bid. The Technical bid generally consists of GSTIN, PAN, Registration Certificate, Affidavits, Profit Loss statement, Joint venture agreement, List of similar nature of works, work in hand, list of machineries and any other information required by OIT. The Financial Bid shall consist of the Bill of Quantities (BOQ) and any other price related information/ undertaking including rebates.

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- 1.12. Bidders are to submit only the original BOQ (in .xls format) uploaded by Procurement Officer Publisher (Officer Inviting Tender) after entering the relevant fields without any alteration/ deletion/ modification. Multiple BOQ submission by bidder shall lead to cancellation of bid. In case of items rate tender, bidders shall fill in their rates other than zero value in the specified cells without keeping it blank. In the percentage rate tender the bidder quoting zero percentage is valid and will be taken at par with the estimated rate of the work put to tender.
- 1.13. The bidder shall upload the scanned copy/ copies of document in support of eligibility criteria and qualification information in prescribed format in Portable Document Format (PDF) to the portal in the designated locations of Technical Bid.
- 1.14. The bidder shall write his name in the space provided in the specified location in the Protected Bill of Quantities (BOQ) published by the Officer Inviting Tender. The bidder shall type rates in figure only in the rate column of respective items(s) without any blank cell in the rate column in case of item rate tender and type percentage excess or less up to two decimal place only in case of percentage rate tender.
- 1.15. The bidder shall log to the portal with his/ her DSC and move to the desired tender for up loading the documents in appropriate place one by one simultaneously checking the documents.
- 1.16. Bids cannot be submitted after due date and time. The bids once submitted can not be viewed, retrieved or corrected. The Bidder should ensure correctness of the Bid prior to uploading and take print out of the system generated summary of submission to confirm successful uploading of bid. The bids can not be opened even by the OIT or the Procurement Officer Publisher/ opener before the due date and time of opening.
- 1.17. Each process in the e-procurement is time stamped and the system can defect the time of log in of each user including the Bidder.

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- 1.18. The Bidder should ensure clarity/ legibility of the document uploaded by him to the portal.
- 1.19. The system shall require all the mandatory forms and fields filled up by the contractor during the process of submission of the bid/ tender.
- 1.20. The bidder should check the system generated confirmation statement on the status of the submission.
- 1.21. The bidder should upload sufficiently ahead of the bid closure time to avoid traffic rush and failure in the network.
- 1.22. The Tender Inviting Officer is not responsible for any failure, malfunction or breakdown of the electronic system used during the e-procurement process.
- 1.23. The Bidder is required to upload documents related to his eligibility criteria and qualification information and Bill of Quantity duly filled in. It is not necessary for the part of the bidder to upload the drawing and the other Bid documents (after signing) while uploading his bid. It is assumed that the bidder has referred all the drawings and documents uploaded by the Officer Inviting the Bid.
- 1.24. The Bidder will not be able to submit his bid after expiry of the date and time of submission of bid (server time). The date and time of bid submission shall remain unaltered even if the specified date for the submission of bids declared as a holiday for the Officer Inviting the Bid.
- 1.25. The 'Online bidder' shall digitally sign on all statements documents, certificates uploaded by him, owning responsibility for their correctness/ authenticity as per IT ACT 2000. If any of the information furnished by the bidder is found to be false/ fabricated/ bogus, his BID Security shall stand forfeited and his registration in the portal shall be blocked and the bidder is liable to be blacklisted.

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## **2. SECURITY OF BID SUBMISSION:**

- 2.1. All bid data uploaded by the Bidder to the portal will be encrypted by the DSC of the opener(s). The system shall require all the mandatory forms and fields filled up by the contractor during the process of submission of the bid/tender.
- 2.2. The Bid shall be received in encrypted format by the system which can only be decrypted / opened by the authorized openers only on or after the due date and time.

## **3. DEADLINE FOR SUBMISSION OF THE BIDS :**


- 3.1. The online bidding will remain active till the last date and time of the bid submission. Once the date and time (Server date and time) is over, the bidder will not be able to submit the bid. The date & time of bid submission shall remain unaltered even if the specified date for the submission of bids declared as a holiday for the Officer inviting the Bid.

## **RESUBMISSION AND WITHDRAWAL OF BIDS:**

- 3.2. Resubmission of bid by the Bidders for any number of times before the final date and time of submission is allowed.
- 3.3. Resubmission of bid shall require uploading of all documents including price bid afresh.
- 3.4. If the bidder fails to submit his modified bids within the pre-defined time of receipt, the system shall consider only the last bid submitted.

## **4. LATE BIDS :**

- 4.1. The system shall reject submission of any bid through portal after closure of the receipt time. For all purpose the server time displayed in the e-procurement portal shall be the time to be followed by the bidder and concerned officers.

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## 5. MODIFICATION AND WITHDRAWAL OF BIDS :

5.1. In the E-Procurement Portal, it is allowed to modify the bid any number of times before the final date and time of submission. The bidder shall have to log on to the system and resubmit the documents as asked for by the system including the price bid. In doing so, the bids already submitted by the bidder will be removed automatically from the system and the latest bid only will be admitted. But the bidder should avoid modification of bid at the last moment to avoid system failure or malfunction of internet or traffic jam or power failure. If the bidder fails to submit his modified bids with in the designated time of receipt, the bid already in the system shall be taken for evaluation.

5.2. In the E-Procurement Portal, withdrawal of bid is allowed. But in such case he has to write a letter with appropriate reasons for his withdrawal addressed to the Officer inviting the bid and up load the scanned document to portal in the respective bid before the closure date and time of receipt of the bid. The system shall not allow any withdrawal after expiry of the closure time of the bid.

## 6. OPENING OF THE BID:

6.1. Bid opening date is specified during tender creation or can be extended with corrigendum. This date is available in IFB, tender document as well as the home page of portal. Bid opening can be done by the authorized users which are defined during the tender publication / approval stage. The bids are encrypted using there public keys and can be decrypted only on or after the Bid Opening due date and time. The bid openers private key will be required to open the bids and all the openers have to log on to the portal during that time.

6.1.1. The bidders who participated in the on line bidding can witness opening of the bid from any system logging on to the portal with the DSC away from opening place. Contractors are not required to be present during the bid opening at the opening

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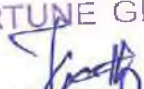
location if they so desire.

- 6.1.2. Each activity is date and time stamped with user details. For time stamping, server time is taken as the reference.
- 6.2. In the event of the specified date of bid opening being declared a holiday for the Officer inviting the Bid/Engineer-in-Charge, the bids will be opened at the appointed time on the next working day.
- 6.3. In case bids are invited for more than one package, the order for opening of the "Bid" shall be that in which they appear in the "Invitation for Bid".
- 6.4. The Bid openers; who have been pre-defined shall log on to the portal with their respective DSC. Unless all the Officers who have been declared as Opening officers, log on the portal with their DSC the Tender cannot be opened.
- 6.5. In case of non-responsive tender the officer Inviting tender should complete the e-Procurement process by uploading the official letter for cancellation/ re-tender.

#### **EVALUATION OF BIDS:-**

All the opened bids shall be downloaded and printed for taking up evaluation. The officer authorized to open the tender shall sign and number on each page of the documents downloaded and furnish a certificate that "the documents as available in the portal containing ..... nos. of pages".

- 6.5.1. After opening of technical bid, the bidder may be asked in writing / online (in their registered e-mail ID) to clarify on the uploaded documents provided in the Technical Bid, if necessary, with respect to any doubts or illegible documents required for Technical Evaluation. The Officer Inviting Tender may ask for any other document of historical nature during Technical Evaluation of the tender.

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Provided in all such cases, furnishing of any document in no way alters the bidders price bid. Non submission of legible documents may render the bid non-responsive. The authority inviting bid may reserve the right to accept any additional document.

- 6.5.2. The bidders will respond in not more than 7 days of issue of the clarification letter, failing which the bid of the bidder will be evaluated on its own merit.
- 6.5.3. Immediately, on receipt of these clarifications, the Evaluating Officers; predefined in the system for the bid, will finalize the list of responsive bidders. They will log on to the site with their DSC and record their comments on the Technical evaluation page in the system. The Officer Inviting the Bid if also the accepting authority, shall log on to the system with his digital signature and check the technical evaluation. He can either accept or pass on to the evaluating officers for re-evaluation. Upon acceptance of technical evaluation by the Accepting authority in the system, the system shall automatically generate letter to all the responsive bidders and the system shall forward the letter to all the responsive bidder that their technical bid has been evaluated responsive with respect to the data/information furnished by him and the letter shall also intimate him the date & time of opening of financial bid. The system shall also inform the non-responsive bidders in their e-mail ID that their bid has been found non-responsive.
- 6.5.4. The Technical evaluation of all the bids shall be carried out up as per the information furnished by the Bidders. But evaluation of the bid does not exonerate the bidders from checking their original documents and if at a later date the bidder is found to have misled the evaluation through wrong information, action as per relevant clause of DTCN shall be taken against the bidder/contractor.
- 6.5.5. The Procurement officer-Evaluators will evaluate bid and finalized list of responsive bidders.  
Opening of price bid and evaluation of lowest bidder is subject to satisfaction of other qualification information.

  
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- 6.5.6. The financial bids of the technically responsive bidders shall be opened on the due date of opening. The Procurement Officer-Openers shall log on to the system in sequence and open the financial bids.
- 6.5.7. The Financial Bid will be opened on the notified date & time in the presence of bidders or their authorised representative who wish to be present.
- 6.5.8. At the time of opening of “Financial Bid”, the names of the bidders whose technical bids were found responsive will be announced and the bids of only those bidders will be opened. The remaining bids will be rejected.
- 6.5.9. The responsive bidders’ name, the bid prices, the item wise rates, the total amount of each item in case the item rate tender and percentage above or less in case of percentage rate tenders will be announced. any discounts and withdrawals, and such other details as the officer inviting the tender may consider appropriate, will be announced by him or his authorized representatives at the time of opening.
- 6.5.10. Rebate/discount offer if any uploaded to the system shall be declared and recorded first.
- 6.5.11. The Financial bid of the bidders shall be opened one by one by the designated officers. The system shall auto-generate the Comparative statement.
- 6.5.12. The Bidder can witness the principal activities and view the documents/summary reports for that particular work by logging on to the portal with his DSC from anywhere.
- 6.5.13. Procurement Officer-Openers shall sign on each page of the download BOQ and the Comparative Statement and furnish a certificate to that respect.
- 6.5.14. System provides an option to Procurement Officer Publisher for reconsidering the

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rejected bid with the approval of concern Chief Engineer/ Head of Department.

## 7. CLARIFICATION AND NEGOTIATION OF BIDS:

- 7.1. For examination, evaluation, and comparison of bids, the officer inviting the bid may, at his discretion, ask the lowest bidder for clarification of his rates including reduction of rate on negotiation and breakdowns of unit rates.
- 7.2. On opening of the price bid the system shall arrange the financial bids in order of their value (L1 first, followed by L2, L3 ....) for subsequent evaluation. The evaluation status (Sheet) will be visible to all the participating bidders after opening on their respective logins. Each activity is recorded in the system with date and time stamping.

## 8. NOTIFICATION OF AWARD AND SIGNING OF AGREEMENT:

- 8.1. In the E-Procurement Portal, the system shall generate the template of award letter and the Officer Inviting the Bid shall mention the amount of Performance Security and additional security required to be furnished in the letter and intimate the bidders in his e-mail ID.
- 8.2. The Employer/ Engineer-in-Charge shall notify acceptance of the work prior to expiry of the validity period by cable, telex or facsimile or e-mail confirmed by registered letter. This letter of Acceptance will state the sum that the Engineer-in-Charge will pay the contractor in consideration of execution and completion of the works by the contractor as prescribed by the contract and the amount of performance security and Additional Performance Security required to be furnished. The issue of the letter of Acceptance shall be treated as closure of the Bid process and commencement of the contract.
- 8.3. The Contractor after furnishing the required acceptable Performance Security and Additional Performance Security, "Letter of Proceed" or "Work Order" shall be issued by the Engineer-in-Charge with copy thereof to the Procurement Officer-Publisher. The Procurement Officer-Publisher shall up load the summery and declare the process as

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complete.

8.4. If the L1 bidder does not turn up for agreement after finalisation of the tender then he shall be debarred from participation in bidding for three years and action will be taken to blacklist the contractor. Besides the consortium/ JV/firm where such an agency/ firm already happens to be or is going to be a partner/ member/ proprietor , he/ they shall neither be allowed for participation in bidding for three years nor his/ their application will be considered for registration and action will be initiated to blacklist him/ them. In that case, the L2 bidder, if fulfils other required criteria would be called for drawing agreement for execution of work subject to condition that the L2 bidder negotiates at par with the quoted by the L1 bidder, otherwise the tender will be cancelled.

## 9. BLOCKING OF PORTAL REGISTRATION

9.1. If the registration Certificate of the contractor is cancelled/ suspended by the registering authority/ blacklisted by the competent authority his portal registration shall be blocked automatically on receipt of information to that effect.

9.2. The portal registration blocked in the ground mentioned in the above Para- 11.1 shall be unblocked automatically in receipt of revocation order of cancellation/ suspension/ blacklisting from the concerned authority.

9.3. The Officer Inviting Tender shall make due inquiry and issue show cause notice to the concerned contractor who in turn shall furnish his reply, if any, within a fortnight from the date of issue of show cause notice. Thereafter the Officer Inviting Tender is required to issue an intimation to the defaulting bidder about his unsatisfactory reply and recommend to the Chief Manager (Tech) for blocking of portal registration within 10 days of intimation to the defaulting bidder regarding his unsatisfactory reply with intimation to the Registering Authority and concerned Chief Engineer/ Heads of Office if any of the following provisions are violated.

9.4. Fails to furnish original Technical Documents before the designated officer within the

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stipulated date and time.

- 9.5. Backs out from the bid on any day after the last date of receipt of tender till expiry of the bid validity period (including till the extended bid validity period)
- 9.6. Fails to execute the agreement within the stipulated date.
- 9.7. If any of the information furnished by the bidder is found to be false/ fabricated/ bogus.

Accordingly the officer Inviting Tender shall recommended to the Chief Manager (Technical) State Procurement Cell, Odisha for blocking of portal registration of bidder and simultaneously action shall also be initiated by **OFFICER INVITING TENDER** for blacklisting as per Appendix-XXXIV of OPWD code Volume-II.

The minimum period of blocking of Portal Registration shall in no case be less than 180 days.

## Appendix – II

### **Procedure for Electronic receipt, accounting and reporting of Cost of Tender Paper and Bid Security on submission of bids**

1. The State Government have formulated rules and procedures for Electronic receipt, accounting and reporting of the receipt- of Cost of Tender Paper and Bid Security on submission of bids through the e-procurement portal of Government of Odisha i.e. "<https://tendersodisha.gov.in>".
2. Electronic receipt of cost of tender paper has been successfully tested through SBI payment gateway. Now it has been decided to introduce electronic receipt of **Cost of Tender Paper and Bid Security on submission of bids** through payment gateway of designated banks such as SBI/ICICI Bank/HDFC Bank for all Government Departments, State PSUs, Statutory Corporations, Autonomous Bodies and Local Bodies etc. in phases (ANNEXURE-I). The process outline as well as accounting and reporting structure are indicated below :

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- a) It will be carried out through a single banking transaction by the bidder for multiple payments like **Cost of Tender Paper and Bid Security on submission of bids.**
  - b) Various payment modes like Internet banking/ NEFT/RTGS of Designated Banks and their Aggregator Banks as well can be accessed by the intending bidders.
  - c) Reporting and accounting of the e-receipts will be made from a single source.
  - d) Credit of receipts into the Government accounts and to the designated Bank account of the participating entities indicated in Para 2 above would be faster.
3. Only those bidders who successfully remit their **Cost of Tender Paper and Bid Security on submission of bids** would be eligible to participate in the tender/bid process. The bidders with pending or failure payment status shall not be able to submit their bid. Tender inviting authority, State Procurement Cell, NIC, the designated Banks shall not be held responsible for such pendency or failure.

**4. Banking arrangement:**

- a) Designated Banks (**SBI/ICICI Bank/HDFC Bank**) payment gateway are being integrated with e-Procurement portal of Government of Odisha (<https://tendersodisha.gov.in>)
- b) The Designated Banks participating in **Electronic receipt, accounting and reporting of Cost of Tender Paper and Bid Security on submission of bids** will nominate a Focal Point Branch called e-FPB, who is authorized to collect and collate all e-Receipts. Each such branch will act as the Receiving branch and Focal Point Branch notwithstanding the fact that the bidder might have debited his account in any of the bank's branches while making payment.

**5. Procedures of bid submission using electronic payment of tender paper cost and Bid Security by bidder:**

- a) **Log on to e-Procurement Portal:** The bidders have to log onto the Odisha e-Procurement portal (<https://tendersodisha.gov.in>) using his/her digital signature

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DPI & Roads  
Odisha, Bhubaneswar**

certificate and then search and then select the required active tender from the "Search Active Tender" option. Now, submit button can be clicked against the selected tender so that it comes to the "My Tenders" section.

- b) **Uploading of Prequalification/Technical/Financial bid:** The bidders have to upload the required Prequalification /Technical/Financial bid, as mentioned in the bidding document and in line with Works Department office memorandum no.7885, dt.23.07.2013.
- c) **Electronic payment of tender paper cost and Bid Security:** Then the bidders have to select and submit the bank name as available in the payment options
- i. A bidder shall make electronic payment using his/her internet banking enabled account with designated Banks or their aggregator banks.
  - ii. A bidder having account in other Banks can make payment using NEFT/RTGS facility of designated Banks.
- Online NEFT/RTGS payment using internet banking of the bank in which the bidder holds his account, by adding the account number as mentioned in the challan as an interbank beneficiary.
- d) **Bid submission:** Only after receipt of intimation at the e-Procurement portal regarding successful transaction by bidder the system will activate the 'Freeze Bid Submission' button to conclude the bid submission process.
- e) **System generated acknowledgement receipt for successful bid submission:** System will generate an acknowledgement receipt for successful bid submission. The bidder should make a note of 'Bid ID' generated in the acknowledgement receipt for tracking their bid status.

#### 6. Settlement of Cost of Tender Paper:

- a) **Cost of Tender Paper:** In respect of Government receipts on account of Cost of Tender Paper, the e-Procurement portal shall generate a MIS for the State Procurement Cell (SPC). The MIS will contain an abstract of the cost of tender paper collected with

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reference to **Bid Identification Number**. The State Procurement Cell shall generate Bank-wise-head-wise challans separately for **Cost of Tender Paper** and instruct the designated Banks to remit the money to the State Government account under different heads. In respect of the cost of tender paper received through the e-procurement portal, the remittance to the Cyber Treasury account will be made to the Head of Account 0075-Misc, General Services-800-Other Receipts -0097-Misc. Receipts-02237-Cost of Tender Paper.

- b) For the time being, the State Procurement Cell (SPC) will use over the counter payment facility of the Odisha Treasury portal. Thereafter, remittance through NEFT & RTGS will be facilitated through the Odisha Treasury portal.
- c) Similarly, in case of State PSUs, Statutory Corporations, Autonomous Bodies and Local Bodies etc., **Cost of Tender Paper**, the e-Procurement portal shall generate a MIS for the State Procurement Cell (SPC). The MIS will contain an abstract of the cost of tender paper collected with reference to **Bid Identification Number**. The State Procurement Cell shall generate Bank-wise list of challans and instruct the designated Banks to remit the money through the Odisha Treasury portal. The cost of tender papers will be credited to the registered Bank account of the concerned State PSUs, Statutory Corporations, Autonomous Bodies and Local Bodies etc.
- d) Bank will refund (in case the Tender Inviting Authority (TIA) issues such instructions) the tender fee, Bid Security to the bidder, in case the tender is cancelled before opening of Bid as per direction received from TIA through e-procurement system.
- e) Back-end Transaction Matrix of Electronic receipt of Cost of Tender Paper and Bid Security on submission of bids is enclosed in the Annexure.

**7. Settlement of Bid Security on submission of bids:**

- a) The Bank will remit the **Bid Security on submission/cancellation of bids** to respective bidders accounts as per direction received from TIA through e-procurement system.

**8. Forfeiture of Bid Security :**

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Forfeiture of **Bid Security on submission of bid** of defaulting bidder is occasioned for various reasons.

- a) In case the **Bid Security on submission of bid** is forfeited, the e-Procurement portal will direct the Bank to transfer the Bid Security value from the Pooling Account of SPC to the registered account of the tender inviting authority.
- b) The Tender inviting authorities of the Government Departments will deposit the forfeited **Bid Security on submission of bid**, in the State Government Treasury under the appropriate head (8782-Cash Remittances and Adjustments between the officers rendering accounts to the same Accounts Officer-102-P.W.Remittances-1683-Remittances-91028-Remittances into Treasury) after taking the amount as a revenue receipt in their Cash Book under the head 0075-Misc. General Services-00-101 -Unclaimed Deposits-0097-Misc. Receipts-02080-Misc. Deposits and submit the detail account to DAG (Puri) as a deposit of the Division.
- c) By clicking submit button, system will initiate the forfeiture of Bid Security. System will not allow the evaluator to edit the initiation after clicking the submit button. Forfeiture option can be carried out in phased manner like one bidder at a time.

#### 9. Role of the Banks:

- a) Make necessary provision / customizations at their end to enable the provision for online payments / refunds as per this document.
- b) Provide necessary real-time message to bidders regarding successful or unsuccessful transactions during online payment processes and redirect them to e-Procurement website with necessary transaction reference details enabling them to submit their bids.
- c) The bank shall ensure transfer of funds from the pooling account to the Government Head/current account of PSUs/ULBs within the next bank working day as per the directions generated from e-Procurement portal.
- d) Bank should provide timely reports and reference details to NIC enabling them to carry out their role as stated below.

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- e) Refund of amount to bidders as per the XML file provided by e-Procurement system on the next bank working day from the date of generation of the XML file and also provide a confirmation to NIC on the same.

**10. Role of State Procurement Cell:**

- a) Communicate requirements of Government departments/ State PSUs/ Autonomous Bodies/ ULBs online payment requirements to National Informatics Centre / the authorised Banks for mapping/ customization.
- b) In every working day, the State Procurement Cell shall generate MIS from the e-Procurement portal to ascertain the tender paper cost received in the e-Tendering process separately bank-wise for the Government Department and the PSUs/ULBs. The SPC shall generate bank-wise separate online challans from the Odisha Treasury portal and make the remittance through over the counter facility or NEFT/RTGS (as and when this functionality is available in Treasury portal) and issue instruction to the bank for remittance of the receipt to the State Government account.
- c) The State Procurement Cell shall be responsible for providing challan details and MIS in respect of the remittance towards tender paper cost to the Tender inviting authorities for their record.
- d) State Procurement Cell shall monitor the progress of e-Tendering by different Government departments / State PSUs/ Autonomous Bodies / ULBs through an MIS. State Procurement Cell shall monitor and send monthly progress reports to the Government.
- e) The e-Procurement system will generate a consolidated refund & settlement XML file as an end of the day activity.
- f) e-Procurement system will provide a web service for payment gateway (PG) provider to pull the encrypted refund and settlement details in XML file against a day.
- g) Similarly, payment gateway (PG) provider will provide a web service to pull the refund and settlement status against a day.

  
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- h) e-Procurement system will update the status accordingly for reconciliation report.

**11. Role of National Informatics Centre :**

- a) Customize e-Procurement software and web-pages of Government of Odisha (<https://tendersodisha.gov.in>) to enable the provision for electronic payment.
- b) The NIC, Odisha will modify / rectify the errors in electronic data relating to the Chart of Account.
- c) NIC will provide an interface to organizations to download the electronic receipt data.
- d) Enable automatic generation of daily XML files from e-Procurement system and ensure delivery of the same to the authorised Banks for enabling automatic refund/settlement of funds.
- e) NIC shall enable the e-Procurement portal to generate MIS as required for the State Procurement Cell in order to make remittance of the tender paper cost to the State Government account using the Odisha Treasury portal.

**12. Role of Cyber Treasury :**

- a) The cost of the tender paper deposited by the SPC using the Odisha Treasury Portal which will be accounted for by the Cyber Treasury and it shall submit the accounts to A.G (O) as per the established process.
- b) The Cyber Treasury will provide MIS as required to the SPC for the purpose of accounting and reconciliation of the electronic remittances made to the State Government account.

**13. Redressal of Public grievances :**

The State Procurement Cell, Odisha, National Informatics Centre, Odisha and the e-FPB will have an effective procedure for dealing with, public complaint for e-Receipt related matters. In case, any mistake is detected by any of the stakeholders in reporting of receipt of

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tender paper cost and Bid Security, either suo moto or on being brought to its notice, the State Procurement Cell, Odisha, National Informatics Centre, Odisha unit, Cyber Treasury and the bank will promptly take steps for rectification. The e-Focal Point Branch of the participating Banks, National Informatics Centre, Odisha and the State Procurement Cell, Odisha will notify the contact number and address of the Help Desk for resolution of any dispute regarding e-Receipt.

**14. Applicability and modification of existing rules / orders:**

The modalities prescribed in this Office Memorandum for downloading of tender paper, submission and rejection of bid, acceptance of Bids as well as refund and forfeiture of earnest deposit will be applicable for electronic submission of bids through e-procurement portal. Existing provisions regulating cost of tender paper, Bid Security in OPWD Code and OGFR would stand modified to the extent prescribed.

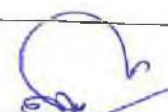
15. These arrangements would be made effective after signing of MoU between the designated Banks and the State Procurement Cell, firming up of Banking arrangements and technical integration between designated Bank and e-Procurement Portal.

**ANNXURE-I**

**Back-end Transaction Matrix of Electronic receipt and remittance of Cost of Tender Paper and Bid Security on submission of bids.**

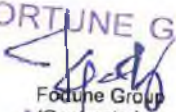
	<b>Cost of Tender Paper on submission of bids</b>	<b>Bid Security on submission of bids</b>
Government Departments	<p>I. The payment towards the cost of Tender Paper, in case Government Departments, shall be collected in separate Pooling accounts opened in Focal Point Branch called e-FPB of respective designated banks [as stated in Para 2] at Bhubaneswar on T+1 day.</p> <p>II. With reference to the Notice Inviting Tender/ Bid Identification Number, the amount so realized is to be remitted to Government Account under the Head Of Account 0075-Misc. General Services-800-Other Receipts-0097-Misc. Receipts-02237-Cost of Tender Paper through Odisha Treasury Portal after opening of</p>	<p>I. In case of tenders of Government Departments, amount towards Bid Security on submission of bids shall be collected in a pooling account opened for this purpose at Focal Point Branch called e-FPB of respective designated banks at Bhubaneswar and the banks will remit the amount to respective bidder's account within two working days on receipt of instruction from TIA through refund and settlement of e-procurement system.</p> <p>II. In case of forfeiture of Bid Security on submission of bids, the e- Procurement portal will direct the Bank to transfer the Bid Security value from the Pooling Account of SPC to the registered account of the tender inviting authority within two working days of receipt of instruction from TIA.</p>

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 (Employer)  
**Chief Engineer**  
**DPI & Roads**  
**Odisha, Bhubaneswar**

	the bid.	
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	Cost of Tender Paper on submission of bids	Bid Security on submission of bids
State PSUs Statutory Corporations, Autonomous Bodies and Local Bodies.	<p>I. In case of State PSUs, Statutory corporations, Autonomous Bodies and Local Bodies etc. the amount towards <b>Cost of Tender Paper</b>, on submission of bids shall be collected in separated pooling accounts opened in Focal Point Branch called e-FPB of respective designated Banks at Bhubaneswar on T+1 days.</p> <p>II. The Paper cost will be transferred to the respective current accounts of concerned State PSUs, Statutory Corporation, Autonomous Bodies and Local Bodies etc. after opening of bid.</p>	<p>I. Amount towards Bid Security on submission of bids shall be collected in a separate pooling account of Focal Point Branch called e-FPB of respective designated banks at Bhubaneswar and the banks will remit the amount to respective bidder's account on receipt of instruction from TIA through refund and settlement of e-procurement system within two working days from receipt of such instruction.</p> <p>II. In case of forfeiture of Bid Security on submission of bids, the e- Procurement portal will direct the Bank to transfer the Bid Security value from the Pooling Account of SPC to the registered account of the tender inviting authority within two working days of receipt of instruction from TIA.</p>

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 Managing Partner

  
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 Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

SCHEDULE-A

CERTIFICATE OF RELATIONSHIP

I/We hereby certify that I/We\* am/ are\* **related/ not related\*** to any officer of P.W.D of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the Works Department, Govt. of Odisha I/We\* am/are\* aware that, if the facts subsequently proved to be false, my/our\* contract will be rescinded with forfeiture of E.M.D and security deposit and I/We\* shall be liable to make good the loss or damage resulting from such cancellation.

I/We also note that, non-submission of this certificate will render my / our Bid liable for rejection.

Signature of the Bidder

\* *Strike out which is not applicable*

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(Employer)  
**Chief Engineer**  
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**Odisha, Bhubaneswar**

**SCHEDULE-B**

**CERTIFICATE OF EMPLOYMENT OF GRADUATE ENGINEER / DIPLOMA HOLDERS**

**( for Super class / Special class / A class contractors only )**

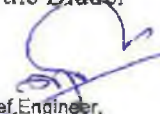
I / We hereby certify that at present the following Engineering personnel are working with me / in our firm / company.

Sl. No.	Name of Engineering personnel appointed for supervising contractor's work with address.	Qualification	Date of Appointment	Monthly emolument	Whether full time engagement and continuous.	Whether they are Superannuated / Retired / Dismissed or Removed Personnel from State Govt./ Central Govt. / Public Sector Undertaking / Private Companies and/ or ineligible for Government service.
1	2	3	4	5	6	7

I / We also note that, non-submission of this certificate will render my / our Bid liable for rejection .

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Fortune Group  
(Contractor)  
Managing Partner

Signature of the Bidder

  
Chief Engineer,  
DPI & Roads, Odisha  
Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar



**SCHEDULE-C****ANNEXURE – I****LIST OF PLANT AND EQUIPMENTS TO BE DEPLOYED ON THE CONTACT WORK**

*(Capacity of each plant and equipment should be attached separately. The equipment mentioned below should either be owned or availed on long-term lease extended beyond the duration of the work, the authority of which in either case is to be substantiated by the bidder before award of the work.)*

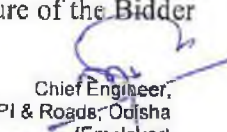
Sl. No.	List of plants and equipments*	Requirement	Owned/ Leased	Maximum Marks	Marks Secured
(i)	Concrete batch mix plant (20Cum/Hr)	1 No.		5	
(ii)	Complete staging and shuttering materials	1500 Sqm		2	
(iii)	Generator (100 KVA)	1 No.		2	
(iv)	Hot mix plant (60 to 90 TPH)	1 No.		6	
(v)	Paver finisher hydrostatic with sensor control (100 TPH)	1 No.		5	
(vi)	WMM Plant (175 TPH)	1 No.		5	
(vii)	Mechanical paver for WMM work (100TPH)	1 No.		5	
(viii)	Vibratory roller	3 Nos.		9	
(ix)	Transit Mixer	3 Nos		6	
(x)	Hydraulic excavator ( 60 cum/hour)	2 Nos.		6	
(xi)	Tandem Roller	2 Nos.		6	
(xii)	Dozer (150 cum/hr)	1 No.		5	
(xiii)	Front end loader (1 cum bucket capacity)	1 Nos.		3	
(xiv)	Tipper (of different capacity)	30 Nos.		10	
(xv)	Bitumen sprayer (1750 sqm/hr)	1 No.		5	
(xvi)	Water tanker (6 KL)	5 Nos.		5	
(xvii)	Motor grader (3.35m blade – 200 cum/hr)	2 Nos.		10	
(xviii)	Pneumatic Tyred Roller (25 cum/hour)	1 No.		5	
		Total		100	

Certified that

1. I/ We shall deploy all other machinery/equipments as shall be required for satisfactory completion of the work.
2. I/ We shall not claim any amount and/ or time for deploying additional and/ or sophisticated machinery by us for completion of the work.

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 Managing Partner

Signature of the Bidder

  
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 (Employer)  
 Chief Engineer  
 DPI & Roads


ANNEXURE – II

CAPACITY OF OTHER PLANTS AND EQUIPMENTS

1. a) Tractor The tractor should have a minimum capacity of 22 to 50 H.P.
- b) Water Tanker The water tanker should be a truck mounted one or as a trailing unit having minimum capacity of 5000 liters.
- c) Smooth wheeled Roller Weight from 8 tonnes to 10 tonnes  
Unballasted : 8 tonnes Approx.  
Water Ballasted : 9 tonnes approx.  
Sand Ballasted : 10 tonnes Approx.
2. a) Compressor Having capacity of 450 CFM
- b) Water Pump Having capacity of 5H.P. to 27 H.P.
- c) Jack Hammer Having capacity of 2 tonnes.
- d) Winch with grab Winch having capacity of 5 tonne and grab having 1 tonne capacity.
3. a) Concrete Mixer (i) Batch type Concrete Mixer as per IS-1791 / 1985 for capacity of 15 Cum / hour (Tilting drum type) with power operated side loaded revolution counter, automatic shaker, Gear mounted on steel chassis with 4 MS wheels complete with suitable prime mover.  
(ii) Integral weigh batching facility.
- b) Welding generator Having Capacity of 8-15 KW. Immersion type with vibrating Needle of 40 mm/ 50mm / 60mm & 4 meter length.
4. a) Diesel Generator Having capacity of 32 K.W.
- b) Truck Having capacity of 12 tonnes.
- c) Jeep Diesel jeep having capacity of 16 H.P. with trailer.

Signature of the Bidder

  
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ANNEXURE – III

CERTIFICATE ISSUED BY THE EXECUTIVE ENGINEER\*  
(under whom the machineries / equipments are deployed)

Sl. No	Name of the machineries/ equipments	Identification No. / Engine / Chassis No.	Capacity	Year of purchase	Condition (Working / breakdown)	Since when deployed under him	When it is likely to be released from current assignment
1	2	3	4	5	6	7	8

**Certified that**

1. I have verified the ownership documents with the identification no. of the Machineries / Equipments.
2. Machines are currently utilized exclusively for the work under the Division.
3. The facts provided are true as on the date of issue of this document to the best of my knowledge.

EXECUTIVE ENGINEER  
Division, \_\_\_\_\_

*\*Certificate not issued prior to 90 days of receipt of Bid*

  
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**DPI & Roads**

**SCHEDULE-C**

**ANNEXURE – IV**

**SCHEDULE FOR MOVEMENT OF EQUIPMENT / MACHINERIES AVAILABLE WITH THE BIDDER  
FROM ONE SITE TO WORK SITE WHEN THE CONTRACTOR IS EXECUTING SEVERAL WORKS**

Sl. No	Name of Equipment & Machineries	Requirement	Name of the work for which Equipment & Machineries deployed	Name of the Division under whose jurisdiction Equipment & Machineries deployed	Name of the place where equipments and machineries deployed.	Schedule for movement of equipment/ machineries to work site for use

Certified that, the above machineries shall be available solely for this work from the date mentioned against them.

Signature of the Bidder

  
**FORTUNE GROUP**  
Fortune Group  
(Contractor)  
Managing Partner

  
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DPI & Roads, Odisha  
(Employer)  
Chief Engineer  
DPI & Roads

**SCHEDULE "C"**

**PLANT AND EQUIPMENT PROPOSED TO BE EMPLOYED BY THE APPLICANT FOR USE IN THE WORK**

*(Provide information for Construction Equipments, Plants, Vehicles etc. Refer Annexure I for list of essential equipments for contracts. If leased, indicate the date when the current lease expires.)*

Sl. No.	Name of equipment	Total requirement			Equipment in hand			Equipment to be procured			Whether documentary evidence furnished	Reference to documentary evidence	Remarks
		No. of units	Kind and make	Capacity	No. of each	Year of manufacture and present	Present location	No. of each	Capacity	Through lease			
1	2	3	4	5	6	7	8	9	10	11	12	13	14

  
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 (Contractor)

Managing Partner

Signature of the Bidder

  
 Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
**Chief Engineer**  
**DPI & Roads**  
 Odisha

**SCHEDULE-D1**

**WORK EXPERIENCE**

**LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees	Major Items of work	Quantity of items	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Actual date of completion of the work	Reasons for delay in starting/ completion, if any
1	2	3	4	5	6	7	8	9

Signature of the Bidder

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Managing Partner

  
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DPI & Roads, Odisha  
(Employer)  
**Chief Engineer**  
**DPI & Roads**

**SCHEDULE-D2**

**WORK EXPERIENCE**

**LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees	Major Items of works	Quantity of items	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8	9

Signature of the Bidder

  
**FORTUNE GROUP**  
Fortune Group  
(Contractor)  
Managing Partner

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
**Chief Engineer**  
**DPI & Roads**  
Odisha

**SCHEDULE-“E”**


**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING, EXPELLING OR ABANDONMENT OF WORK BY  
THE BIDDER**

- |    |    |  |          |
|----|----|--|----------|
| 1. | a) | Is the Bidder currently involved in any litigation relating to the works.  | Yes / No |
|    | b) | If yes: give details:  |          |
| 2. | a) | Has the Bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years.  | Yes / No |
| 3. | a) | Has the Bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. | Yes / No |
|    | b) | If yes, give details:  |          |

Signature of the Bidder

  
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Fortune Group  
(Contractor)

Managing Partner

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
**Chief Engineer**  
**DPI & Roads**



**SCHEDULE -F**

**AFFIDAVIT**

I/We, Mr./ Ms. \_\_\_\_\_ son/daughter of \_\_\_\_\_ aged about \_\_\_ years, At/ P.O:- \_\_\_\_\_ Dist \_\_\_\_\_ State \_\_\_\_\_, Proprietor / Managing Director / Director / Managing Partner / Authorized Signatory of M/s \_\_\_\_\_ do hereby state and declare on solemn affirmation as under.

1. That I/ We possess the Contractor license for \_\_\_\_\_ Class registered with the \_\_\_\_\_.
2. That I/ We was/ were one of the bidders for the work “ [Name of the Work put to tender] ” amounting to Rs. \_\_\_\_\_ [Amount put to tender] called by the Chief Engineer, (XXXXXXX), Odisha for which the last date of submission is on \_\_\_\_\_
3. That I/ We hereby confirm that the bid price quoted by me / us for Rs. \_\_\_\_\_ in the tender for the work and amount mentioned above is inclusive of all taxes, considering the discount / premium stated by me/us.
4. That the rates for different items of the work offered by me/ us and effected by the percentage of discount / rebate offered by me/ us in the tender, are firm and complete in all respects, and are inclusive of all taxes.
5. That I/ We hereby certify that I/my/our firm/Company/Proprietorship concerned, i.e M/s \_\_\_\_\_ am/is registered under the VAT Act as I/we/our firm/Company have not started any business in the State of Odisha till dtd.30.06.2017 and have no liability under the VAT Act. in the State of Odisha till dtd. 30.06.2017.
6. That I/ We confirm that I/ We shall raise the “Tax Invoice” for the said work showing the CGST and SGST components separately within the contract price.
7. That I/ We shall not claim any amount towards GST separately beyond the rates offered by me at any time during performance of the contract and/ or afterwards.

**FOR FUTURE GROUP**  
Fortune Group  
(Contractor)

Managing Partner

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
**Chief Engineer**  
DPI & Roads

8. That I/ We hereby certify that neither our firm M/s \_\_\_\_\_ nor any of its constituent partners / I have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us / me for such works have been rescinded during the last five years prior to the date of this bid.
9. That I/ We hereby authorize(s) and request (s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
10. That I/ We agree to furnish any historical information that may be required during evaluation at the request of the Department.
11. That I/ We do hereby affirm that all the statements made in the required Attachments, Schedules and Annexures are true and correct.

Solemnly affirmed at [Place] on this \_\_\_\_ day of \_\_\_\_\_, 20xx.

Deponent

  
FORTUNE GROUP  
Fortune Group  
(Contractor)

Managing Partner

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
Chief Engineer  
DPI & Roads

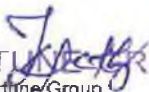
**SCHEDULE -G**

**EXISTING COMMITMENTS AND ON-GOING WORKS**

Description of works	Place & State	Contract No.	Name & Address of Employer	Value of Contract (Rs. lakh.)	Stipulated Period of Completion	Value of works* remaining to be completed (Rs in lakh)	Anticipated date of completion.
1	2	3	4	5	6	7	8

\*Attach certificate(s) from the Engineer(s)-in-Charge

Signature of the Bidder

  
**FORTUNE GROUP**  
Fortune/Group  
(Contractor)

Managing Partner

  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
**Chief Engineer**  
**DPI & Roads**

**SCHEDULE -H**

**TOTAL VALUE OF CONSTRUCTION WORK PERFORMED IN THE LAST FIVE YEARS**

(Certificate from Chartered Accountant is to be furnished)

Description of works	Place & State	Contract No.	Name & Address of Employer	Value of Contract (Rs. lakh.)	Stipulated Period of Completion	Value of works* remaining to be completed (Rs in lakh)	Anticipated date of completion.
1	2	3	4	5	6	7	8

*\*Attach certificate(s) from the Engineer(s)-in-Charge , Base year shall be taken as 2017-18.*

2012-2013-----

2013-2014-----

2014-2015-----

2015-2016-----

2016-2017-----

Signature of the Bidder

**FORTUNE GROUP**  
*[Signature]*  
Fortune Group  
(Contractor)  
Managing Partner

*[Signature]*  
Chief Engineer,  
DPI & Roads, Odisha  
(Employer)  
**Chief Engineer**  
**DPI & Roads**  
Odisha

PACKAGE No.OSRP-CW-P<sub>1</sub>-P02 (Balance)

Construction for Widening & Strengthening of  
Existing Carriageway to 2 Lane Road from  
**Bhadrak to Anandpur (Km.0/000 to Km.43/000)**  
**of SH-53 (Balance Work)-P02**

## Drawings Volume-I

1. Scope of Highway Works (Balance)
2. Scope of Structure Works (Balance)
3. Quarry Chart
4. Strip Chart

FORTUNE GROUP

Fortune Group  
(Contractor)  
Managing Partner

Chief Engineer,

DPI & Road Engineer

Odisha, Bhubaneswar



# Scope of Works

## 1. BACKGROUND

The Works Department, Government of Odisha has established a Project Management Unit (PMU) which is in-charge of the Odisha State Road Project. The PMU is headed by the Chief Engineer, DPI & Roads, Odisha assisted by appropriate professional and support staff.

The work is regarding construction of balance works for widening & strengthening of existing carriageway to 2-lane road from Bhadrak to Anandpur (Km. 0/0 to Km. 43/0 of SH-53).

This road located in the Eastern part of Orissa, takes off from NH 16 at Bhadrak and terminates at 43.0 km on SH -53 at Anandpur before river Baitarani. The total length of the road is 42.8 km. The work had been taken up under different contracts earlier and the present scope contains the balance work for completion.

The road passes through two districts namely Bhadrak and Keonjhar and important settlements like Bhadrak, Randia, Barpada, Bonth, Basantia, Chhenapadi, Fakirpur and Anandpur. Bhadrak is the district headquarters where as Anandpur is a subdivisional head quarters in Keonjhar district.. The terrain is plain and the drop in level in the entire 42.8 km is about 4 to 5 m only. This road suffers from inundation at places during rainy season as many stretches are having level lower than the adjacent water level. This area experiences rainfall of average 1200mm to 1500mm per annum and bulk of the rainfall occurs during June to October, which is the monsoon period in Odisha. Highest temperature in the area during, March to May is 45 degree Celsius and the temperature dips to the lowest of 10 degree Celsius during winter season.

## 2.0 WORKS

The civil works will comprise of the following, as required, mostly on existing alignments.

- a. Improvement of road geometry;
- b. Raising & Widening of embankments considering drainage and road geometry
- c. Sub base, base and concrete pavements in some built up areas;
- d. Widening of carriageway and shoulders;
- e. Improvement of side drainage & improvement to or replacement and widening of culverts;
- f. Repair and rehabilitation of bridges;
- g. Construction of new Culverts and Bridges;
- h. Traffic safety features;
- i. Road signs and road markings;
- j. Environmental protection and management measures during construction stage;



- k. Traffic diversion and management during the construction;
- l. Routine Maintenance of Project Corridors during the construction period;
- m. Construction and maintenance of Diversion roads

The Chief Engineer, DPI & Roads, Odisha on behalf of the Government of Odisha in Works Department, now wishes to engage a Contractor / Joint Venture of Construction Firms of multi-disciplinary international and local expertise (hereafter the "Contractor"), to carry out construction work of the proposed project in accordance with the Conditions of Contract.

The supervision of the civil works will be carried out by qualified consultants with satisfactory experience in implementing projects of similar nature and size, who will be the Engineer-in-Charge for the works.

The proposed construction package to be taken up is as follows:

Sl.	Package No.	Name of the Road	Approximate Length of Construction in Km	Period of Construction
1	OSRP-CW-P <sub>1</sub> -P02 (Balance)	Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Bhadrak to Anandpur (Km. 0/0 to Km. 43/0 of SH-53) (Balance Works)	42.8 kms	11 Months

### 3.0 Confirmation of Scope of Work:

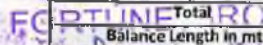
The scope of the work has been provided in the subsequent pages of this volume. Before commencement of the work, the contractor shall record the status of balance works jointly confirmed by the Engineer-in-Charge and the Employer's Representative i.e. Executive Engineer, Bhadrak (R&B) Division, Bhadrak, along with Video Recording of the entire stretch.





**Scope of Work of Bhadrak - Anandapur Road (Km.0/000 to Km.43/000) - SH-53 - P02 -Highway Works (Balance)**

Chainage		Length Completed in Meters							
		BC in mtr.		DLC in mtr.		PQC in mtr.		Turfing in mtr.	
Total Length In Meter		39466	39466	3334	3334	3334	3334	41300	41300
From	To	LHS	RHS	LHS	RHS	LHS	RHS	LHS	RHS
0.200	0.570	-	-	-	-	-	-	-	-
0.570	1.350	-	-	-	-	-	-	-	-
1.350	2.200	-	-	-	-	-	-	-	-
2.200	2.600	-	-	-	-	-	-	-	-
2.600	3.400	-	-	-	-	-	-	-	-
3.400	4.000	-	-	-	-	-	-	-	-
4.000	11.030	7030	7030	-	-	-	-	-	-
11.030	11.600	-	-	-	-	-	-	-	-
11.600	12.030	-	-	-	-	-	-	-	-
12.030	16.910	4880	4880	-	-	-	-	-	-
16.910	17.520	-	-	-	-	-	-	-	-
17.520	18.850	-	-	-	-	-	-	-	-
18.850	19.110	-	-	-	-	-	-	-	-
19.110	19.860	-	-	750	750	750	750	-	-
19.860	20.080	-	-	-	220	-	220	-	-
20.080	20.250	-	-	-	-	-	-	-	-
20.250	20.380	-	-	-	-	-	-	-	-
20.380	20.600	-	-	-	-	-	-	-	-
20.600	20.700	-	-	-	-	-	-	-	-
20.700	20.800	-	-	-	-	-	-	-	-
20.800	21.060	-	-	-	-	-	-	-	-
21.060	29.000	7940	7940	-	-	-	-	-	-
29.000	29.100	-	-	-	-	-	-	-	-
29.100	29.883	783	783	-	-	-	-	-	-
29.883	29.889	6	-	-	-	-	-	-	-
29.889	29.944	55	55	-	-	-	-	-	-
29.944	29.965	-	21	-	-	-	-	-	-
29.965	30.000	-	-	-	-	-	-	-	-
30.000	30.005	5	-	-	-	-	-	-	-
30.005	30.625	620	620	-	-	-	-	-	-
30.625	30.640	-	15	-	-	-	-	-	-
30.640	31.072	432	432	-	-	-	-	-	-
31.072	31.090	-	18	-	-	-	-	-	-
31.090	31.110	-	-	-	-	-	-	-	-
31.110	31.467	-	-	357	357	357	357	-	-
31.467	31.475	-	-	8	8	-	-	-	-
31.475	31.480	-	-	-	5	-	-	-	-
31.480	31.600	-	-	-	120	-	-	-	-
31.600	31.609	-	-	9	9	-	-	-	-
31.609	31.610	-	-	1	1	1	-	-	-
31.610	31.612	-	-	2	2	2	-	-	-
31.612	31.750	-	-	138	138	138	138	-	-
31.750	31.790	-	-	-	40	-	-	-	-
31.790	32.450	-	-	660	660	660	660	-	-
32.450	32.470	-	-	-	-	-	-	-	-
32.470	33.640	1170	1170	-	-	-	-	-	-
33.640	34.280	-	-	-	-	-	-	-	-
34.280	35.435	1155	1155	-	-	-	-	-	-
35.435	35.438	3	-	-	-	-	-	-	-
35.438	35.450	-	-	-	-	-	-	-	-
35.450	35.455	5	-	-	-	-	-	-	-
35.455	35.589	134	134	-	-	-	-	-	-
35.589	35.601	-	-	-	-	-	-	-	-
35.601	35.820	219	219	-	-	-	-	-	-
35.820	35.823	-	-	-	-	-	-	-	-
35.823	36.067	-	-	244	244	244	244	-	-
36.067	36.070	-	-	-	-	-	-	-	-
36.070	36.330	260	260	-	-	-	-	-	-
36.330	37.750	-	-	-	-	-	-	-	-
37.750	37.760	-	10	-	-	-	-	-	-
37.760	37.980	220	220	-	-	-	-	-	-
37.980	38.000	-	20	-	-	-	-	-	-
38.000	38.770	-	-	-	-	-	-	-	-
38.770	39.487	717	717	-	-	-	-	-	-
39.487	39.492	5	-	-	-	-	-	-	-
39.492	42.080	-	-	-	-	-	-	-	-
42.080	42.100	-	-	-	-	-	-	-	-
42.100	42.180	-	-	-	-	-	-	-	-
42.180	42.300	-	-	-	-	-	-	-	-
42.300	43.000	700	700	-	-	-	-	-	-
<b>Total</b>		<b>26339</b>	<b>26399</b>	<b>2169</b>	<b>2554</b>	<b>2152</b>	<b>2369</b>	<b>0</b>	<b>0</b>
<b>Balance Length in mtr.</b>		<b>13127</b>	<b>13067</b>	<b>1165</b>	<b>780</b>	<b>1182</b>	<b>965</b>	<b>41300</b>	<b>41300</b>

  
 Fortune Group  
 (Contractor)  
 Managing Partner

Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)  
 Odisha, Bhubaneswar

**Scope of Work of Bhadrak - Anandapur Road (Km.0/000 to Km.43/000) - SH-53 - P02 - Structure Works (Balance)**

**Status of Completed and Balance Work of Structures**

S. No.	Chainage	Type	Span	Present Status	Balance Work to be Done	S. No.	Chainage	Type	Span	Present Status	Balance Work to be Done
1	350	RCC Box	1/22/0	Not started	All work	17	8790	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
2	545	Pipe	2x1.0	Not started	All work	18	8958	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
3	780	Pipe	2x1.0	Not started	All work	19	9027	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
4	1+100	Pipe	2x1.0	Not started	All work	20	10016	MINOR	1x8.0	Deck slab, return wall (B/S), crash barrier(B/S) back filling, filter media completed.	Wearing coat, drainage spouts, protection works e.g. stone pitching, curtain wall aprons.
5	1155	Pipe	2x1.0	R/S head wall and pipe laying completed.	L/S Head wall and pipe laying. Protection works e.g. stone pitching, aprons etc.	21	10699	RCC Box	1/33/0	Box (B/S), return wall (B/S) back filling, filter media completed.	RCC railing, wearing coat, protection works e.g. stone pitching, aprons etc.
6	1328	RCC Box	1/23/0	R/S box and return wall A1, A2 (R/S) completed.	L/S structure, RCC railing, wearing coat, back filling, filter media, protection works e.g. stone pitching, aprons etc.	22	10975	RCC Box	1/22/0	Box (B/S), return wall (B/S), back filling, filter media completed.	RCC railing, wearing coat, protection works e.g. stone pitching, aprons etc.
7	2002	Pipe	2x1.0	R/S head wall and pipe laying completed.	L/S Head wall and pipe laying. protection works e.g. stone pitching, aprons etc.	23	11+057	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
8	2192	RCC Box	1/44/0	Box (B/S) and return wall A2 (B/S) completed.	Return wall A1 (B/S), RCC railing (B/S), wearing coat, back filling, filter media, protection works e.g., stone pitching, aprons etc.	24	11+229	RCC Box	1/22/0	Box (B/S), return wall (B/S) completed.	RCC railing, wearing coat, back filling, filter media, protection works e.g. stone pitching, aprons
9	2346	RCC Box	1/23/0	R/S box and return wall A1, A2 (R/S) completed.	L/S structure, RCC railing, wearing coat, back filling, filter media, protection works e.g. stone pitching, aprons	25	11+399	MINOR	2x8.0	Deck slab, return wall A1 (B/S) 2 <sup>nd</sup> lift. A2 (L/S) 1 <sup>st</sup> lift. A2(R/S) raft completed.	Wearing coat, return wall, crash barrier, wearing coat, curtain wall drainage spouts, back filling, filter media
10	3605	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	26	11500	RCC Box	1/23/0	Box (B/S), return wall A2 (B/S) and A1 (L/S) Completed.	Return wall final lift at A1 (R/S), RCC railing, wearing coat, protection works e.g. stone pitching, back filling, filter media
11	3979	RCC Box	1/22/0	Box (B/S), return wall A1 (B/S) & A2 (R/S) completed.	Return wall A2 (L/S), RCC railing, wearing coat, back filling, filter media, protection works e.g. stone pitching, aprons.	27	11868	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
12	4411	RCC Box	1/33/0	Box (B/S), return wall (B/S), parapet (B/S), back filling, filter media completed.	Wearing coat, protection works e.g. stone pitching, aprons, toe wall etc	28	12609	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
13	5122	RCC Box	1/33/0	Box (B/S), return wall (B/S), back filling, filter media completed.	Wearing coat, protection works e.g. stone pitching, aprons, toe wall etc	29	12980	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
14	6675	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	30	13375	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
15	7782	RCC Box	1/33/0	Box (B/S), return wall (B/S), back filling, filter media completed.	Wearing coat, protection works e.g. stone pitching, aprons, toe wall etc	31	13507	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
16	8517	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	32	13909	Pipe	1x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.

**FOETUNE GR**  
 Fortune Group  
 (Contractor)  
 Managing Part

Chief Engineer,  
 DP & Roads, Odisha  
 (Employer)

**Scope of Work of Bhadrak - Anandapur Road (Km.0/000 to Km.43/000) - SH-53 - P02 - Structure Works (Balance)**

**Status of Completed and Balance Work of Structures**

33	14218	RCC Box	1/22/0	Box (B/S), return wall (B/S), back filling, filter media completed.	RCC railing, wearing coat, Protection works e.g. stone pitching, aprons etc.	49	18879	Rehab	2X6.3	Not started	All work
34	14400	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	50	19865	Pipe	1x1.0	Not started	All work
35	15110	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	51	20426	RCC Box	1X3X3	Box (B/S) completed.	Return wall (B/S), RCC railing, wearing coat, back filling, filter media, protection works e.g. stone pitching, aprons etc.
36	15810	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	52	20450	RCC Box	1X2X2	Box (B/S) and return wall A1 (B/S) completed.	Return wall A2 (B/S) 2nd & final lift, RCC railing, wearing coat, back filling, filter media, protection works e.g. stone pitching, aprons etc.
37	16100	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	53	20648	RCC Box	1/43/0	Not started	All work
38	16660	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	54	21185	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
39	17002	Pipe	2x1.0	Not started	All work	55	22783	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
40	17123	Pipe	2x1.0	Not started	All work	56	23700	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
41	17275	MINOR	3x9.0	Not started	All work	57	24205	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
42	17500	RCC Box	1/34/0	Not started	All work	58	24265	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
43	17830	MINOR	3x3 m	Not started	All work	59	24375	Pipe	2x1.0	Head wall, pipe laying (B/S) back filling, filter media completed.	Protection works e.g. stone pitching, aprons etc.
44	17954	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	60	25253	SLAB	1x1.50	Head wall, pipe laying (B/S) completed.	Back filling, filter media, protection works e.g. stone pitching, aprons etc.
45	18261	Pipe	2x1.0	Head wall 1 <sup>st</sup> lift (B/S) completed, pipe portion PCC (R/S) completed.	Head wall 2 <sup>nd</sup> & final lift (B/S) and pipe portion PCC (L/S), pipe laying (R/S), Protection works e.g. stone pitching, aprons etc.	61	25290	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
46	18444	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	62	25543	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
47	18488	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	63	26025	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
48	18922	Pipe	2x1.0	Head wall PCC (B/S), Head wall (L/S), pipe portion PCC (L/S) and pipe laying (L/S) completed.	pipe portion PCC (R/S), Head wall (R/S), Pipe laying (R/S), protection works e.g. stone pitching, aprons etc.	64	26351	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.

**Scope of Work of Bhadrak - Anandapur Road (Km.0/000 to Km.43/000) - SH-53 - P02 - Structure Works (Balance)**

**Status of Completed and Balance Work of Structures**

65	26645	Pipe	2x1.0	Head wall, pipe laying (B/S), back filling, filter media completed.	Protection works e.g. stone pitching, aprons etc.	80	31100	Rehab		Not started	All work
66	26688	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	81	31+776	Pipe	2x1.0	Not started	All work
67	27120	Pipe	3X1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	82	32108	Pipe	2x1.0	Head wall, pipe laying (B/S), back filling, filter media completed.	Protection works e.g. stone pitching, aprons etc.
68	27440	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	83	32528	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
69	27733	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	84	32+850	Rehab		Not started	All work
70	28531	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	85	32884	Pipe	2x1.0	Head wall, pipe laying (B/S), back filling, filter media completed.	Protection works e.g. stone pitching, aprons etc.
71	28884	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	86	33013	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
72	29159	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	87	33655	Pipe	1x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
73	29250	Pipe	1x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	88	34204	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
74	29374	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	89	34662	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
75	29601	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	90	34835	Pipe	1X1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
76	29985	Pipe		Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	91	35290	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
77	30531	Pipe	2x0.9	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	92	35696	RCC Box	1/34/0	Box (B/S), return wall (B/S), back filling, filter media completed.	RCC railing, wearing coat, Protection works e.g. stone pitching, aprons etc.
78	30635	Rehab	1X5.5	Not started	All work	93	35998	RCC Box	1/34/0	Box (B/S), return wall (B/S), back filling, filter media completed.	RCC railing, wearing coat, Protection works e.g. stone pitching, aprons etc.
79	30684	Pipe	2x1.0	Head wall, pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.	94	36430	RCC Box	1/23/0	Box (B/S), return wall (B/S), back filling, filter media completed.	RCC railing, wearing coat, Protection works e.g. stone pitching, aprons etc.

**Scope of Work of Bhadrak - Anandapur Road (Km.0/000 to Km.43/000) - SH-53 - P02 - Structure Works (Balance)**

**Status of Completed and Balance Work of Structures**

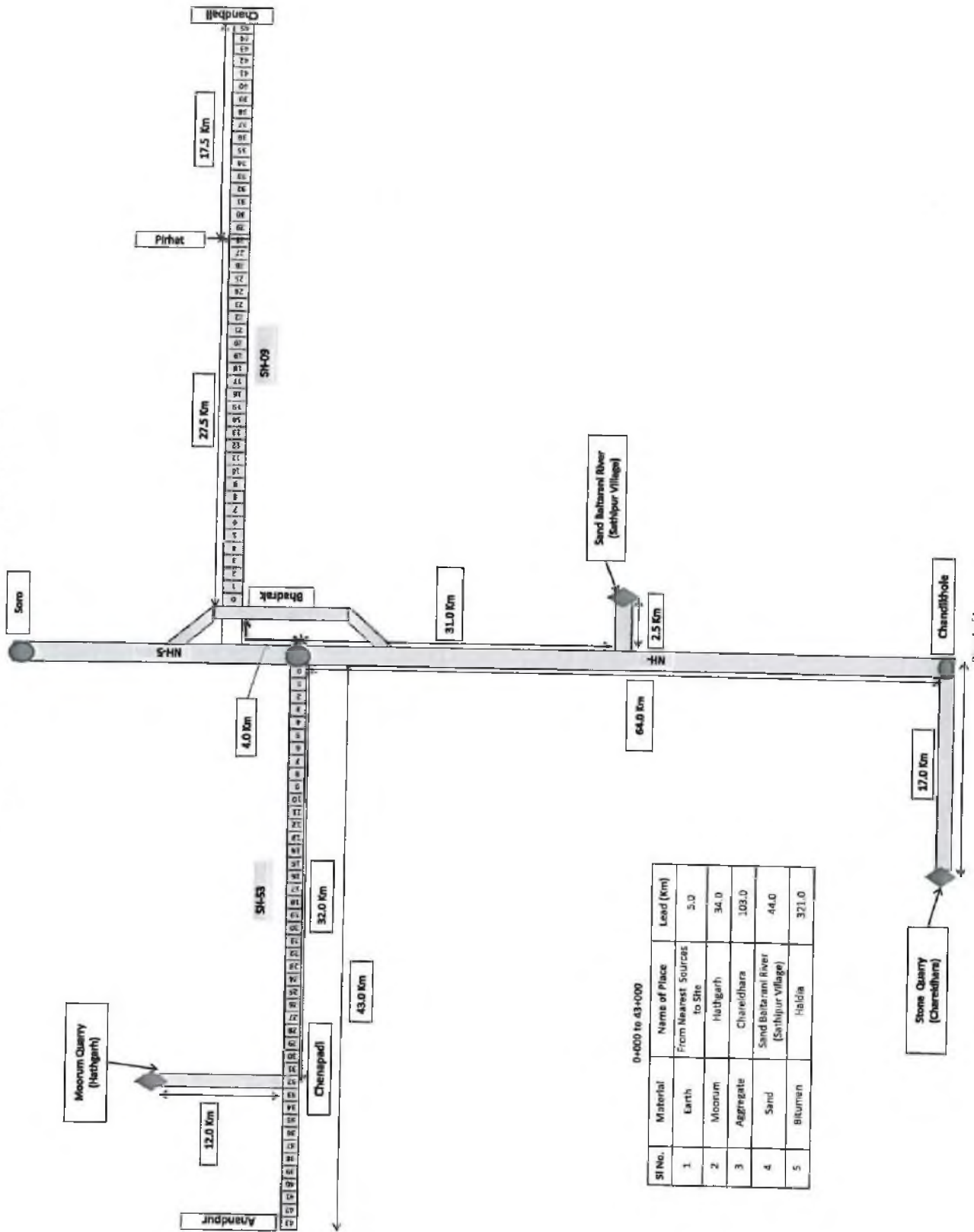
95	36510	RCC Box	1/34/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,Protection works e.g. stone pitching, aprons etc.	103	38300	RCC Box	1/33/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,Protection works e.g. stone pitching, aprons etc.
96	36622	RCC Box	1/44/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,Protection works e.g. stone pitching, aprons etc.	104	38655	RCC Box	1/43/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,Protection works e.g. stone pitching, aprons etc.
97	36892	Minor	3/33/0	Deck slab,return wall(B/S) ,crash barrier back filling, filter media completed.	Wearing coat,curtain wall,drainage spouts,Protection works e.g. stone pitching, aprons etc.	105	39650	Pipe	2x1.0	Head wall,pipe laying (B/S) completed.	Protection works e.g. stone pitching, aprons etc.
98	36889	Minor	3/33/0	Deck slab,return wall (B/S) ,crash barrier, back filling, filter media completed.	Wearing coat,curtain wall,drainage spouts,Protection works e.g. stone pitching, aprons etc.	106	40017	RCC Box	1/33/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,protection works e.g. stone pitching, aprons etc.
99	37120	Minor	3/33/0	Deck slab,return wall (B/S) ,crash barrier back filling, filter media completed.	Wearing coat,curtain wall,drainage spouts,Protection works e.g. stone pitching, aprons etc.	107	40242	RCC Box	1/43/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,protection works e.g. stone pitching, aprons etc.
100	37276	Minor	3/33/0	Deck slab,return wall(B/S) ,crash barrier, back filling, filter media completed.	Wearing coat,curtain wall,drainage spouts,Protection works e.g. stone pitching, aprons etc.	108	40803	RCC Box	1/33/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,protection works e.g. stone pitching, aprons etc.
101	37573	MINCR	2x6.0	Deck slab and return wall (B/S), back filling, filter media completed.	Crash barrier,wearing coat,curtain wall,drainage spouts,back-filling,filter media,Protection works e.g. stone pitching, aprons etc.	109	35444	RCC Box	1/23/0	Box (B/S),return wall (B/S) completed.	RCC railing,wearing coat,protection works e.g. stone pitching, aprons etc.
102	38088	RCC Box	1/34/0	Box (B/S),return wall (B/S),back filling, filter media completed.	RCC railing,wearing coat,Protection works e.g. stone pitching, aprons etc.	110	41+840	Pipe	1X1.0	Not started	All work



**INDICATIVE QUARRY CHART**

**PACKAGE No. OSRP-CW-P<sub>1</sub>-P02 (Balance)**

Construction for Widening & Strengthening of Existing Carriageway to 2 Lane Road from Bhadrak to Anandpur [Km. 0/000 to Km. 43/000] of SH-53 (Balance Work)-P02



0+000 to 43+000

Sl No.	Material	Name of Place From Nearest Source to Site	Lead (km)
1	Earth	Hatigarth	5.0
2	Moonum	Chareidhara	34.0
3	Aggregate	Sand Baitarani River (Sathpur Village)	103.0
4	Sand	Haldia	44.0
5	Bitumen	Haldia	371.0

**FORTUNE GROUP**  
 Fortune Group  
 (Contractor)  
 Managing Partner

**Chief Engineer**  
 DPI & Roads, Odisha  
 (Employer)  
 Odisha, Bhubaneswar

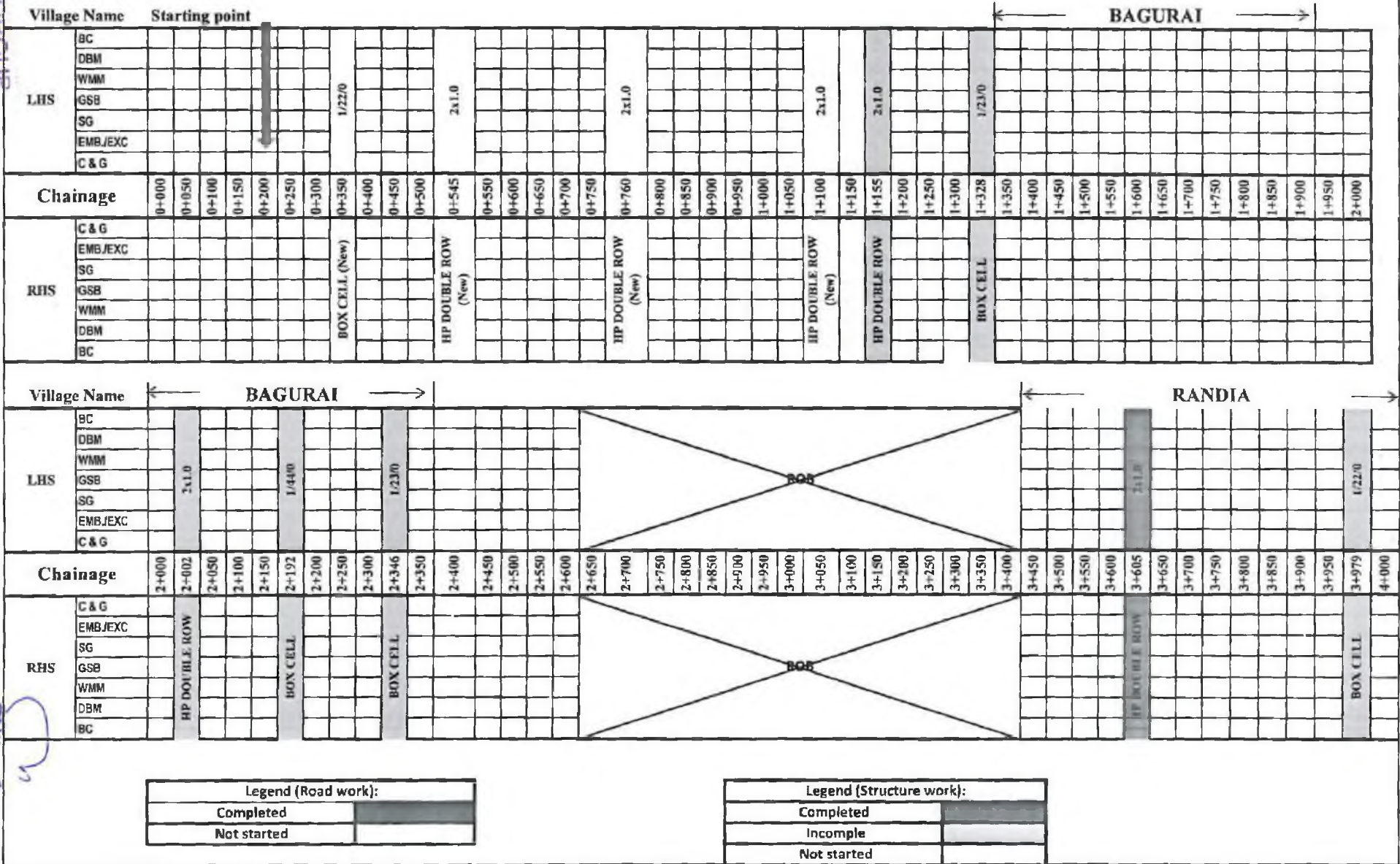
Package No.OSRP-CW-P<sub>1</sub>-P02 (Balance)

Construction for Widening of Strengthening of Existing Carriageway to 2 Lane Road from Bhadrak-Anandpur  
 (Km.0/000 to Km.43/000 of SH-53) Balance Work - P02

STRIP CHART

BHADRAK ←

→ ANANDPUR



Legend (Road work):

Completed	
Not started	

Legend (Structure work):

Completed	
Incomple	
Not started	



**Package No.OSRP-CW-P<sub>1</sub>-P02 (Balance)**  
**Construction for Widening of Strengthening of Existing Carriageway to 2 Lane Road from Bhadrak-Anandpur**  
**(Km.0/000 to Km.43/000 of SH-53) Balance Work - P02**

**STRIP CHART**



**BHADRAK** ←

→ **ANANDPUR**


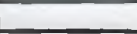

Village Name		RANDIA																																										
LHS	BC																																											
	DBM																																											
	WMM																																											
	GSB																																											
	SG																																											
	EMB./EXC																																											
	C & G																																											
Chainage		4+000	4+050	4+100	4+150	4+200	4+250	4+300	4+350	4+400	4+411	4+450	4+500	4+550	4+600	4+650	4+700	4+750	4+800	4+850	4+900	4+950	5+000	5+050	5+100	5+122	5+150	5+200	5+250	5+300	5+350	5+400	5+450	5+500	5+550	5+600	5+650	5+700	5+750	5+800	5+850	5+900	5+950	6+000
RHS	C & G																																											
	EMB./EXC																																											
	SG																																											
	GSB																																											
	WMM																																											
	DBM																																											
	BC																																											

Village Name																																												
LHS	BC																																											
	DBM																																											
	WMM																																											
	GSB																																											
	SG																																											
	EMB./EXC																																											
	C & G																																											
Chainage		6+000	6+050	6+100	6+150	6+200	6+250	6+300	6+350	6+400	6+450	6+500	6+550	6+600	6+650	6+675	6+700	6+750	6+800	6+850	6+900	6+950	7+000	7+050	7+100	7+150	7+200	7+250	7+300	7+350	7+400	7+450	7+500	7+550	7+600	7+650	7+700	7+750	7+782	7+800	7+850	7+900	7+950	8+000
RHS	C & G																																											
	EMB./EXC																																											
	SG																																											
	GSB																																											
	WMM																																											
	DBM																																											
	BC																																											

**Legend (Road work):**

Completed	
Not started	

**Legend (Structure work):**

Completed	
Incomple	
Not started	



Package No.OSRP-CW-P<sub>1</sub>-P02 (Balance)

Construction for Widening of Strengthening of Existing Carriageway to 2 Lane Road from Bhadrak-Anandpur  
 (Km.0/000 to Km.43/000 of SH-53) Balance Work - P02

STRIP CHART

BHADRAK ←

→ ANANDPUR

← PALASA →

Village Name

L.H.S	BC																																																								
	DBM																																																								
Chainage	WMM																																																								
	GSB																																																								
	SG																																																								
	EMB/EXC																																																								
	C & G																																																								
	Chainage	12+000	12+030	12+100	12+150	12+200	12+250	12+300	12+350	12+400	12+450	12+500	12+550	12+600	12+650	12+700	12+750	12+800	12+809	12+850	12+900	12+950	12+980	13+000	13+050	13+100	13+150	13+200	13+250	13+300	13+350	13+375	13+400	13+450	13+500	13+507	13+550	13+600	13+650	13+700	13+750	13+800	13+850	13+900	13+909	13+950	14+000										
R.H.S	C & G																																																								
	EMB/EXC																																																								
	SG																																																								
	GSB																																																								
	WMM																																																								
	DBM																																																								
BC																																																									

Village Name

L.H.S	BC																																																								
	DBM																																																								
Chainage	WMM																																																								
	GSB																																																								
	SG																																																								
	EMB/EXC																																																								
	C & G																																																								
	Chainage	14+000	14+050	14+100	14+150	14+200	14+216	14+250	14+300	14+350	14+400	14+400	14+450	14+500	14+544	14+580	14+600	14+650	14+700	14+750	14+800	14+850	14+900	14+950	15+000	15+050	15+100	15+110	15+150	15+200	15+250	15+300	15+350	15+400	15+450	15+500	15+550	15+600	15+610	15+650	15+700	15+750	15+800	15+850	15+900	15+950	16+000										
R.H.S	C & G																																																								
	EMB/EXC																																																								
	SG																																																								
	GSB																																																								
	WMM																																																								
	DBM																																																								
BC																																																									

Legend (Road work):

Completed  
Not started

Legend (Structure work):

Completed  
Incomplete  
Not started





**Package No.OSRP-CW-P<sub>1</sub>-P02 (Balance)**  
**Construction for Widening of Strengthening of Existing Carriageway to 2 Lane Road from Bhadrak-Anandpur**  
**(Km.0/000 to Km.43/000 of SH-53) Balance Work - P02**  
**STRIP CHART**

**BHADRAK** ←



→ **ANANDPUR**

**BASANTIA**




**MAREIGAON**

Village Name																																																	
LHS	BC																																																
	OBM																																																
	WMM																																																
	GSB																																																
	SG																																																
	EMB./EXC																																																
Chainage		24+000	24+050	24+100	24+150	24+200	24+205	24+250	24+265	24+300	24+350	24+375	24+400	24+450	24+500	24+550	24+600	24+650	24+700	24+750	24+800	24+850	24+900	24+950	25+000	25+050	25+100	25+150	25+200	25+250	25+253	25+290	25+300	25+350	25+400	25+450	25+500	25+543	25+550	25+600	25+650	25+700	25+750	25+800	25+850	25+900	25+950	26+000	
RHS	C & G																																																
	EMB./EXC																																																
	SG																																																
	GSB																																																
	WMM																																																
	DBM																																																
BC																																																	
Village Name																																																	
LHS	BC																																																
	DBM																																																
	WMM																																																
	GSB																																																
	SG																																																
	EMB./EXC																																																
Chainage		26+000	26+025	26+050	26+100	26+150	26+200	26+250	26+300	26+350	26+351	26+400	26+450	26+645	26+500	26+550	26+600	26+650	26+699	26+700	26+750	26+800	26+850	26+900	26+950	27+000	27+050	27+100	27+120	27+150	27+200	27+250	27+300	27+350	27+400	27+440	27+450	27+500	27+550	27+600	27+650	27+700	27+733	27+750	27+800	27+850	27+900	27+950	28+000
RHS	C & G																																																
	EMB./EXC																																																
	SG																																																
	GSB																																																
	WMM																																																
	DBM																																																
BC																																																	

**Legend (Road work):**

Completed	
Not started	

**Legend (Structure work):**

Completed	
Incomple	
Not started	

FOR THE GROUP  
Failure Group  
(Contractor)









**Package No.OSRP-CW-P<sub>1</sub>-P02 (Balance)**  
**Construction for Widening of Strengthening of Existing Carriageway to 2 Lane Road from Bhadrak-Anandpur**  
**(Km.0/000 to Km.43/000 of SH-53) Balance Work - P02**  
**STRIP CHART**

BHADRAK ←

→ ANANDPUR

Village Name		←----- FAKIRPUR & ANANDPUR -----→																																											
LHS	BC																																												
	DBM																																												
	WMM																																												
	GSB																																												
	SG																																												
	EMB/EXC																																												
	C & G																																												
Chainage	40+000	40+017	40+050	40+100	40+150	40+200	40+242	40+250	40+300	40+350	40+400	40+450	40+500	40+550	40+600	40+650	40+700	40+750	40+800	40+803	40+850	40+900	40+950	41+000	41+050	41+100	41+150	41+200	41+250	41+300	41+350	41+400	41+450	41+500	41+550	41+600	41+650	41+700	41+750	41+800	41+840	41+850	41+900	41+950	42+000
RHS	C & G																																												
	EMB/EXC																																												
	SG																																												
	GSB																																												
	WMM																																												
	DBM																																												
	BC																																												

Village Name		←----- FAKIRPUR & ANANDPUR -----→																			
LHS	BC																				
	DBM																				
	WMM																				
	GSB																				
	SG																				
	EMB/EXC																				
	C & G																				
Chainage	42+000	42+050	42+100	42+150	42+200	42+250	42+300	42+350	42+400	42+450	42+500	42+550	42+600	42+650	42+700	42+750	42+800	42+850	42+900	42+950	43+000
RHS	C & G																				
	EMB/EXC																				
	SG																				
	GSB																				
	WMM																				
	DBM																				
	BC																				

**Legend (Road work):**

Completed	
Not started	

**Legend (Structure work):**

Completed	
Incomple	
Not started	

**FORFINE GROUP**  
 Forfine Group  
 (Contractor)  
 Managing Partner

Chief Engineer,  
 DP & Roads, Odisha  
 Engineer  
 DP & Roads  
 Nalaka Bhuvanagar

PACKAGE NO.OSRP-CW-P<sub>1</sub>-P02 (Bal)

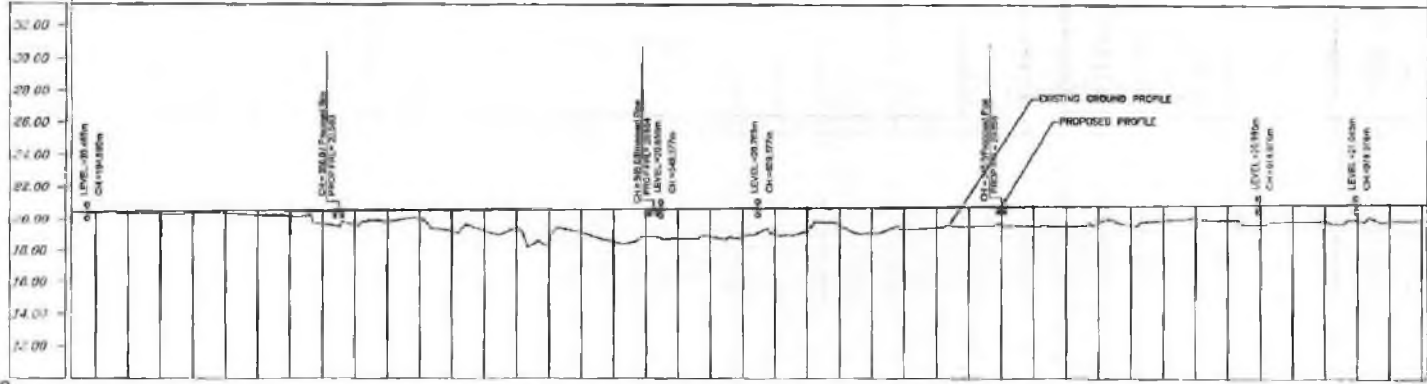
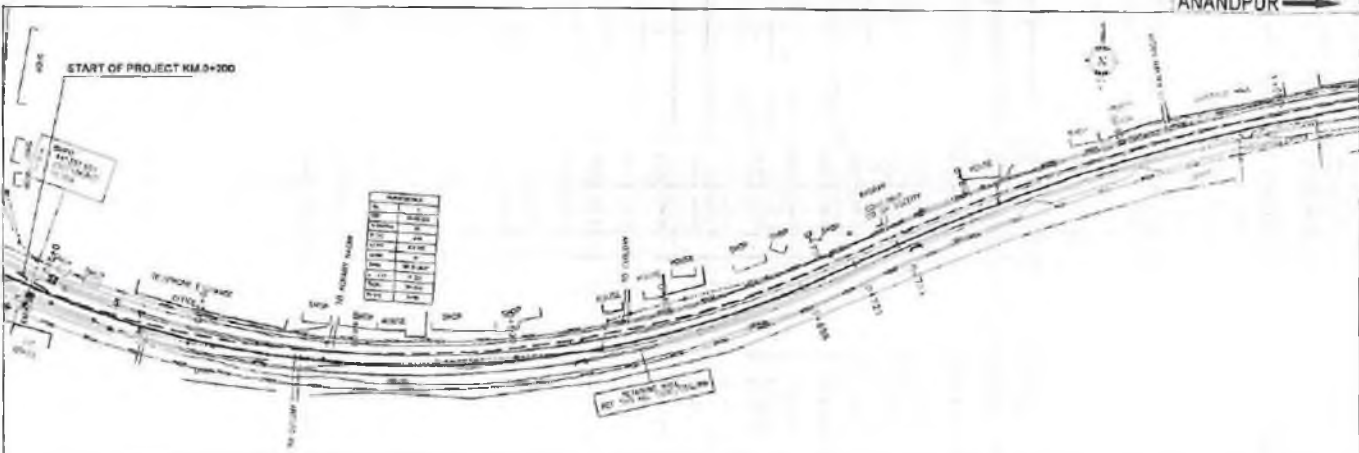
Construction for Widening & Strengthening of  
Existing Carriageway to 2 Lane Road from  
Bhadrak to Anandpur (Km. 0/000 to Km. 43/000)  
of SH-53 (Balance Work)-P02

# VOLUME -II

## Drawings

← BHADRAK

ANANDPUR →



DATUM = 10.00

PROPOSED ROAD LEVEL (m)	25.54	25.53	25.52	25.51	25.50	25.49	25.48	25.47	25.46	25.45	25.44	25.43	25.42	25.41	25.40	25.39	25.38	25.37	25.36	25.35	25.34	25.33	25.32	25.31	25.30	25.29	25.28	25.27	25.26	25.25	25.24	25.23	25.22	25.21	25.20	25.19	25.18	25.17	25.16	25.15	25.14	25.13	25.12	25.11	25.10	25.09	25.08	25.07	25.06	25.05	25.04	25.03	25.02	25.01	25.00																																																																													
EXISTING LEVEL (m)	24.98	24.97	24.96	24.95	24.94	24.93	24.92	24.91	24.90	24.89	24.88	24.87	24.86	24.85	24.84	24.83	24.82	24.81	24.80	24.79	24.78	24.77	24.76	24.75	24.74	24.73	24.72	24.71	24.70	24.69	24.68	24.67	24.66	24.65	24.64	24.63	24.62	24.61	24.60	24.59	24.58	24.57	24.56	24.55	24.54	24.53	24.52	24.51	24.50	24.49	24.48	24.47	24.46	24.45	24.44	24.43	24.42	24.41	24.40	24.39	24.38	24.37	24.36	24.35	24.34	24.33	24.32	24.31	24.30	24.29	24.28	24.27	24.26	24.25	24.24	24.23	24.22	24.21	24.20	24.19	24.18	24.17	24.16	24.15	24.14	24.13	24.12	24.11	24.10	24.09	24.08	24.07	24.06	24.05	24.04	24.03	24.02	24.01	24.00																																	
HORIZONTAL ALIGNMENT	R=400.000m L=57.425m																																	R=3000.000m L=35.000m																																	R=3000.000m L=58.875m																																	R=3000.000m L=30.000m																																
VERTICAL PROFILE	G=0.000% L=150.000m																																	G=-0.300% L=62.300m																																	G=0.000% L=300.000m																																	G=0.000% L=80.000m																																
SUPERELEVATION / CROSSFALL	C=-0.000																																	C=-0.000																																	C=-0.000																																	C=-0.000																																
CHAINAGE	000.000	000.125	000.250	000.375	000.500	000.625	000.750	000.875	001.000	001.125	001.250	001.375	001.500	001.625	001.750	001.875	002.000	002.125	002.250	002.375	002.500	002.625	002.750	002.875	003.000	003.125	003.250	003.375	003.500	003.625	003.750	003.875	004.000	004.125	004.250	004.375	004.500	004.625	004.750	004.875	005.000	005.125	005.250	005.375	005.500	005.625	005.750	005.875	006.000	006.125	006.250	006.375	006.500	006.625	006.750	006.875	007.000	007.125	007.250	007.375	007.500	007.625	007.750	007.875	008.000	008.125	008.250	008.375	008.500	008.625	008.750	008.875	009.000																																																											

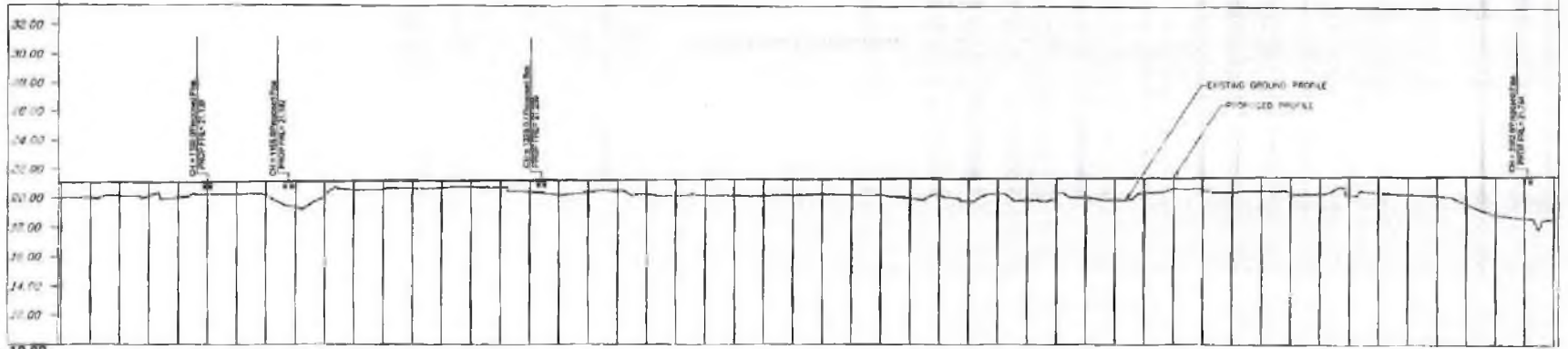
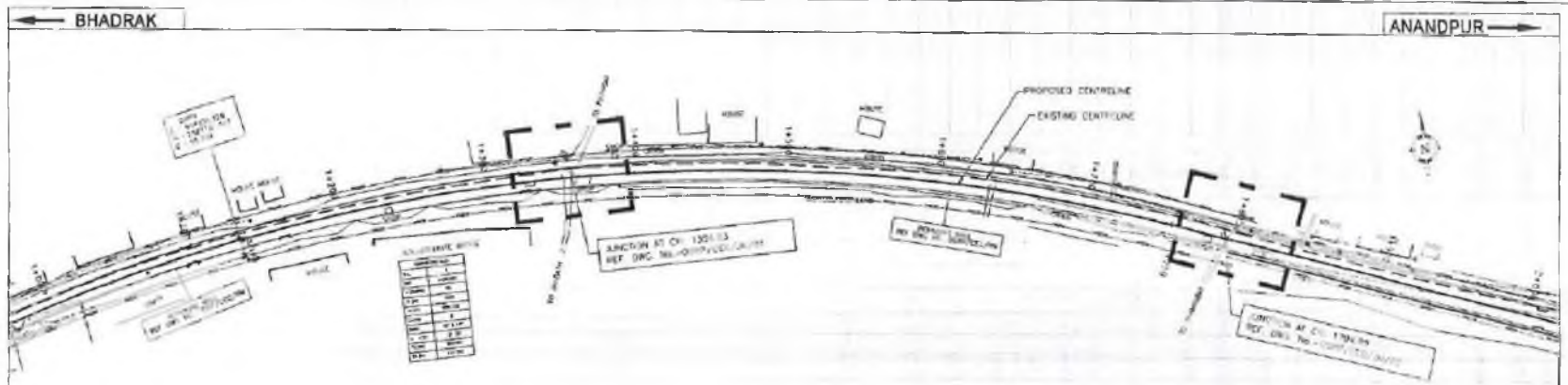
**LEGEND**

	PROPOSED CENTER LINE		RIGHT OF WAY BOUNDARY
	PROPOSED RIGHT OF WAY BOUNDARY		RIGHT OF WAY BOUNDARY
	RIGHT OF WAY BOUNDARY		RIGHT OF WAY BOUNDARY

**CONSULTING ENGINEERS GROUP LTD.**  
 E-12 Mid City, Udyog Vihar, Gurgaon - 122 001  
 Tel: +91-11-2520899, 2521869, 2520556  
 Fax: 2521348, e-mail: ceg@cegindia.com

**PROJECT:**  
 ODISHA STATE ROAD PROJECT

WIDENING AND STRENGTHENING TO TWO LANE		PLAN AND LONGITUDINAL SECTION	
BHADRAK TO ANANDPUR (SH-53) KM 0/500 TO 1/500			
SCALE	HORIZONTAL 1:1000	VERTICAL 1:50	DATE



DATUM = 10.00

CHAINAGE	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION / CROWN FALL
1284.13	24.00	24.00	R-1130.00m L-877.800m	G-2.000 L-1452.000m	C+3.000
1284.14	24.00	24.00			
1284.15	24.00	24.00			
1284.16	24.00	24.00			
1284.17	24.00	24.00			
1284.18	24.00	24.00			
1284.19	24.00	24.00			
1284.20	24.00	24.00			
1284.21	24.00	24.00			
1284.22	24.00	24.00			
1284.23	24.00	24.00			
1284.24	24.00	24.00			
1284.25	24.00	24.00			
1284.26	24.00	24.00			
1284.27	24.00	24.00			
1284.28	24.00	24.00			
1284.29	24.00	24.00			
1284.30	24.00	24.00			
1284.31	24.00	24.00			

**LEGEND**

	PROPOSED ROAD LEVEL
	EXISTING LEVEL
	HORIZONTAL ALIGNMENT
	VERTICAL PROFILE
	SUPERELEVATION / CROWN FALL

**GMC CONSULTING ENGINEERS GROUP LTD.**  
 C-12, New Colony, Malviya Nagar, Jaipur-17  
 Tel: +91-141-2530889, 2531999, 2170556  
 Fax: 2231546, E-mail: engg@rediffmail.com

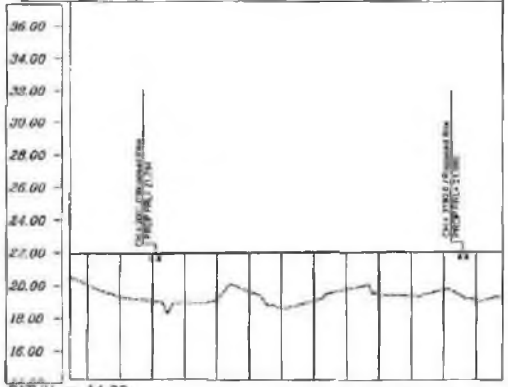
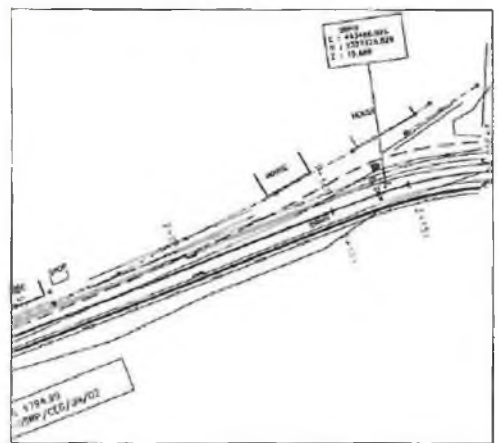
**PROJECT:**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 1/000 TO 2/000**

SCALE	HORIZONTAL 1:2500 VERTICAL 1:200	ASD	R.B.	R.A.O.K.	S.D.
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← BHADRAK

ANANDPUR →



DATUM = 14.00

PROPOSED ROAD LEVEL (m)	EXISTING ROAD LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION / CROSSFALL	CHAINAGE
36.00	35.00				1794.30
35.00	34.00				1800.00
34.00	33.00				1810.00
33.00	32.00				1820.00
32.00	31.00				1830.00
31.00	30.00				1840.00
30.00	29.00				1850.00
29.00	28.00				1860.00
28.00	27.00				1870.00
27.00	26.00				1880.00
26.00	25.00				1890.00
25.00	24.00				1900.00
24.00	23.00				1910.00
23.00	22.00				1920.00
22.00	21.00				1930.00
21.00	20.00				1940.00
20.00	19.00				1950.00
19.00	18.00				1960.00
18.00	17.00				1970.00
17.00	16.00				1980.00
16.00	15.00				1990.00
15.00	14.00				2000.00

**LEGEND**

PROPOSED ROAD	PROPOSED ROAD	PROPOSED ROAD	PROPOSED ROAD
EXISTING ROAD	EXISTING ROAD	EXISTING ROAD	EXISTING ROAD
RIGHT OF WAY	RIGHT OF WAY	RIGHT OF WAY	RIGHT OF WAY
...	...	...	...

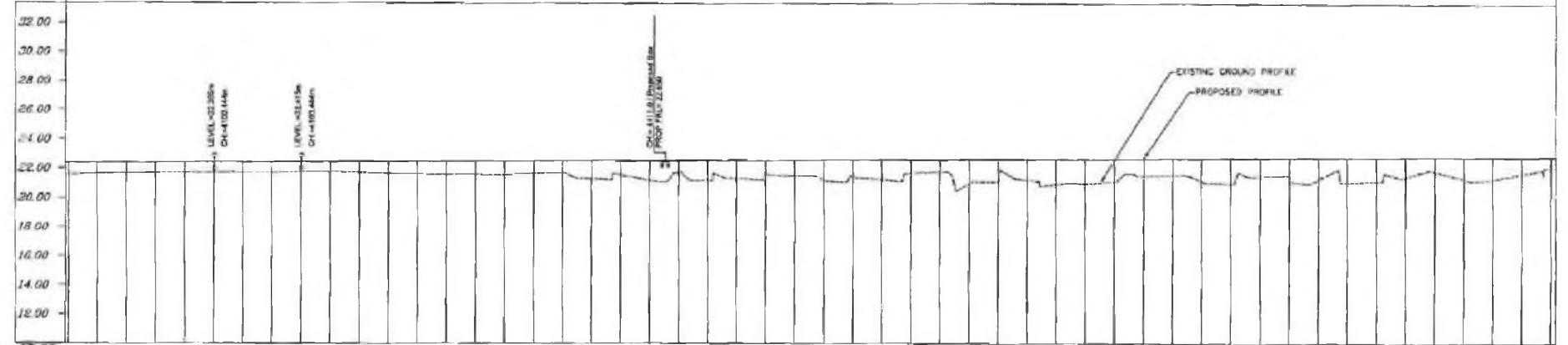
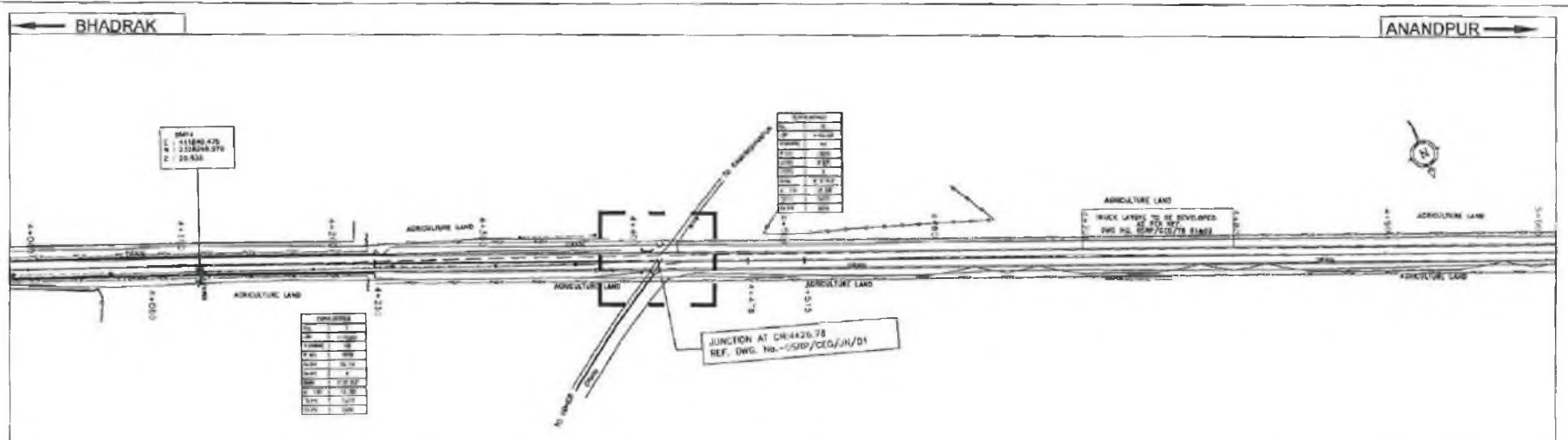
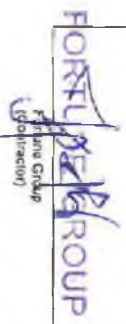
**GMC CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Maji Colony, Vaidya Nagar, Jaipur-17  
 Tel: +91-141-2520899, 2521893, 2520356  
 Fax: 2521348, e-mail: ceeg@rediffmail.com

PROJECT:-  
**ODISHA STATE ROAD PROJECT**

WIDENING AND STRENGTHENING TO TWO LANE  
 PLAN AND LONGITUDINAL SECTION  
 BHADRAK TO ANANDPUR (SH-53) KM 2/000 TO 3/000

DRG NO.	REV	DATE	BY	CHKD	APPD
SH NO.	1	01/11/11	...	...	...
SCALE	HORIZONTAL: 1:200		VERTICAL: 1:20		
	K.S.G.	P.R.	S.R.D.K.	S.G.	





DATUM = 10.00

PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL	CHAINAGE
29.72	29.72	L=172.625m	R=1000.000m		0+00.000
29.72	29.72				0+10.000
29.72	29.72				0+20.000
29.72	29.72				0+30.000
29.72	29.72				0+40.000
29.72	29.72				0+50.000
29.72	29.72				0+60.000
29.72	29.72				0+70.000
29.72	29.72				0+80.000
29.72	29.72				0+90.000
29.72	29.72	L=183.100m	C=0.850 L=507.800m	0+100.000	
29.72	29.72	0+110.000			
29.72	29.72	0+120.000			
29.72	29.72	0+130.000			
29.72	29.72	0+140.000			
29.72	29.72	0+150.000			
29.72	29.72	0+160.000			
29.72	29.72	0+170.000			
29.72	29.72	0+180.000			
29.72	29.72	0+190.000			
29.72	29.72	L=114.175m	R=60.000m L=18.000m	0+200.000	
29.72	29.72	0+210.000			
29.72	29.72	0+220.000			
29.72	29.72	0+230.000			
29.72	29.72	0+240.000			
29.72	29.72	0+250.000			
29.72	29.72	0+260.000			
29.72	29.72	0+270.000			
29.72	29.72	0+280.000			
29.72	29.72	0+290.000			
29.72	29.72	L=90.000m	R=60.000m L=18.000m	0+300.000	
29.72	29.72	0+310.000			
29.72	29.72	0+320.000			
29.72	29.72	0+330.000			
29.72	29.72	0+340.000			
29.72	29.72	0+350.000			
29.72	29.72	0+360.000			
29.72	29.72	0+370.000			
29.72	29.72	0+380.000			
29.72	29.72	0+390.000			
29.72	29.72	0+400.000			

**LEGEND**

EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING
EXISTING CENTERLINE	ROADWAY	BOUNDARY OF SIGNAL CROSSING	BOUNDARY OF SIGNAL CROSSING

**CEG CONSULTING ENGINEERS GROUP LTD.**  
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 Fax: 2521346, e-mail: ceg@ceginfo.com

**PROJECT:**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE  
 PLAN AND LONGITUDINAL SECTION  
 BHADRAK TO ANANDPUR (CH-53) KM 4/000 TO 5/000**

DRG NO.	DATE	REV	BY
SCALE	HORIZONTAL 1:2000	VERTICAL 1:200	

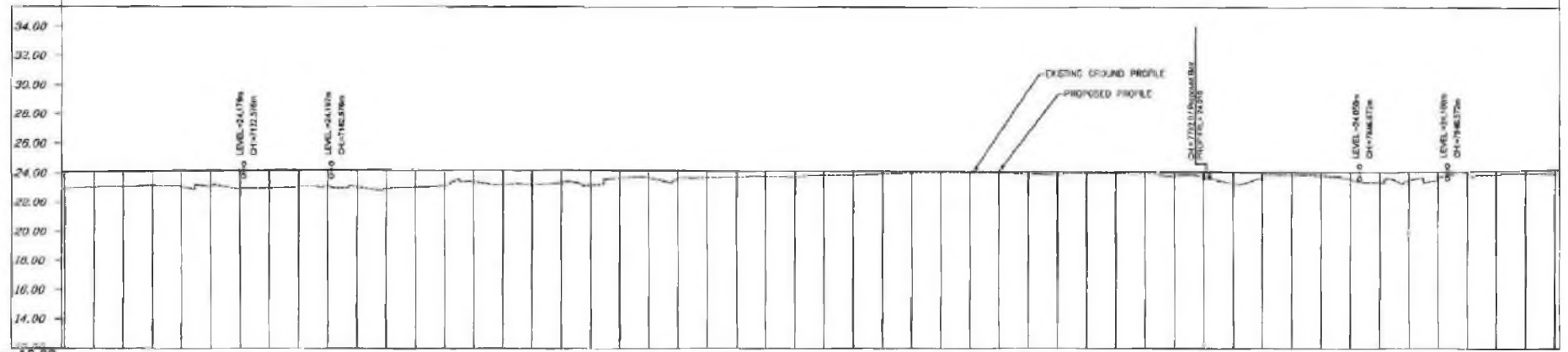
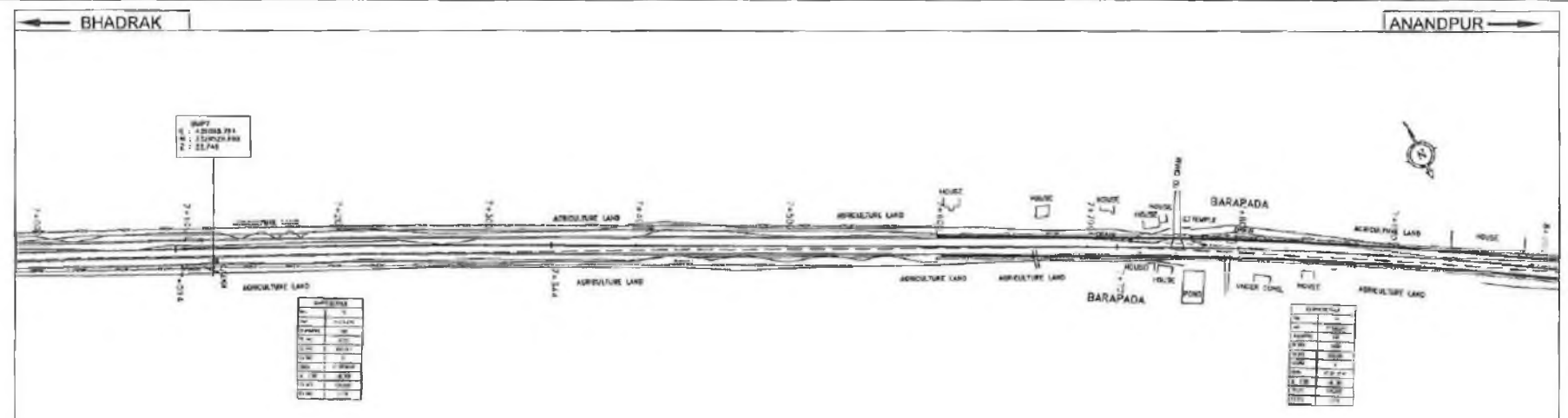






FORTE ENGINEERS GROUP  
 (Consultant)

FORTE ENGINEERS GROUP



DATUM = 12.00

Station	Proposed Road Level (m)	Existing Level (m)	Horizontal Alignment	Vertical Profile	Superelevation / Crossfall	Chainage
0+000	24.00	24.00				0+000
0+050	24.50	24.50				0+050
0+100	25.00	25.00				0+100
0+150	25.50	25.50				0+150
0+200	26.00	26.00				0+200
0+250	26.50	26.50				0+250
0+300	27.00	27.00				0+300
0+350	27.50	27.50				0+350
0+400	28.00	28.00				0+400
0+450	28.50	28.50				0+450
0+500	29.00	29.00				0+500
0+550	29.50	29.50				0+550
0+600	30.00	30.00				0+600
0+650	30.50	30.50				0+650
0+700	31.00	31.00				0+700
0+750	31.50	31.50				0+750
0+800	32.00	32.00				0+800
0+850	32.50	32.50				0+850
0+900	33.00	33.00				0+900
0+950	33.50	33.50				0+950
1+000	34.00	34.00				1+000
1+050	34.50	34.50				1+050
1+100	35.00	35.00				1+100
1+150	35.50	35.50				1+150
1+200	36.00	36.00				1+200
1+250	36.50	36.50				1+250
1+300	37.00	37.00				1+300
1+350	37.50	37.50				1+350
1+400	38.00	38.00				1+400
1+450	38.50	38.50				1+450
1+500	39.00	39.00				1+500
1+550	39.50	39.50				1+550
1+600	40.00	40.00				1+600
1+650	40.50	40.50				1+650
1+700	41.00	41.00				1+700
1+750	41.50	41.50				1+750
1+800	42.00	42.00				1+800
1+850	42.50	42.50				1+850
1+900	43.00	43.00				1+900
1+950	43.50	43.50				1+950
2+000	44.00	44.00				2+000

**LEGEND**

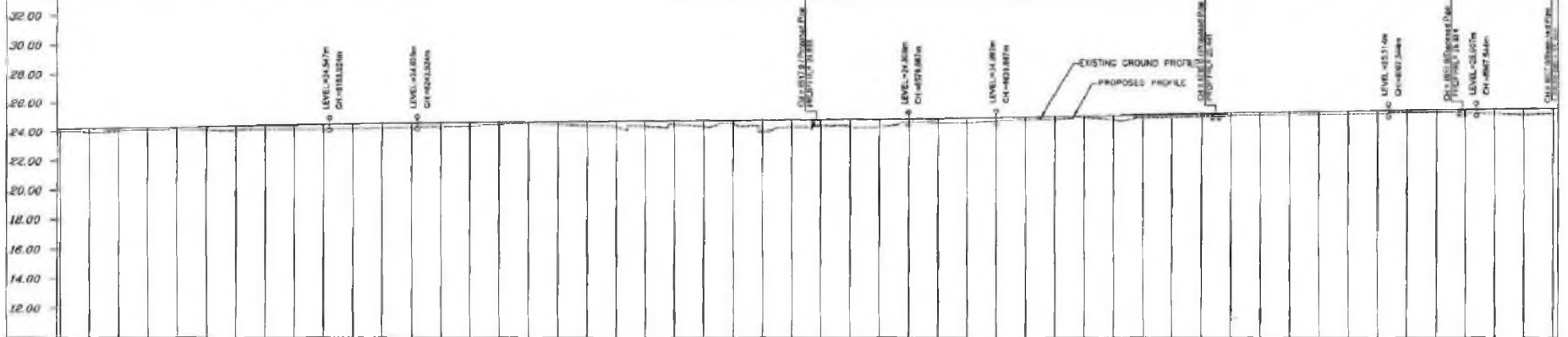
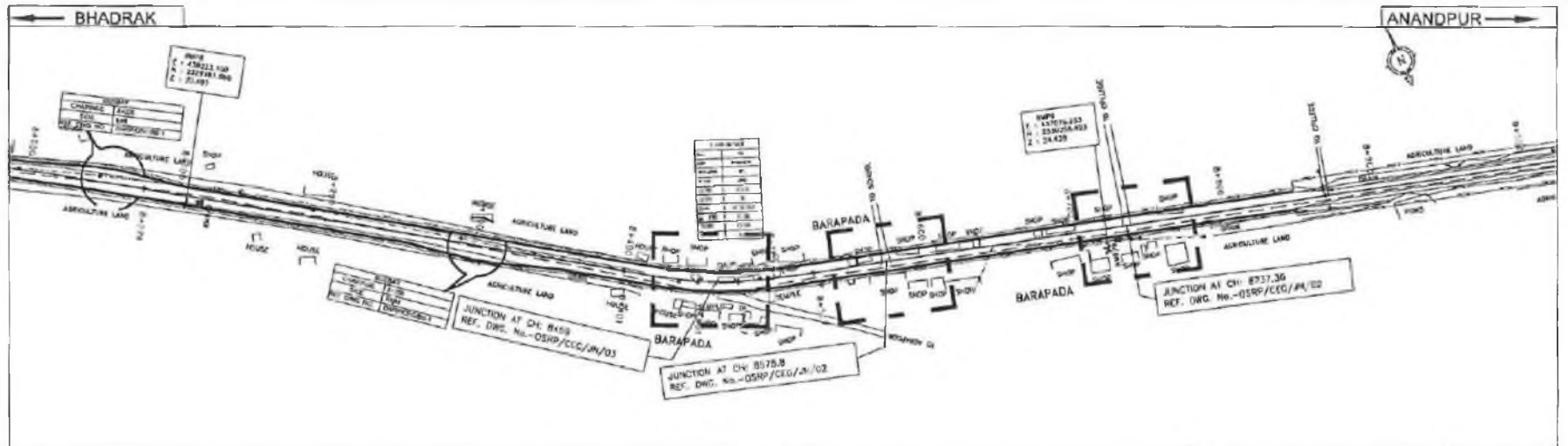
Proposed Road Level	---
Existing Ground Level	—
Horizontal Alignment	—
Vertical Profile	—
Superelevation / Crossfall	—
Chainage	—

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**PROJECT:**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 7/000 TO KM 8/000**

SH NO.	1	DATE	1 REV 1 00	SCALE	HORIZONTAL 1:500	VERTICAL 1:100	DESIGNED BY	CHKD BY	APPD BY	DATE
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DATUM = 10.00

PROPOSED ROAD LEVEL (m)	
CH	LEVEL
0000000	12.00
0000100	12.10
0000200	12.20
0000300	12.30
0000400	12.40
0000500	12.50
0000600	12.60
0000700	12.70
0000800	12.80
0000900	12.90
0001000	13.00
0001100	13.10
0001200	13.20
0001300	13.30
0001400	13.40
0001500	13.50
0001600	13.60
0001700	13.70
0001800	13.80
0001900	13.90
0002000	14.00
0002100	14.10
0002200	14.20
0002300	14.30
0002400	14.40
0002500	14.50
0002600	14.60
0002700	14.70
0002800	14.80
0002900	14.90
0003000	15.00
0003100	15.10
0003200	15.20
0003300	15.30
0003400	15.40
0003500	15.50
0003600	15.60
0003700	15.70
0003800	15.80
0003900	15.90
0004000	16.00
0004100	16.10
0004200	16.20
0004300	16.30
0004400	16.40
0004500	16.50
0004600	16.60
0004700	16.70
0004800	16.80
0004900	16.90
0005000	17.00
0005100	17.10
0005200	17.20
0005300	17.30
0005400	17.40
0005500	17.50
0005600	17.60
0005700	17.70
0005800	17.80
0005900	17.90
0006000	18.00
0006100	18.10
0006200	18.20
0006300	18.30
0006400	18.40
0006500	18.50
0006600	18.60
0006700	18.70
0006800	18.80
0006900	18.90
0007000	19.00
0007100	19.10
0007200	19.20
0007300	19.30
0007400	19.40
0007500	19.50
0007600	19.60
0007700	19.70
0007800	19.80
0007900	19.90
0008000	20.00
0008100	20.10
0008200	20.20
0008300	20.30
0008400	20.40
0008500	20.50
0008600	20.60
0008700	20.70
0008800	20.80
0008900	20.90
0009000	21.00
0009100	21.10
0009200	21.20
0009300	21.30
0009400	21.40
0009500	21.50
0009600	21.60
0009700	21.70
0009800	21.80
0009900	21.90
0010000	22.00
0010100	22.10
0010200	22.20
0010300	22.30
0010400	22.40
0010500	22.50
0010600	22.60
0010700	22.70
0010800	22.80
0010900	22.90
0011000	23.00
0011100	23.10
0011200	23.20
0011300	23.30
0011400	23.40
0011500	23.50
0011600	23.60
0011700	23.70
0011800	23.80
0011900	23.90
0012000	24.00
0012100	24.10
0012200	24.20
0012300	24.30
0012400	24.40
0012500	24.50
0012600	24.60
0012700	24.70
0012800	24.80
0012900	24.90
0013000	25.00
0013100	25.10
0013200	25.20
0013300	25.30
0013400	25.40
0013500	25.50
0013600	25.60
0013700	25.70
0013800	25.80
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0014000	26.00
0014100	26.10
0014200	26.20
0014300	26.30
0014400	26.40
0014500	26.50
0014600	26.60
0014700	26.70
0014800	26.80
0014900	26.90
0015000	27.00
0015100	27.10
0015200	27.20
0015300	27.30
0015400	27.40
0015500	27.50
0015600	27.60
0015700	27.70
0015800	27.80
0015900	27.90
0016000	28.00
0016100	28.10
0016200	28.20
0016300	28.30
0016400	28.40
0016500	28.50
0016600	28.60
0016700	28.70
0016800	28.80
0016900	28.90
0017000	29.00
0017100	29.10
0017200	29.20
0017300	29.30
0017400	29.40
0017500	29.50
0017600	29.60
0017700	29.70
0017800	29.80
0017900	29.90
0018000	30.00
0018100	30.10
0018200	30.20
0018300	30.30
0018400	30.40
0018500	30.50
0018600	30.60
0018700	30.70
0018800	30.80
0018900	30.90
0019000	31.00
0019100	31.10
0019200	31.20
0019300	31.30
0019400	31.40
0019500	31.50
0019600	31.60
0019700	31.70
0019800	31.80
0019900	31.90
0020000	32.00

**LEGEND**

[Symbol]	EXISTING CENTER LINE	[Symbol]	ROAD/VALLEY	[Symbol]	REVERSE OF SPINE CURVE	[Symbol]	STEEP SLOPE
[Symbol]	EXISTING GROUND LINE	[Symbol]	NEW LANE WIDTH	[Symbol]	REVERSE OF CIRCULAR CURVE	[Symbol]	LEADER OF CIRCULAR CURVE
[Symbol]	PROPOSED GROUND LINE	[Symbol]	PROPOSED ROAD WIDTH	[Symbol]	LEADER OF CIRCULAR CURVE	[Symbol]	STOP CHAINS
[Symbol]	PROPOSED ROAD ALIGNMENT	[Symbol]	PROPOSED ROAD PROFILE	[Symbol]	LEADER OF CIRCULAR CURVE	[Symbol]	STOP CHAINS
[Symbol]	PROPOSED ROAD CROSSFALL	[Symbol]	PROPOSED ROAD CHAINAGE	[Symbol]	LEADER OF CIRCULAR CURVE	[Symbol]	STOP CHAINS

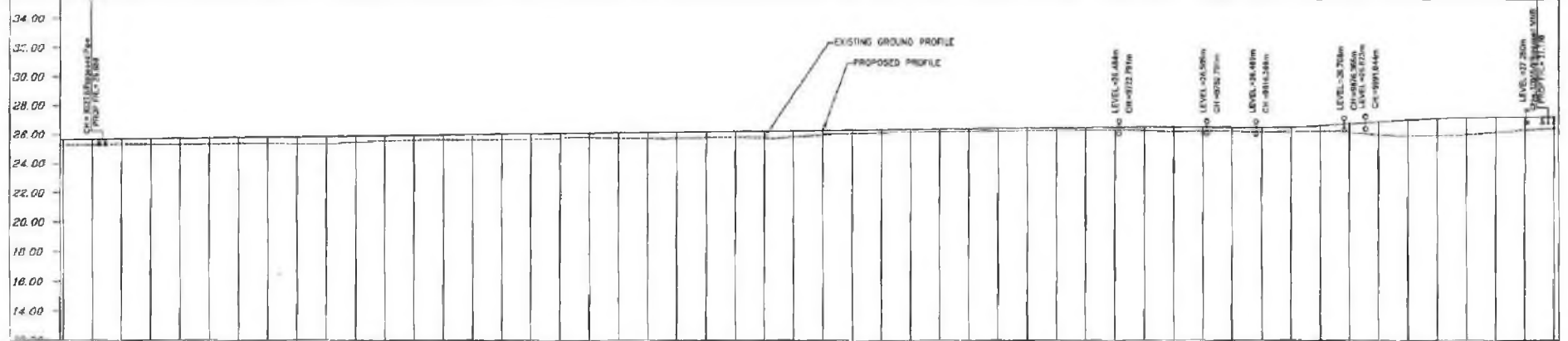
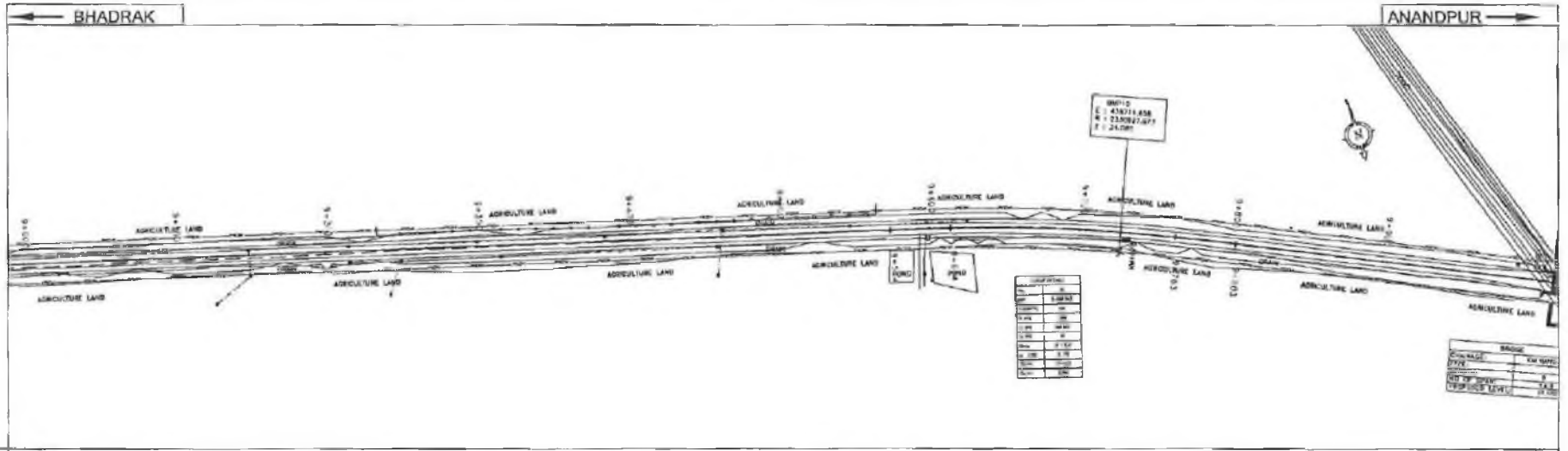
**CEG CONSULTING ENGINEERS GROUP LTD.**  
E-12, 4th Floor, Colony, Ichha Nagar, Jaipur-17  
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**PROJECT: ODISHA STATE ROAD PROJECT**

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 8/000 TO KM 3/000**

DRG NO.	ISSUE NO.	DATE	REV.	BY	DATE	CHKD.	DATE	APPD.
...	...	...	...	...	...	...	...	...

SCALE: HORIZONTAL: 1:200 VERTICAL: 1:200



DATUM = 12.00	
PROPOSED ROAD LEVEL (m)	26.00, 26.50, 27.00, 27.50, 28.00, 28.50, 29.00, 29.50, 30.00, 30.50, 31.00, 31.50, 32.00, 32.50, 33.00, 33.50, 34.00
EXISTING LEVEL (m)	25.75, 26.25, 26.75, 27.25, 27.75, 28.25, 28.75, 29.25, 29.75, 30.25, 30.75, 31.25, 31.75, 32.25, 32.75, 33.25, 33.75
HORIZONTAL ALIGNMENT	R=2000.000m L=100.000m, L=100.000m, R=10000.000m L=400.000m, L=249.870m, L, R=800.000m L=41.270m, L, R=2000.000m L=50.700m, L=117.000m, R=10000.000m L=76.150m
VERTICAL PROFILE	G=0.130 L=200.000m, L=400.000m, G=0.000m, G=0.100 L=200.000m, L=400.000m
SUPERELEVATION /CROSSFALL	Q=+2.50, Q=-2.50, Q=+4.00, Q=-4.00, Q=+2.50, Q=-2.50
CHAINAGE	0+00, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500, 2600, 2700, 2800, 2900, 3000, 3100, 3200, 3300, 3400

**LEGEND**

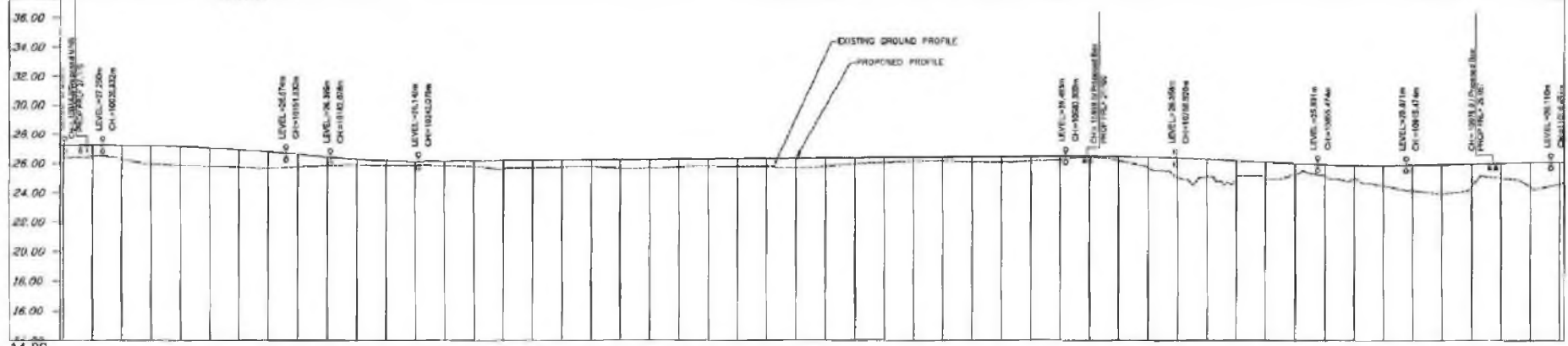
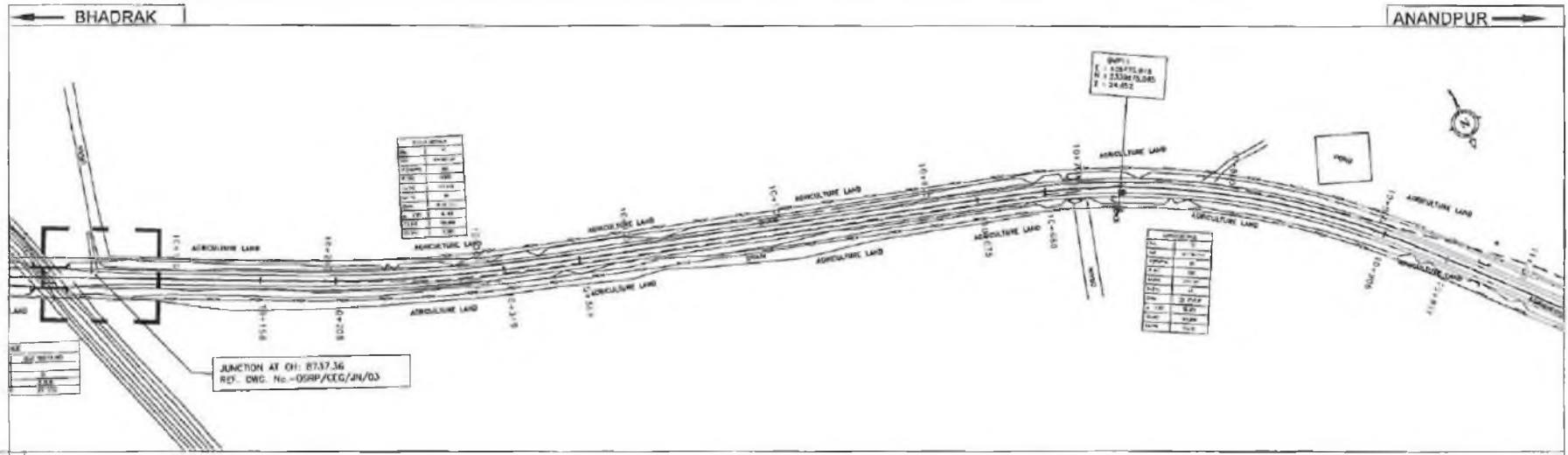
EXISTING PROFILE	SINGLE LANE	REVERSE OF SPiral CURVE	GRAVITY SEWER
PROPOSED ROAD LINE	AT LANE WIDTH	LEADER OF CIRCULAR CURVE	SEWER BRIDGE
EXISTING CANAL LINE	YELLOW & RED MARK	SPOT OF CURVE	SUPERSTRACTION
EXISTING CANAL WALL	ELECTRIC WIRE & POLE	END OF SPiral CURVE	SEWER UNDER
EXISTING ROAD BRIDGE	TELEPHONE LINE & POLE	END OF STRAIGHT CURVE	SEWER OVER
PROPOSED ROAD BRIDGE	HYDROGRAPHIC/PLANTING	START OF STRAIGHT CURVE	SEWER IN
PROPOSED CANAL BRIDGE	PIPE COLUMN	MINIMUM INTERSECTION POINT	SEWER END
PROPOSED CANAL WALL	NON-PURPOSE COLUMN	ROADWAY ANGLE	
PROPOSED CANAL	WIRE	LENGTH OF STRAIGHT CURVE	
		LENGTH OF CIRCULAR CURVE	
		SPOT OF CURVE	
		END OF STRAIGHT CURVE	
		START OF STRAIGHT CURVE	
		MINIMUM INTERSECTION POINT	
		ROADWAY ANGLE	
		LENGTH OF STRAIGHT CURVE	

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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 9/000 TO KM 10/000**

DATE	13	DATE	REV	1	NO	SCALE	HORIZONTAL 1:200	VERTICAL 1:200
DESIGNED BY		CHECKED BY		APPROVED BY		REG.	RD.	RRDK
DRAWN BY								



DATUM = 14.00		
PROPOSED ROAD LEVEL (m)	33.17	33.23
EXISTING LEVEL (m)	29.39	29.37
HORIZONTAL ALIGNMENT	L=181.50m	L=142.00m
VERTICAL PROFILE	Q=-2.382 L=84.730m	Q=-2.118 L=246.424m
SUPERELEVATION / CROSSFALL	Q=0.000 Q=-0.500	Q=-2.500 Q=-2.500
CHAINAGE	000 000 000	000 000 000

**LEGEND**

EXISTING PROFILE	PROPOSED PROFILE	AGRICULTURE LAND	SUBDIVISION OF SPERMAL
PROPOSED CROSS FALL	EXISTING CROSS FALL	EXISTING ROAD	ROAD OF OTHERS
EXISTING CHAINAGE	PROPOSED CHAINAGE	EXISTING LEVEL	PROPOSED LEVEL

**GMC CONSULTING ENGINEERS GROUP LTD.**  
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 Fax: 2521348, e-mail: oegco@rediffmail.com

**PROJECT: ODISHA STATE ROAD PROJECT**

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 10/000 TO KM 11,000**

SCALE: HORIZONTAL: 1:200, VERTICAL: 1:250

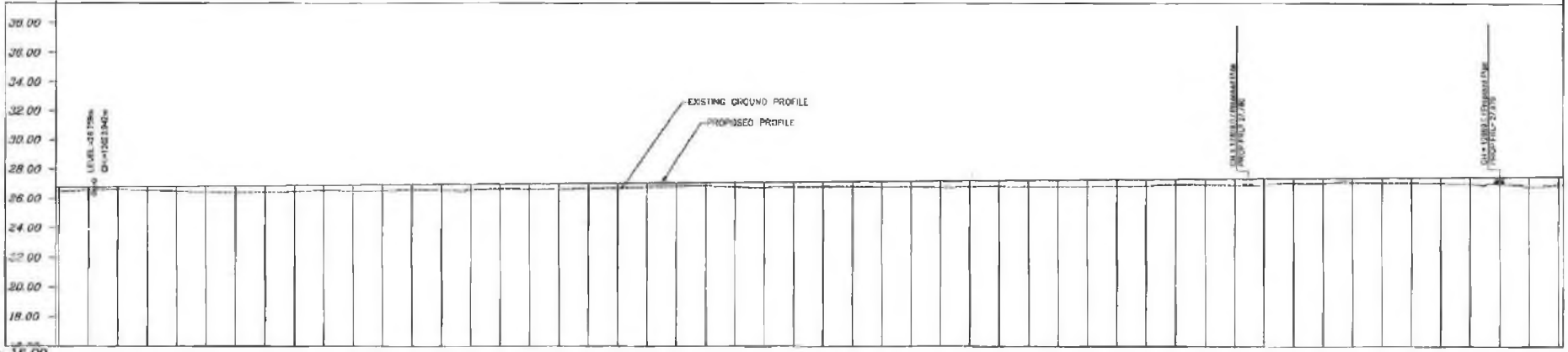
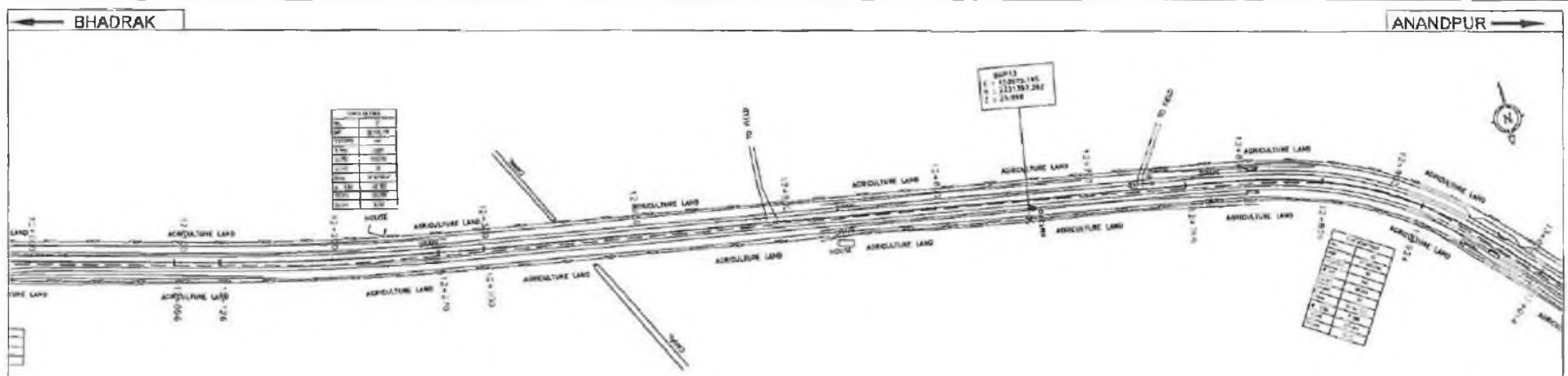
DATE	11	DATE	
SCALE		REV	RS
SCALE		NO.	



Fresh

BHADRAK

ANANDPUR



DATUM = 16.00											
PROPOSED ROAD LEVEL (m)	99+10	99+20	99+30	99+40	99+50	99+60	99+70	99+80	99+90	100+00	100+10
EXISTING LEVEL (m)	27.188	27.162	27.180	27.177	27.189	27.214	27.189	27.218	27.206	27.226	27.258
HORIZONTAL ALIGNMENT	R=1500.00m		R=2000.00m		R=1500.00m		R=1500.00m		R=200.00m		R=700.00m
VERTICAL PROFILE	G=+0.100 L=632.249m					B L=80.000m		G=+0.280 L=780.313m			
SUPERELEVATION /CROSSFALL	Q=2.500	Q=2.500	Q=2.500	Q=2.500	Q=2.500	Q=2.500	Q=2.500	Q=2.500	Q=7.000	Q=7.000	Q=7.000
CHAINAGE	99+00.000	99+10.000	99+20.000	99+30.000	99+40.000	99+50.000	99+60.000	99+70.000	99+80.000	99+90.000	100+00.000

**LEGEND**

EXISTING ROAD	EXISTING LANE	EXISTING ROAD	EXISTING LANE	EXISTING ROAD	EXISTING LANE
PROPOSED ROAD	PROPOSED LANE	PROPOSED ROAD	PROPOSED LANE	PROPOSED ROAD	PROPOSED LANE
...	...	...	...	...	...

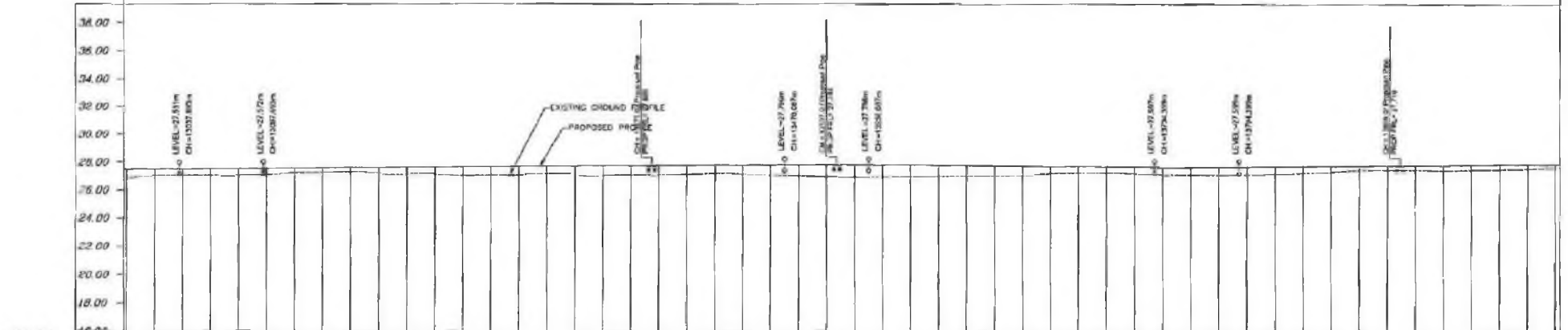
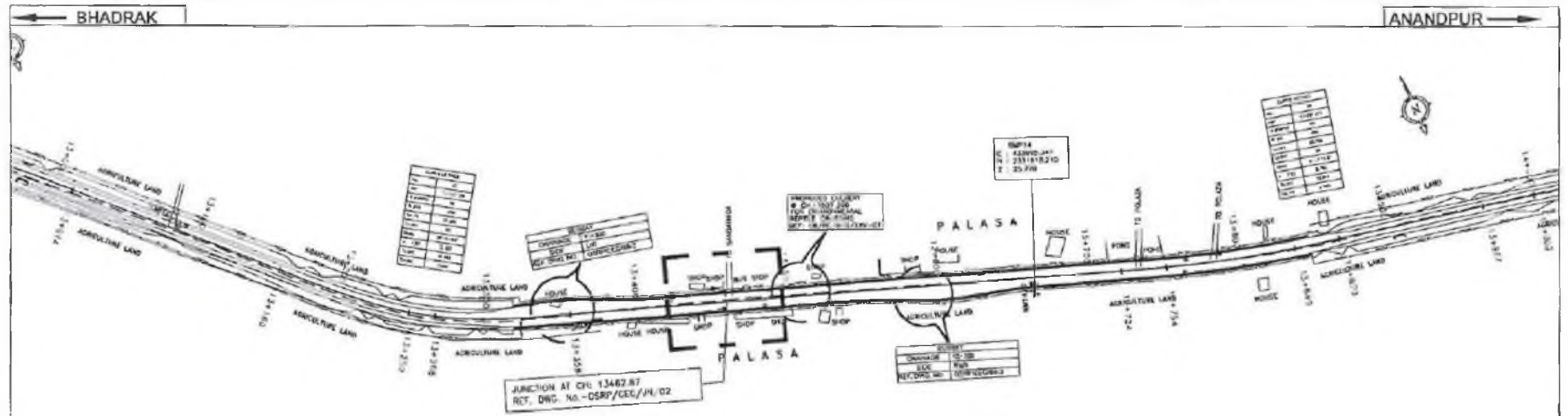
**GEC ENGINEERS CONSULTING**  
**ENGINEERS GROUP LTD.**  
 E-12, Maj Colony, Maliga Nagar, Jaipur-17  
 Tel: +91-141-2520899, 2521899, 2520856  
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**PROJECT:**  
ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE  
 PLAN AND LONGITUDINAL SECTION  
 BHADRAK TO ANANDPUR (SH-53) KM 12/000 TO KM 13/000**

DATE	SCALE	REV	DESCRIPTION
13	HORIZONTAL 1:2500 VERTICAL 1:250	1	





DATUM = 16.00

PROPOSED ROAD LEVEL (m)	38.00	37.90	37.80	37.70	37.60	37.50	37.40	37.30	37.20	37.10	37.00	36.90	36.80	36.70	36.60	36.50	36.40	36.30	36.20	36.10	36.00	35.90	35.80	35.70	35.60	35.50	35.40	35.30	35.20	35.10	35.00
EXISTING LEVEL (m)	38.00	37.90	37.80	37.70	37.60	37.50	37.40	37.30	37.20	37.10	37.00	36.90	36.80	36.70	36.60	36.50	36.40	36.30	36.20	36.10	36.00	35.90	35.80	35.70	35.60	35.50	35.40	35.30	35.20	35.10	35.00
HORIZONTAL ALIGNMENT	R=100		L=196.25m			L=75.00m			L=976.00m						R=800.00m		L=46.75m		L=55.00m				L=								
VERTICAL PROFILE	C=380		L=3.32m			C=2.46			L=88.00m						C=2.50		L=238.64m		C=3.12		L=60.00m		C=3.12		L=60.00m		C=3.12		L=60.00m		
SUPERELEVATION / CROSSFALL	Q=2.500		Q=2.500			Q=7.000			Q=2.500						Q=2.500		Q=4.000		Q=4.000				Q=4.000		Q=4.000		Q=4.000		Q=4.000		
CHAINAGE	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00	000.00

**LEGEND**

EXISTING CENTERLINE	PROPOSED CENTERLINE	EXISTING CORNER POINT	PROPOSED CORNER POINT	PROPOSED ROAD WIDTH	PROPOSED ROAD BOUNDARY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY	PROPOSED ROAD RIGHT OF WAY
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**GMC CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Mohan Colony, Melviya Nagar, Jaipur-17  
 Tel: +91-141-2520809, 2521859, 2520056  
 Fax: 2521348, e-mail: seg@cgma.com

**PROJECT:-**  
**ODISHA STATE ROAD PROJECT**

**WDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 13/000 TO KM 14/000**

CHG NO.	DATE	REV	BY	CHKD
1	14/05/2012	1	SSG	SSG

SCALE: HORIZONTAL: 1:200, VERTICAL: 1:200



Consultant

Project No.

Site Name

Scale

Year

Sheet No.

Drawn by

Checked by

Date

Project

Client

Location

Scale

Year

Sheet No.

Drawn by

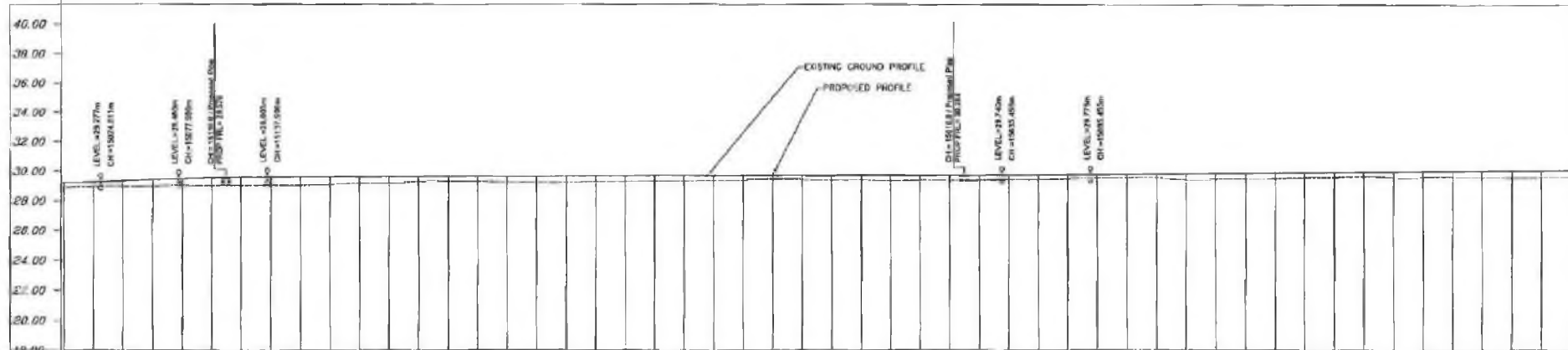
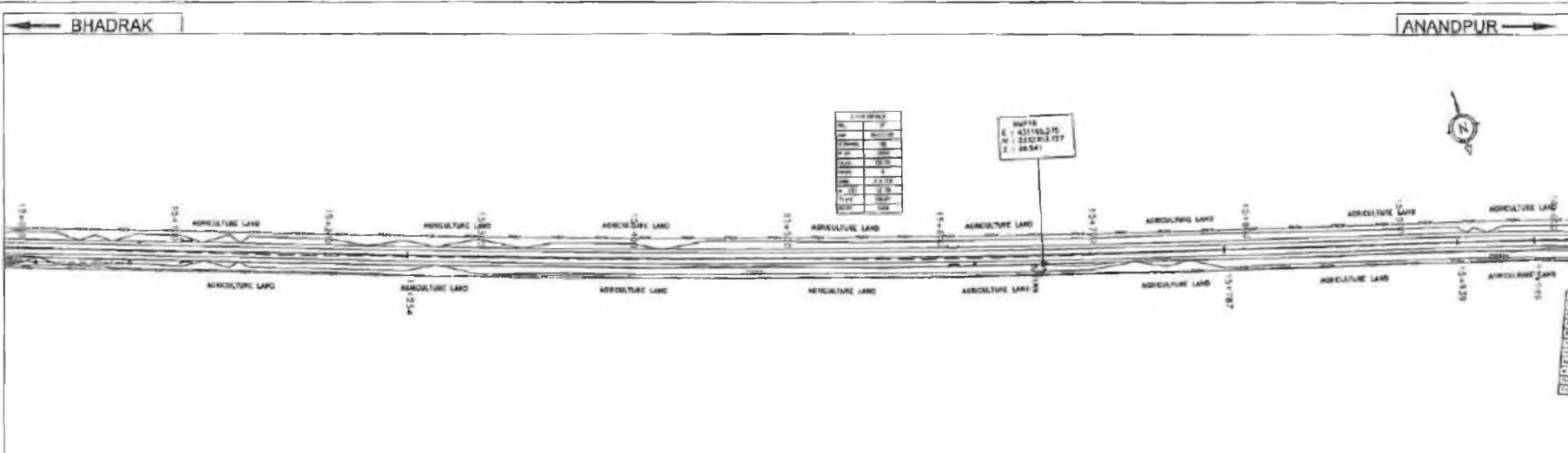
Checked by

Date

Project

Client

FORTUNE GROUP



CHAINAGE	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL
0+00	29.76	29.76	L+2480m	R=80000m	Ch=2.500
1+00	29.76	29.76	L+2480m	R=80000m	Ch=2.500
2+00	29.81	29.81	L+2480m	R=80000m	Ch=2.500
3+00	29.81	29.81	L+2480m	R=80000m	Ch=2.500
4+00	29.87	29.87	L+2480m	R=80000m	Ch=2.500
5+00	29.83	29.83	L+2480m	R=80000m	Ch=2.500
6+00	29.81	29.81	L+2480m	R=80000m	Ch=2.500
7+00	29.85	29.85	L+2480m	R=80000m	Ch=2.500
8+00	29.83	29.83	L+2480m	R=80000m	Ch=2.500
9+00	29.84	29.84	L+2480m	R=80000m	Ch=2.500
10+00	29.84	29.84	L+2480m	R=80000m	Ch=2.500
11+00	29.83	29.83	L+2480m	R=80000m	Ch=2.500
12+00	29.82	29.82	L+2480m	R=80000m	Ch=2.500
13+00	29.83	29.83	L+2480m	R=80000m	Ch=2.500
14+00	29.84	29.84	L+2480m	R=80000m	Ch=2.500
15+00	29.85	29.85	L+2480m	R=80000m	Ch=2.500
16+00	29.86	29.86	L+2480m	R=80000m	Ch=2.500
17+00	29.87	29.87	L+2480m	R=80000m	Ch=2.500
18+00	29.88	29.88	L+2480m	R=80000m	Ch=2.500
19+00	29.89	29.89	L+2480m	R=80000m	Ch=2.500
20+00	29.90	29.90	L+2480m	R=80000m	Ch=2.500
21+00	29.91	29.91	L+2480m	R=80000m	Ch=2.500
22+00	29.92	29.92	L+2480m	R=80000m	Ch=2.500
23+00	29.93	29.93	L+2480m	R=80000m	Ch=2.500
24+00	29.94	29.94	L+2480m	R=80000m	Ch=2.500
25+00	29.95	29.95	L+2480m	R=80000m	Ch=2.500
26+00	29.96	29.96	L+2480m	R=80000m	Ch=2.500
27+00	29.97	29.97	L+2480m	R=80000m	Ch=2.500
28+00	29.98	29.98	L+2480m	R=80000m	Ch=2.500
29+00	29.99	29.99	L+2480m	R=80000m	Ch=2.500
30+00	30.00	30.00	L+2480m	R=80000m	Ch=2.500
31+00	30.01	30.01	L+2480m	R=80000m	Ch=2.500
32+00	30.02	30.02	L+2480m	R=80000m	Ch=2.500
33+00	30.03	30.03	L+2480m	R=80000m	Ch=2.500
34+00	30.04	30.04	L+2480m	R=80000m	Ch=2.500
35+00	30.05	30.05	L+2480m	R=80000m	Ch=2.500
36+00	30.06	30.06	L+2480m	R=80000m	Ch=2.500
37+00	30.07	30.07	L+2480m	R=80000m	Ch=2.500
38+00	30.08	30.08	L+2480m	R=80000m	Ch=2.500
39+00	30.09	30.09	L+2480m	R=80000m	Ch=2.500
40+00	30.10	30.10	L+2480m	R=80000m	Ch=2.500

LEGEND

**GEC CONSULTING ENGINEERS GROUP LTD.**  
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**PROJECT:-**  
ODISHA STATE ROAD PROJECT

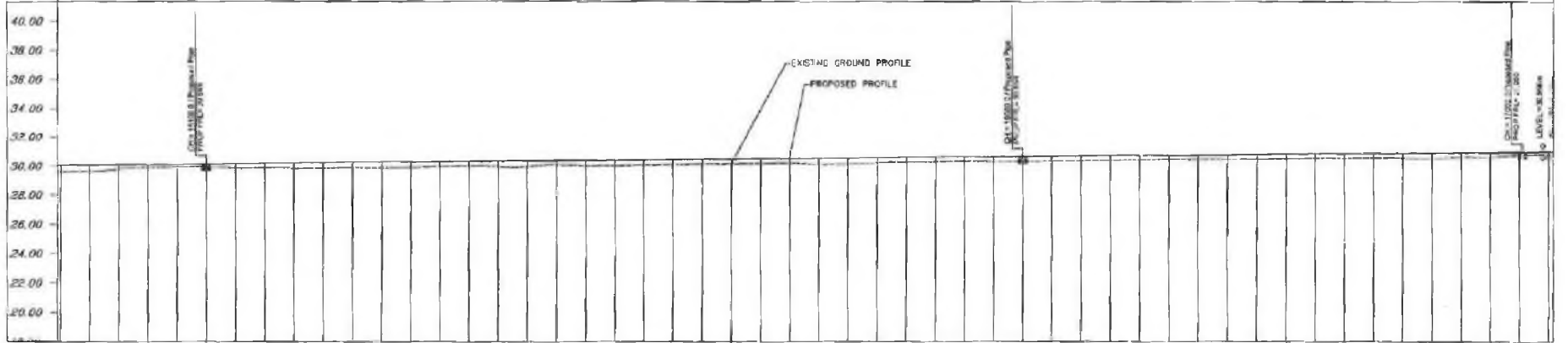
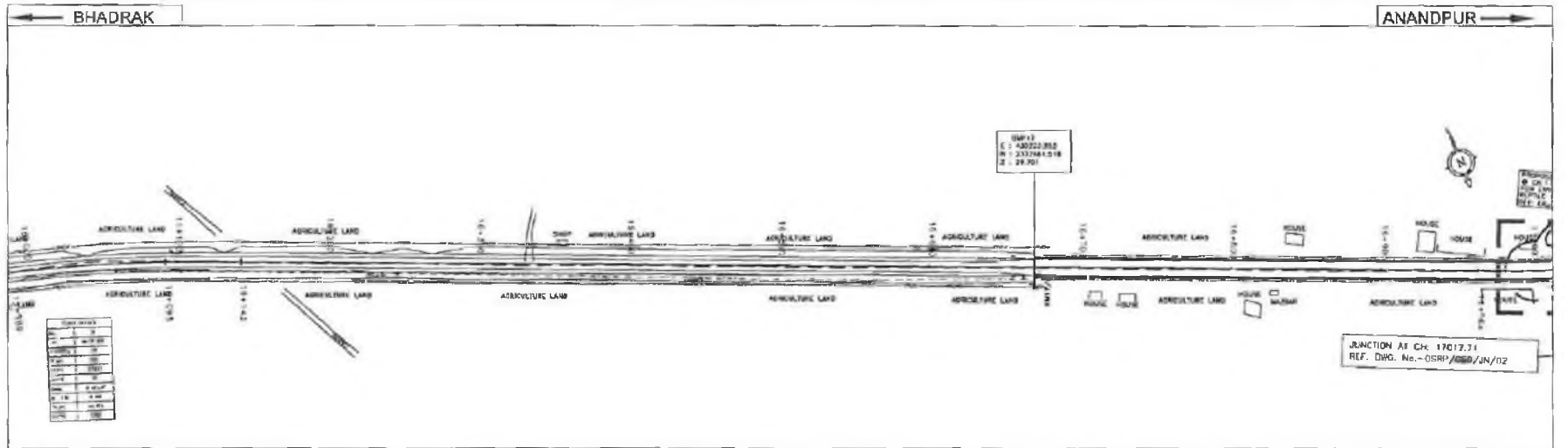
**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 15/000 TO KM 16/000**

DWG NO: ...  
SHEET NO: ...  
SCALE: HORIZONTAL: 1/2500, VERTICAL: 1/200

DATE	BY	REV	REASON
...	...	...	...
...	...	...	...
...	...	...	...

Chief Engineer

Onisha, Bhudanaswar



DATUM = 18.00

PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION / CROSSFALL	CHAINAGE
39.50	36.50	R=1100.00m L=123.20m	G=0.500	G=3.500	000+000
38.50	35.50	L=170.00m	G=0.500	G=3.500	000+100
37.50	34.50	R=1000.00m L=95.62m	G=0.500	G=3.500	000+200
36.50	33.50	L=24.45m	G=0.500	G=3.500	000+300
35.50	32.50	R=1000.00m L=95.62m	G=0.500	G=3.500	000+400
34.50	31.50	L=24.45m	G=0.500	G=3.500	000+500
33.50	30.50	R=1000.00m L=95.62m	G=0.500	G=3.500	000+600
32.50	29.50	L=24.45m	G=0.500	G=3.500	000+700
31.50	28.50	R=1000.00m L=95.62m	G=0.500	G=3.500	000+800
30.50	27.50	L=24.45m	G=0.500	G=3.500	000+900
29.50	26.50	R=1000.00m L=95.62m	G=0.500	G=3.500	001+000
28.50	25.50	L=24.45m	G=0.500	G=3.500	001+100
27.50	24.50	R=1000.00m L=95.62m	G=0.500	G=3.500	001+200
26.50	23.50	L=24.45m	G=0.500	G=3.500	001+300
25.50	22.50	R=1000.00m L=95.62m	G=0.500	G=3.500	001+400
24.50	21.50	L=24.45m	G=0.500	G=3.500	001+500
23.50	20.50	R=1000.00m L=95.62m	G=0.500	G=3.500	001+600
22.50	19.50	L=24.45m	G=0.500	G=3.500	001+700
21.50	18.50	R=1000.00m L=95.62m	G=0.500	G=3.500	001+800
20.50	17.50	L=24.45m	G=0.500	G=3.500	001+900
19.50	16.50	R=1000.00m L=95.62m	G=0.500	G=3.500	002+000
18.50	15.50	L=24.45m	G=0.500	G=3.500	002+100
17.50	14.50	R=1000.00m L=95.62m	G=0.500	G=3.500	002+200
16.50	13.50	L=24.45m	G=0.500	G=3.500	002+300
15.50	12.50	R=1000.00m L=95.62m	G=0.500	G=3.500	002+400
14.50	11.50	L=24.45m	G=0.500	G=3.500	002+500
13.50	10.50	R=1000.00m L=95.62m	G=0.500	G=3.500	002+600
12.50	9.50	L=24.45m	G=0.500	G=3.500	002+700
11.50	8.50	R=1000.00m L=95.62m	G=0.500	G=3.500	002+800
10.50	7.50	L=24.45m	G=0.500	G=3.500	002+900
9.50	6.50	R=1000.00m L=95.62m	G=0.500	G=3.500	003+000
8.50	5.50	L=24.45m	G=0.500	G=3.500	003+100
7.50	4.50	R=1000.00m L=95.62m	G=0.500	G=3.500	003+200
6.50	3.50	L=24.45m	G=0.500	G=3.500	003+300
5.50	2.50	R=1000.00m L=95.62m	G=0.500	G=3.500	003+400
4.50	1.50	L=24.45m	G=0.500	G=3.500	003+500
3.50	0.50	R=1000.00m L=95.62m	G=0.500	G=3.500	003+600
2.50	-0.50	L=24.45m	G=0.500	G=3.500	003+700
1.50	-1.50	R=1000.00m L=95.62m	G=0.500	G=3.500	003+800
0.50	-2.50	L=24.45m	G=0.500	G=3.500	003+900
-0.50	-3.50	R=1000.00m L=95.62m	G=0.500	G=3.500	004+000

LEGEND

EXISTING ROADWAY	DASH-dot-dot	PROPOSED ROADWAY	SOLID	RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED CENTER LINE	SOLID	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
EXISTING CENTER LINE	SOLID	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot
PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot	PROPOSED RIGHT OF WAY	DASH-dot-dot-dot

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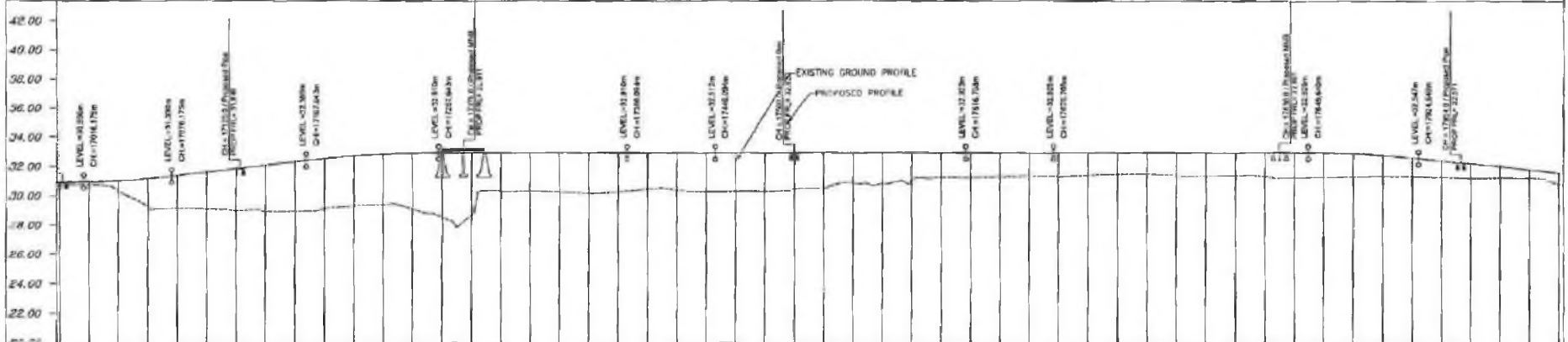
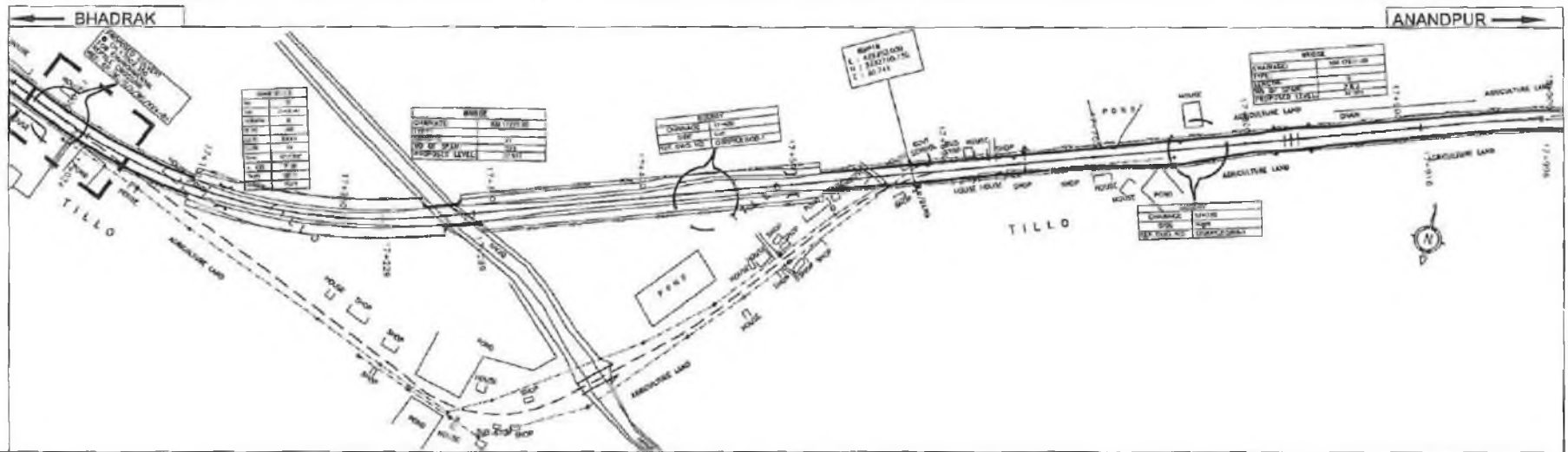
PROJECT: ODISHA STATE ROAD PROJECT

WIDENING AND STRENGTHENING TO TWO LANE  
 PLAN AND LONGITUDINAL SECTION  
 BHADRAK TO ANANDPUR (SH-53) KM 16+000 TO 17+000

CRIC NO.	REV	DATE	REV	DATE
1	1	10/01/20	1	10/01/20

SCALE: HORIZONTAL: 1:2000 VERTICAL: 1:200

**FORTUNE GROUP**



DATUM = 20.00

PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL	CHAINAGE
33.00	33.00	R=1000m	CH=1700.00m	G=2.50%	0+000
32.80	32.80	L=203.82m	G=-1.150 L=81.224m	G=-2.58%	0+100
32.60	32.60		L=400.00m		0+200
32.40	32.40				0+300
32.20	32.20				0+400
32.00	32.00				0+500
31.80	31.80				0+600
31.60	31.60				0+700
31.40	31.40				0+800
31.20	31.20				0+900
31.00	31.00				1+000
30.80	30.80				1+100
30.60	30.60				1+200
30.40	30.40				1+300
30.20	30.20				1+400
30.00	30.00				1+500
29.80	29.80				1+600
29.60	29.60				1+700
29.40	29.40				1+800
29.20	29.20				1+900
29.00	29.00				2+000
28.80	28.80				2+100
28.60	28.60				2+200
28.40	28.40				2+300
28.20	28.20				2+400
28.00	28.00				2+500
27.80	27.80				2+600
27.60	27.60				2+700
27.40	27.40				2+800
27.20	27.20				2+900
27.00	27.00				3+000
26.80	26.80				3+100
26.60	26.60				3+200
26.40	26.40				3+300
26.20	26.20				3+400
26.00	26.00				3+500
25.80	25.80				3+600
25.60	25.60				3+700
25.40	25.40				3+800
25.20	25.20				3+900
25.00	25.00				4+000
24.80	24.80				4+100
24.60	24.60				4+200
24.40	24.40				4+300
24.20	24.20				4+400
24.00	24.00				4+500
23.80	23.80				4+600
23.60	23.60				4+700
23.40	23.40				4+800
23.20	23.20				4+900
23.00	23.00				5+000
22.80	22.80				5+100
22.60	22.60				5+200
22.40	22.40				5+300
22.20	22.20				5+400
22.00	22.00				5+500

**LEGEND**

- ROAD CENTERLINE
- PROPOSED ROAD LEVEL
- EXISTING GROUND PROFILE
- VERTICAL CURVE DATA
- GRADES
- ALIGNMENT
- STATION MARKS
- STRUCTURES
- LANDMARKS
- CONTOURS
- SPOT HEIGHTS

**GMC CONSULTING ENGINEERS GROUP LTD.**  
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 Fax: 2521348, e-mail: ceg@gceindia.com

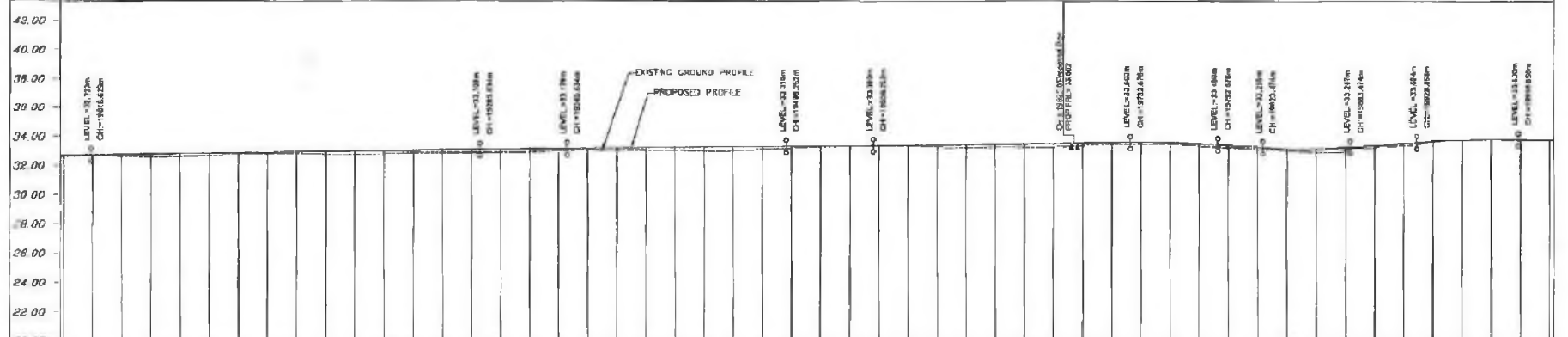
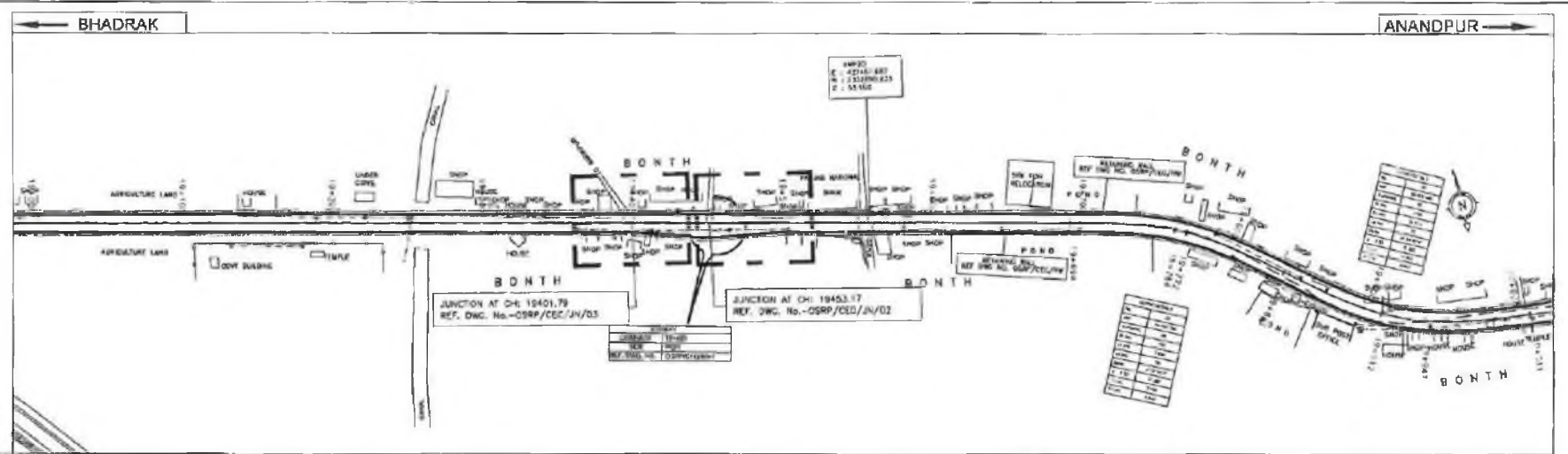
**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 17/000 TO KM 16/000**

DATE	REV	BY	CHKD
17/06/2014	1	AKG	RB

SCALE: HORIZONTAL: 1:200 VERTICAL: 1:20





DATUM = 20.00

CHAINAGE	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL
8882.000	31.31	32.25	R=18000.00m L=46.810m	G=9.112 L=924.777m	Q=2.500
8890.000	31.32	32.26			
8900.000	31.33	32.27	L=46.810m	G=9.112 L=924.777m	Q=2.500
8910.000	31.34	32.28			
8920.000	31.35	32.29	L=70.000m	G=7.000	Q=2.000
8930.000	31.36	32.30			
8940.000	31.37	32.31	L=70.000m	G=7.000	Q=2.000
8950.000	31.38	32.32			
8960.000	31.39	32.33	L=45.000m	G=7.000	Q=2.000
8970.000	31.40	32.34			
8980.000	31.41	32.35	L=45.000m	G=7.000	Q=2.000
8990.000	31.42	32.36			
9000.000	31.43	32.37	L=45.000m	G=7.000	Q=2.000
9010.000	31.44	32.38			
9020.000	31.45	32.39	L=45.000m	G=7.000	Q=2.000
9030.000	31.46	32.40			
9040.000	31.47	32.41	L=45.000m	G=7.000	Q=2.000
9050.000	31.48	32.42			
9060.000	31.49	32.43	L=45.000m	G=7.000	Q=2.000
9070.000	31.50	32.44			
9080.000	31.51	32.45	L=45.000m	G=7.000	Q=2.000
9090.000	31.52	32.46			
9100.000	31.53	32.47	L=45.000m	G=7.000	Q=2.000
9110.000	31.54	32.48			
9120.000	31.55	32.49	L=45.000m	G=7.000	Q=2.000
9130.000	31.56	32.50			
9140.000	31.57	32.51	L=45.000m	G=7.000	Q=2.000
9150.000	31.58	32.52			
9160.000	31.59	32.53	L=45.000m	G=7.000	Q=2.000
9170.000	31.60	32.54			
9180.000	31.61	32.55	L=45.000m	G=7.000	Q=2.000
9190.000	31.62	32.56			
9200.000	31.63	32.57	L=45.000m	G=7.000	Q=2.000
9210.000	31.64	32.58			
9220.000	31.65	32.59	L=45.000m	G=7.000	Q=2.000
9230.000	31.66	32.60			
9240.000	31.67	32.61	L=45.000m	G=7.000	Q=2.000
9250.000	31.68	32.62			
9260.000	31.69	32.63	L=45.000m	G=7.000	Q=2.000
9270.000	31.70	32.64			
9280.000	31.71	32.65	L=45.000m	G=7.000	Q=2.000
9290.000	31.72	32.66			
9300.000	31.73	32.67	L=45.000m	G=7.000	Q=2.000
9310.000	31.74	32.68			

**LEGEND**

EXISTING CONCRETE	PHANTASIA	RESIDUAL SIGNAL PLUMB	11
PROPOSED CONCRETE	REINFORCED CONCRETE	RESIDUAL SIGNAL PLUMB	12
EXISTING GRAVEL	GRAVEL	RESIDUAL SIGNAL PLUMB	13
PROPOSED GRAVEL	GRAVEL	RESIDUAL SIGNAL PLUMB	14
EXISTING ASPHALT	ASPHALT	RESIDUAL SIGNAL PLUMB	15
PROPOSED ASPHALT	ASPHALT	RESIDUAL SIGNAL PLUMB	16
EXISTING SOIL	SOIL	RESIDUAL SIGNAL PLUMB	17
PROPOSED SOIL	SOIL	RESIDUAL SIGNAL PLUMB	18
EXISTING DRAIN	DRAIN	RESIDUAL SIGNAL PLUMB	19
PROPOSED DRAIN	DRAIN	RESIDUAL SIGNAL PLUMB	20
EXISTING FOOTPATH	FOOTPATH	RESIDUAL SIGNAL PLUMB	21
PROPOSED FOOTPATH	FOOTPATH	RESIDUAL SIGNAL PLUMB	22
EXISTING STRUCTURE	STRUCTURE	RESIDUAL SIGNAL PLUMB	23
PROPOSED STRUCTURE	STRUCTURE	RESIDUAL SIGNAL PLUMB	24
EXISTING ROAD	ROAD	RESIDUAL SIGNAL PLUMB	25
PROPOSED ROAD	ROAD	RESIDUAL SIGNAL PLUMB	26

**CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Moji Colony, Malaya Nagar, Jaipur-17  
 Tel: +91-141-2520699, 2521839, 2520556  
 Fax: 2521348, e-mail: cege@cegendco.com

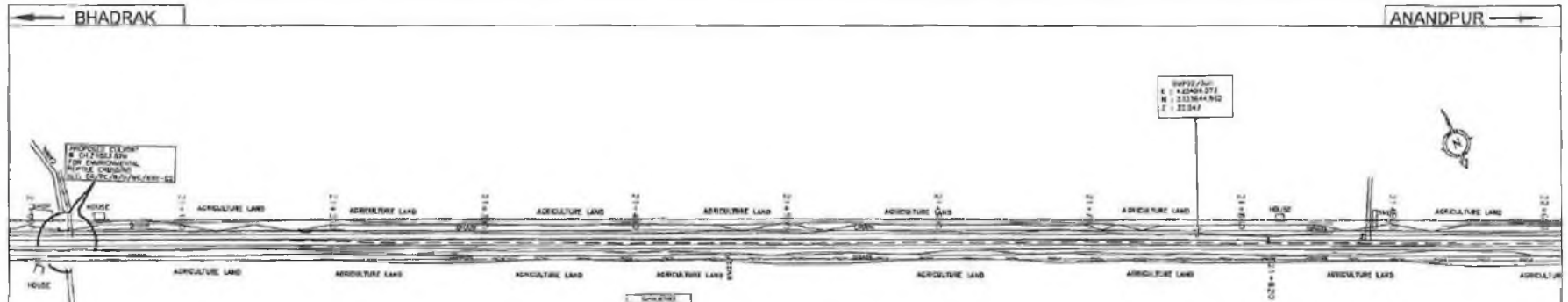
**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADR-K TO ANANDPUR (SH-53) KM 19/000 TO KM 20/000**

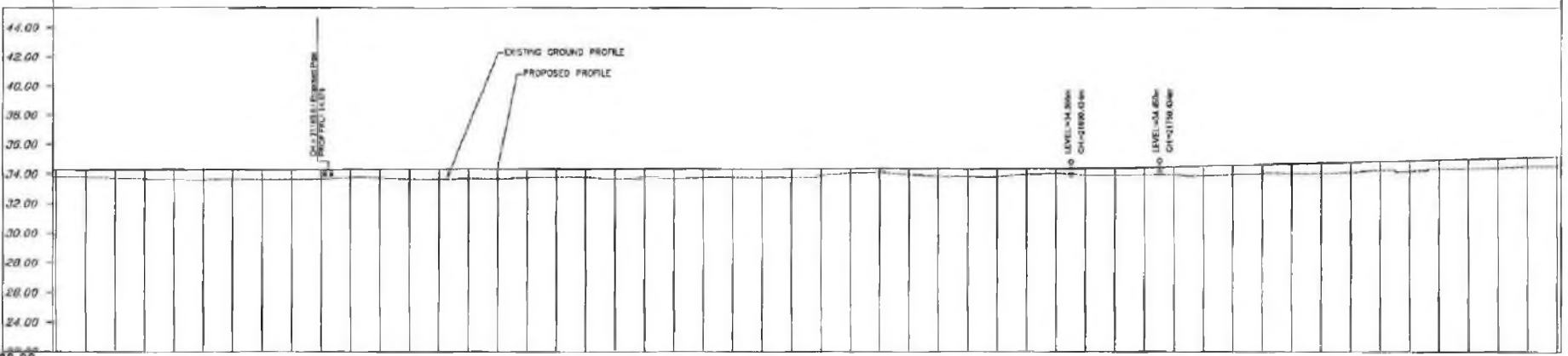
SCALE	HORIZONTAL: 1:500	VERTICAL: 1:200
DATE	REV	RD
DATE	REV	RD
DATE	REV	RD







Station	Proposed Level (m)	Existing Level (m)
0+00	34.00	34.00
0+10	34.00	34.00
0+20	34.00	34.00
0+30	34.00	34.00
0+40	34.00	34.00
0+50	34.00	34.00
0+60	34.00	34.00
0+70	34.00	34.00
0+80	34.00	34.00
0+90	34.00	34.00
1+00	34.00	34.00
1+10	34.00	34.00
1+20	34.00	34.00
1+30	34.00	34.00
1+40	34.00	34.00
1+50	34.00	34.00
1+60	34.00	34.00
1+70	34.00	34.00
1+80	34.00	34.00
1+90	34.00	34.00
2+00	34.00	34.00
2+10	34.00	34.00
2+20	34.00	34.00



DATUM = 22.00

Station	Proposed Road Level (m)	Existing Level (m)	Horizontal Alignment	Vertical Profile	Superelevation / Crossfall	Chainage
0+00	34.00	34.00	R=100	L=40.000m	Q=2.500	000+00.00
0+10	34.00	34.00	L=101.670m	L=40.000m	Q=2.500	000+10.00
0+20	34.00	34.00	LP200.000m	L=40.000m	Q=2.500	000+20.00
0+30	34.00	34.00	L=81.210m	L=40.000m	Q=2.500	000+30.00
0+40	34.00	34.00	L=73.820m	L=40.000m	Q=2.500	000+40.00
0+50	34.00	34.00	L=129.370m	L=40.000m	Q=2.500	000+50.00
0+60	34.00	34.00	L=128.170m	L=40.000m	Q=2.500	000+60.00
0+70	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	000+70.00
0+80	34.00	34.00	L=21.830m	L=40.000m	Q=3.500	000+80.00
0+90	34.00	34.00	L=21.830m	L=40.000m	Q=3.500	000+90.00
1+00	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+00.00
1+10	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+10.00
1+20	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+20.00
1+30	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+30.00
1+40	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+40.00
1+50	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+50.00
1+60	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+60.00
1+70	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+70.00
1+80	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+80.00
1+90	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	001+90.00
2+00	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	002+00.00
2+10	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	002+10.00
2+20	34.00	34.00	L=45.010m	L=40.000m	Q=3.500	002+20.00

**LEGEND**

EXISTING CENTERLINE	PROPOSED	BOUNDARY OF SPALL CURB	THICKET LENGTH
PROPOSED CENTERLINE	ST. LINE	BOUNDARY OF SHOULDER	LENGTH OF SHOULDER CURB
EXISTING SHOULDER	WELLING & SAND MOUND	APED BY SLOPE	LAND DISTANCE
PROPOSED SHOULDER	ELECTRIC CABLE & PIPE	LINE OF SPALL CURB	SUPPLEMENTATION
PROPOSED ROAD BOUNDARY	TELEPHONE CABLE & PIPE	LINE OF SPALL CURB	HOUSE CROSS
PROPOSED ROAD BOUNDARY	PROPOSED WATER SUPPLY	BOUNDARY OF SPALL CURB	HOUSE BY CURB
PROPOSED ROAD BOUNDARY	PROPOSED WATER SUPPLY	BOUNDARY OF SPALL CURB	
PROPOSED ROAD BOUNDARY	PROPOSED WATER SUPPLY	BOUNDARY OF SPALL CURB	
PROPOSED ROAD BOUNDARY	PROPOSED WATER SUPPLY	BOUNDARY OF SPALL CURB	

**GMC CONSULTING ENGINEERS GROUP LTD.**  
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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 21/000 TO KM 22/000**

CRS. NO.	77	1	RD	SECTION NO.	1
SCALE	HORIZONTAL: 1:200	VERTICAL: 1:20			

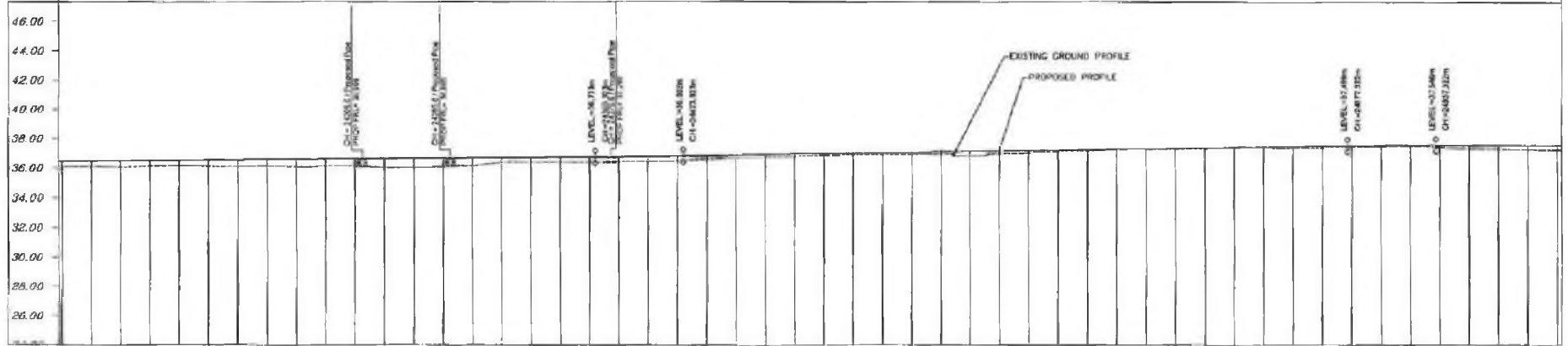
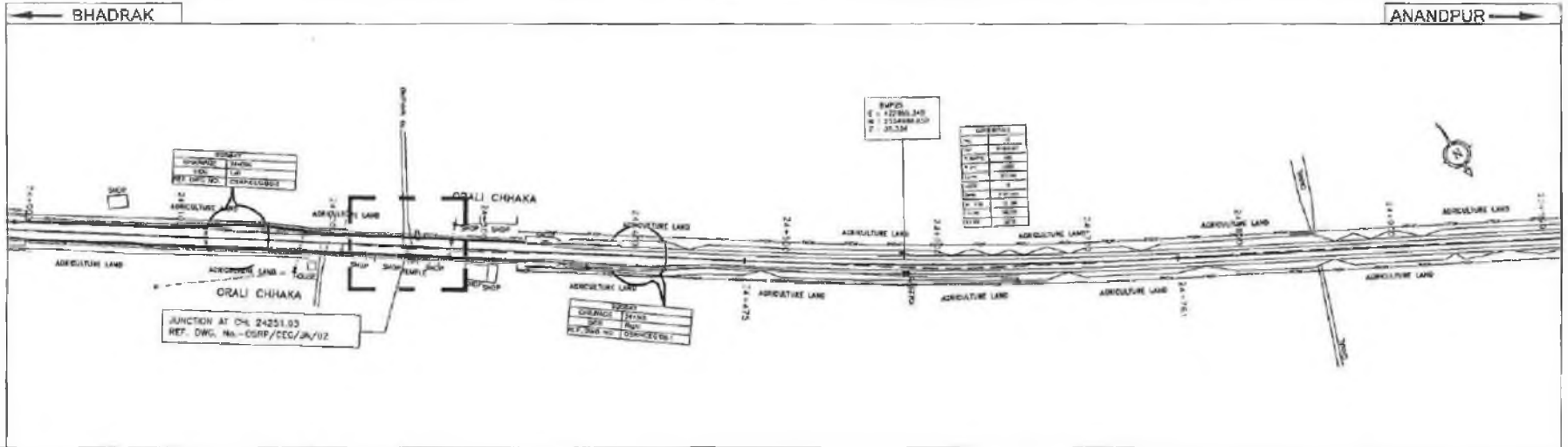






Forum Group  
(Contractor)

Chief Engineer  
DIP & Roads



DATUM = 24.00

PROPOSED ROAD LE.EL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL	CHAINAGE
36.78	36.78	L=381.335m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=225.850m	G=0.470 L=196.272m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=57.07m	G=-0.042 L=385.388m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=70.100m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=33.000m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00
36.78	36.78	L=27.070m	G=0.000 L=272.36m	S+2.500 D+2.800	0+000.00
36.78	36.78				0+000.00

LEGEND

	EXISTING ROADWAY		PROPOSED ROAD		RIGHT OF WAY
	WATERCOURSE		DRAINAGE		CANAL
	SURVEY POINT		CONTROL POINT		BENCH MARK
	SPOT LEVEL		ELEVATION		DISTANCE

**GCE CONSULTING ENGINEERS GROUP LTD.**  
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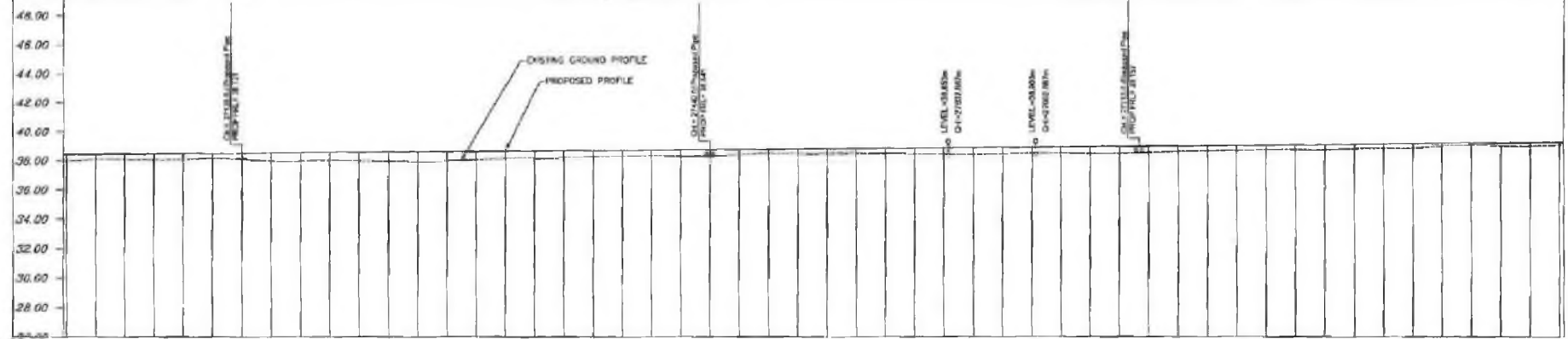
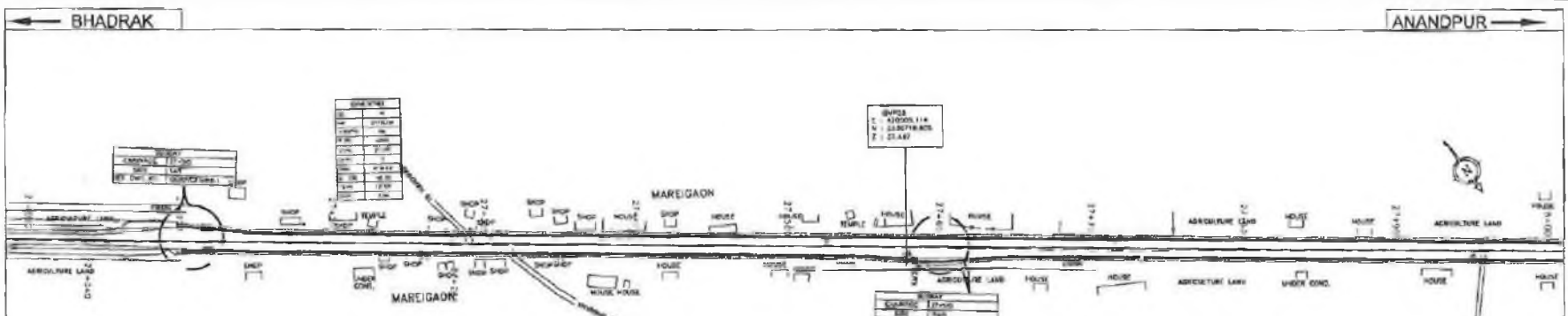
PROJECT:-  
ODISHA STATE ROAD PROJECT

WIDENING AND STRENGTHENING TO TWO LANE  
PLAN AND LONGITUDINAL SECTION  
BHADRAK TO ANANDPUR (SH-53) KM 24/000 TO KM 25/000

S.D. NO.	REV.	DATE	BY	CHKD.	APP'D.	DATE
01	1					
SCALE	HORIZONTAL 1:200					
	VERTICAL 1:200					







DATUM = 26.00

PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL	CHAINAGE
36.00	36.00	Normal	Normal	Q=2.50	0+000.00
36.25	36.25	Normal	Normal	Q=2.50	0+125.00
36.50	36.50	Normal	Normal	Q=2.50	0+250.00
36.75	36.75	Normal	Normal	Q=2.50	0+375.00
37.00	37.00	Normal	Normal	Q=2.50	0+500.00
37.25	37.25	Normal	Normal	Q=2.50	0+625.00
37.50	37.50	Normal	Normal	Q=2.50	0+750.00
37.75	37.75	Normal	Normal	Q=2.50	0+875.00
38.00	38.00	Normal	Normal	Q=2.50	0+1000.00
38.25	38.25	Normal	Normal	Q=2.50	0+1125.00
38.50	38.50	Normal	Normal	Q=2.50	0+1250.00
38.75	38.75	Normal	Normal	Q=2.50	0+1375.00
39.00	39.00	Normal	Normal	Q=2.50	0+1500.00
39.25	39.25	Normal	Normal	Q=2.50	0+1625.00
39.50	39.50	Normal	Normal	Q=2.50	0+1750.00
39.75	39.75	Normal	Normal	Q=2.50	0+1875.00
40.00	40.00	Normal	Normal	Q=2.50	0+2000.00
40.25	40.25	Normal	Normal	Q=2.50	0+2125.00
40.50	40.50	Normal	Normal	Q=2.50	0+2250.00
40.75	40.75	Normal	Normal	Q=2.50	0+2375.00
41.00	41.00	Normal	Normal	Q=2.50	0+2500.00
41.25	41.25	Normal	Normal	Q=2.50	0+2625.00
41.50	41.50	Normal	Normal	Q=2.50	0+2750.00
41.75	41.75	Normal	Normal	Q=2.50	0+2875.00
42.00	42.00	Normal	Normal	Q=2.50	0+3000.00
42.25	42.25	Normal	Normal	Q=2.50	0+3125.00
42.50	42.50	Normal	Normal	Q=2.50	0+3250.00
42.75	42.75	Normal	Normal	Q=2.50	0+3375.00
43.00	43.00	Normal	Normal	Q=2.50	0+3500.00
43.25	43.25	Normal	Normal	Q=2.50	0+3625.00
43.50	43.50	Normal	Normal	Q=2.50	0+3750.00
43.75	43.75	Normal	Normal	Q=2.50	0+3875.00
44.00	44.00	Normal	Normal	Q=2.50	0+4000.00
44.25	44.25	Normal	Normal	Q=2.50	0+4125.00
44.50	44.50	Normal	Normal	Q=2.50	0+4250.00
44.75	44.75	Normal	Normal	Q=2.50	0+4375.00
45.00	45.00	Normal	Normal	Q=2.50	0+4500.00
45.25	45.25	Normal	Normal	Q=2.50	0+4625.00
45.50	45.50	Normal	Normal	Q=2.50	0+4750.00
45.75	45.75	Normal	Normal	Q=2.50	0+4875.00
46.00	46.00	Normal	Normal	Q=2.50	0+5000.00
46.25	46.25	Normal	Normal	Q=2.50	0+5125.00
46.50	46.50	Normal	Normal	Q=2.50	0+5250.00
46.75	46.75	Normal	Normal	Q=2.50	0+5375.00
47.00	47.00	Normal	Normal	Q=2.50	0+5500.00
47.25	47.25	Normal	Normal	Q=2.50	0+5625.00
47.50	47.50	Normal	Normal	Q=2.50	0+5750.00
47.75	47.75	Normal	Normal	Q=2.50	0+5875.00
48.00	48.00	Normal	Normal	Q=2.50	0+6000.00

**LEGEND**

EXISTING CONCRETE  
 EXISTING GRAVEL  
 NEW CONCRETE  
 NEW GRAVEL  
 PROPOSED  
 CENTER LINE  
 SIDEWALK

**CONSTRUCTION**  
 BRIDGE  
 TUNNEL  
 UNDERPASS  
 CULVERT  
 WALL  
 PILE  
 MOUND  
 SAND FILL  
 ROCK FILL

**VEGETATION**  
 TROPICAL FOREST  
 SAVANNA  
 OPEN AREA  
 PALM TREE  
 CASUARINA  
 SHRUBS  
 BUSHES  
 GRASS

**POWER**  
 HIGH VOLTAGE  
 LOW VOLTAGE  
 TELEPHONE  
 WATER SUPPLY  
 SEWER

**ROAD**  
 NATIONAL HIGHWAY  
 STATE ROAD  
 DISTRICT ROAD  
 LOCAL ROAD  
 RAILWAY

**OTHER**  
 HOLE  
 PIT  
 BANK  
 GULLY  
 SAND PIT

**CONSULTING ENGINEERS GROUP LTD.**  
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 Fax: 2521546, e-mail: cey@cegindia.com

**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANPUR (SH-53) KM 27/000 TO KM 28/000**

SCALE  
 HORIZONTAL: 1:250  
 VERTICAL: 1:200

**REVISIONS**

NO. | DATE | REV. | BY

1 | | |

2 | | |

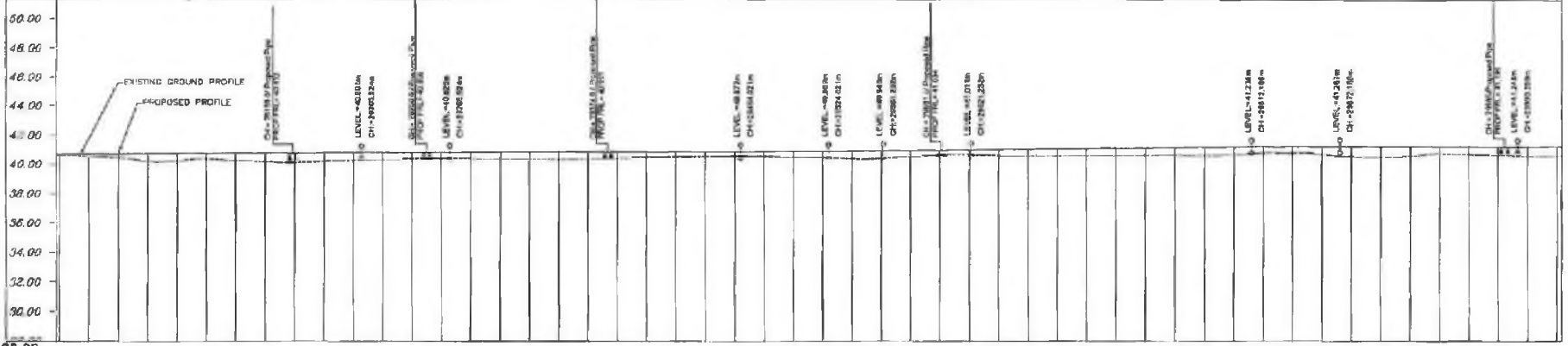
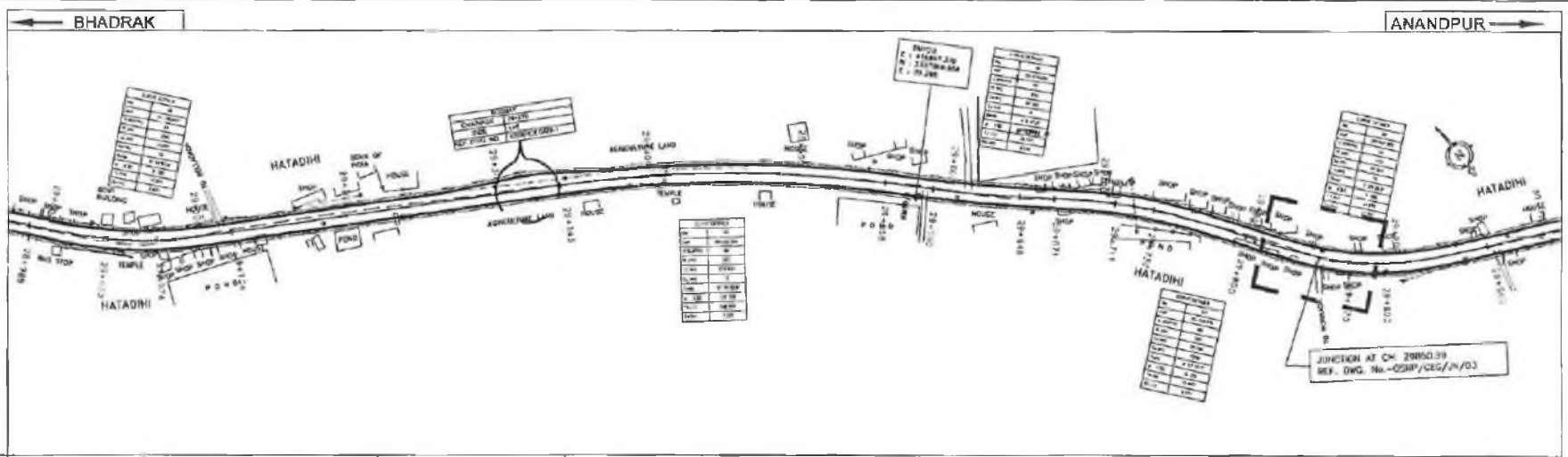
3 | | |





FOR TINE GROUP

FOR TINE GROUP



DATUM = 28.00

PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL	CHAINAGE
41.700	40.700	R=1000.00m	G=0.500	C=7.000	0+000.00
41.750	40.750	L=1000.00m	G=0.500	C=7.000	0+050.00
41.800	40.800	L=1000.00m	G=0.500	C=7.000	0+100.00
41.850	40.850	L=1000.00m	G=0.500	C=7.000	0+150.00
41.900	40.900	L=1000.00m	G=0.500	C=7.000	0+200.00
41.950	40.950	L=1000.00m	G=0.500	C=7.000	0+250.00
42.000	41.000	L=1000.00m	G=0.500	C=7.000	0+300.00
42.050	41.050	L=1000.00m	G=0.500	C=7.000	0+350.00
42.100	41.100	L=1000.00m	G=0.500	C=7.000	0+400.00
42.150	41.150	L=1000.00m	G=0.500	C=7.000	0+450.00
42.200	41.200	L=1000.00m	G=0.500	C=7.000	0+500.00
42.250	41.250	L=1000.00m	G=0.500	C=7.000	0+550.00
42.300	41.300	L=1000.00m	G=0.500	C=7.000	0+600.00
42.350	41.350	L=1000.00m	G=0.500	C=7.000	0+650.00
42.400	41.400	L=1000.00m	G=0.500	C=7.000	0+700.00
42.450	41.450	L=1000.00m	G=0.500	C=7.000	0+750.00
42.500	41.500	L=1000.00m	G=0.500	C=7.000	0+800.00
42.550	41.550	L=1000.00m	G=0.500	C=7.000	0+850.00
42.600	41.600	L=1000.00m	G=0.500	C=7.000	0+900.00

**LEGEND**

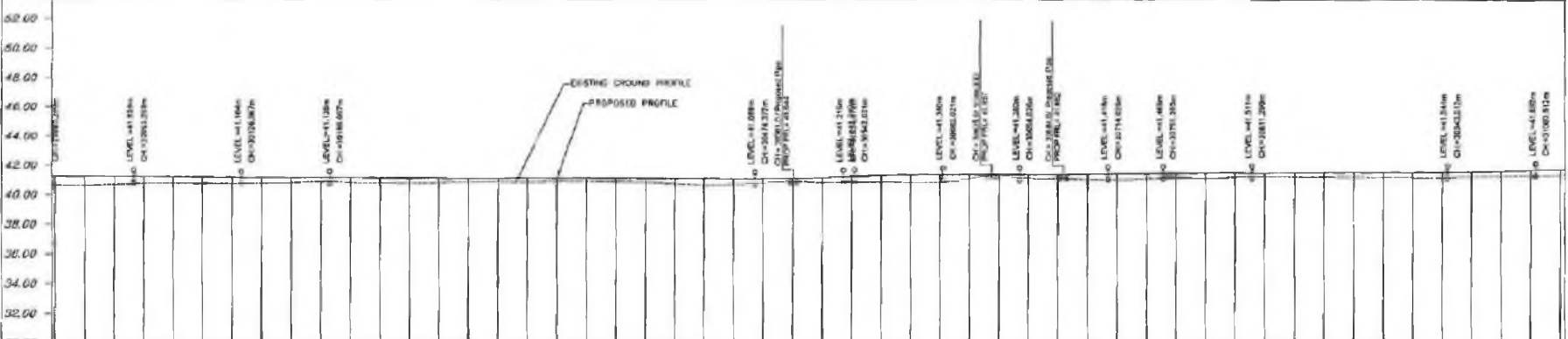
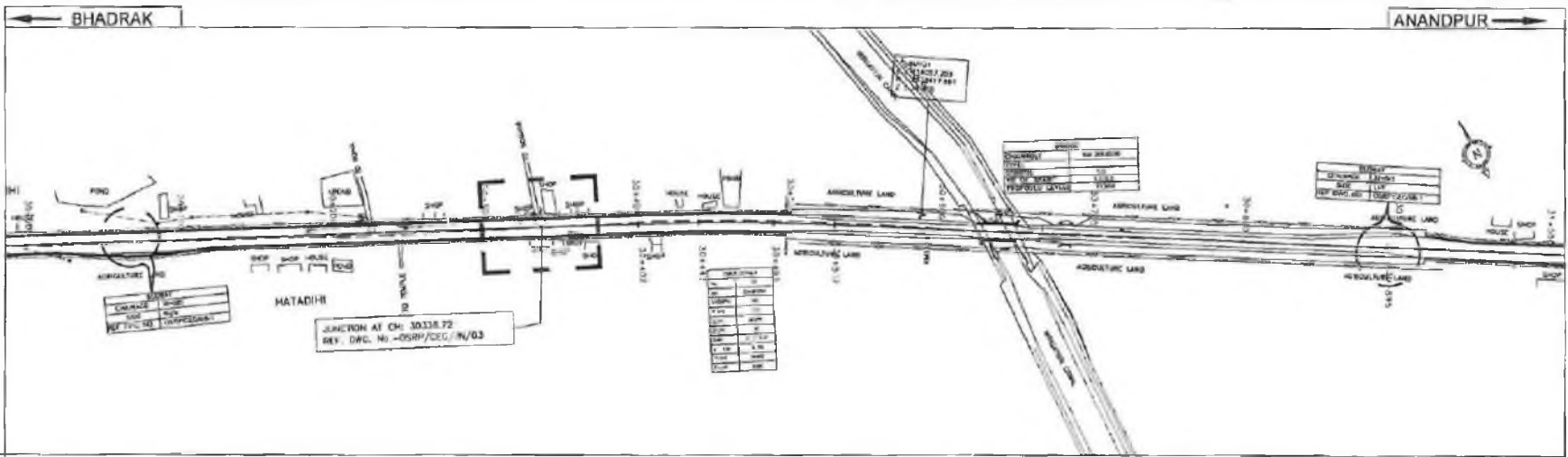
EXISTING GROUND PROFILE	PROPOSED ROAD PROFILE	VERTICAL CURVE	ADJUSTMENT APPROVED FROM
...	...	...	...

**PROJECT:**  
ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE  
PLAN AND LONGITUDINAL SECTION  
BHADRAX TO ANANDPUR (SH-53) KM 29/000 TO KM 30/000**

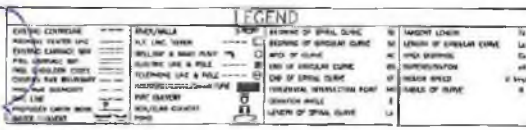
DATE	NO	REVISION
...	...	...

**CEC ENGINEERS GROUP LTD.**  
L-12, 6th Colony, Naraj, Bhubaneswar - 751017  
Tel: +91-674-2520899, 2521899, 2520556  
Fax: 2521348, e-mail: cec@cecgil.com



DATUM = 30.00

STATION	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION / CROSSFALL	CHAINAGE
30+00	41.71	41.71	R=400.000m		0=2.500	30+00.00
30+10	42.71	42.71	L=732.000m		0=2.500	30+00.00
30+20	43.71	43.71	L=380.000m		0=2.500	30+00.00
30+30	44.71	44.71	L=270.000m		0=2.500	30+00.00
30+40	45.71	45.71	L=200.000m		0=2.500	30+00.00
30+50	46.71	46.71	L=160.000m		0=2.500	30+00.00
30+60	47.71	47.71	L=120.000m		0=2.500	30+00.00
30+70	48.71	48.71	L=80.000m		0=2.500	30+00.00
30+80	49.71	49.71	L=40.000m		0=2.500	30+00.00
30+90	50.71	50.71	L=0.000m		0=2.500	30+00.00
31+00	51.71	51.71	S=120.000m		0=2.500	30+00.00
31+10	52.71	52.71	L=100.000m		0=2.500	30+00.00
31+20	53.71	53.71	L=80.000m		0=2.500	30+00.00
31+30	54.71	54.71	L=60.000m		0=2.500	30+00.00
31+40	55.71	55.71	L=40.000m		0=2.500	30+00.00
31+50	56.71	56.71	L=20.000m		0=2.500	30+00.00
31+60	57.71	57.71	L=0.000m		0=2.500	30+00.00
31+70	58.71	58.71	L=40.000m		0=2.500	30+00.00
31+80	59.71	59.71	L=80.000m		0=2.500	30+00.00
31+90	60.71	60.71	L=120.000m		0=2.500	30+00.00
32+00	61.71	61.71	L=160.000m		0=2.500	30+00.00
32+10	62.71	62.71	L=200.000m		0=2.500	30+00.00
32+20	63.71	63.71	L=240.000m		0=2.500	30+00.00
32+30	64.71	64.71	L=280.000m		0=2.500	30+00.00
32+40	65.71	65.71	L=320.000m		0=2.500	30+00.00
32+50	66.71	66.71	L=360.000m		0=2.500	30+00.00
32+60	67.71	67.71	L=400.000m		0=2.500	30+00.00
32+70	68.71	68.71	L=440.000m		0=2.500	30+00.00
32+80	69.71	69.71	L=480.000m		0=2.500	30+00.00
32+90	70.71	70.71	L=520.000m		0=2.500	30+00.00
33+00	71.71	71.71	L=560.000m		0=2.500	30+00.00
33+10	72.71	72.71	L=600.000m		0=2.500	30+00.00
33+20	73.71	73.71	L=640.000m		0=2.500	30+00.00
33+30	74.71	74.71	L=680.000m		0=2.500	30+00.00
33+40	75.71	75.71	L=720.000m		0=2.500	30+00.00
33+50	76.71	76.71	L=760.000m		0=2.500	30+00.00
33+60	77.71	77.71	L=800.000m		0=2.500	30+00.00
33+70	78.71	78.71	L=840.000m		0=2.500	30+00.00
33+80	79.71	79.71	L=880.000m		0=2.500	30+00.00
33+90	80.71	80.71	L=920.000m		0=2.500	30+00.00
34+00	81.71	81.71	L=960.000m		0=2.500	30+00.00
34+10	82.71	82.71	L=1000.000m		0=2.500	30+00.00
34+20	83.71	83.71	L=1040.000m		0=2.500	30+00.00
34+30	84.71	84.71	L=1080.000m		0=2.500	30+00.00
34+40	85.71	85.71	L=1120.000m		0=2.500	30+00.00
34+50	86.71	86.71	L=1160.000m		0=2.500	30+00.00
34+60	87.71	87.71	L=1200.000m		0=2.500	30+00.00
34+70	88.71	88.71	L=1240.000m		0=2.500	30+00.00
34+80	89.71	89.71	L=1280.000m		0=2.500	30+00.00
34+90	90.71	90.71	L=1320.000m		0=2.500	30+00.00
35+00	91.71	91.71	L=1360.000m		0=2.500	30+00.00
35+10	92.71	92.71	L=1400.000m		0=2.500	30+00.00
35+20	93.71	93.71	L=1440.000m		0=2.500	30+00.00
35+30	94.71	94.71	L=1480.000m		0=2.500	30+00.00
35+40	95.71	95.71	L=1520.000m		0=2.500	30+00.00
35+50	96.71	96.71	L=1560.000m		0=2.500	30+00.00
35+60	97.71	97.71	L=1600.000m		0=2.500	30+00.00
35+70	98.71	98.71	L=1640.000m		0=2.500	30+00.00
35+80	99.71	99.71	L=1680.000m		0=2.500	30+00.00
35+90	100.71	100.71	L=1720.000m		0=2.500	30+00.00



**CONSULTING ENGINEERS GROUP LTD.**  
 E-10, Maj Colony, Malviya Nagar, Jaipur-17  
 Tel: 491-141-2520899, 2521699, 2520556  
 Fax: 2521348, e-mail: ceg@cegroup.com

**PROJECT:**  
 ODISHA STATE ROAD PROJECT

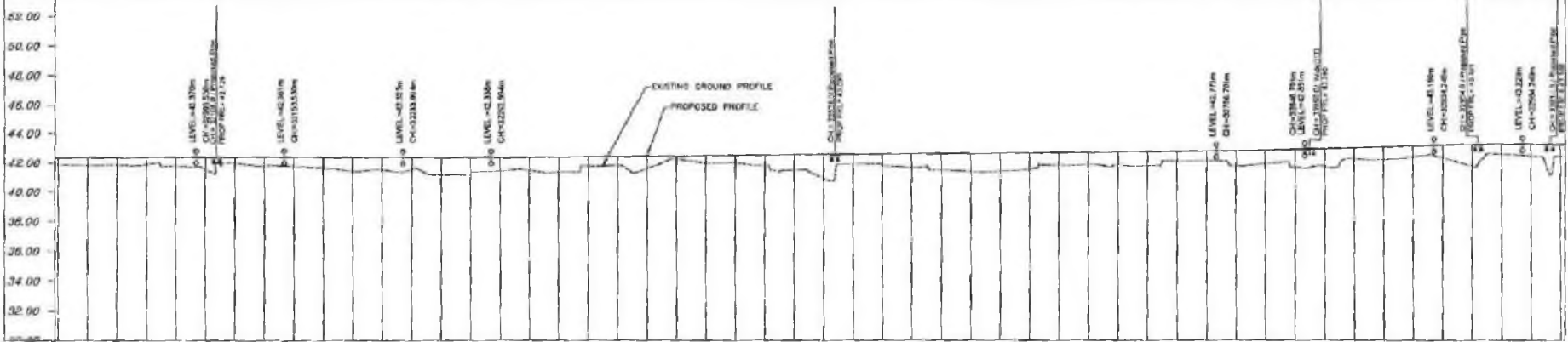
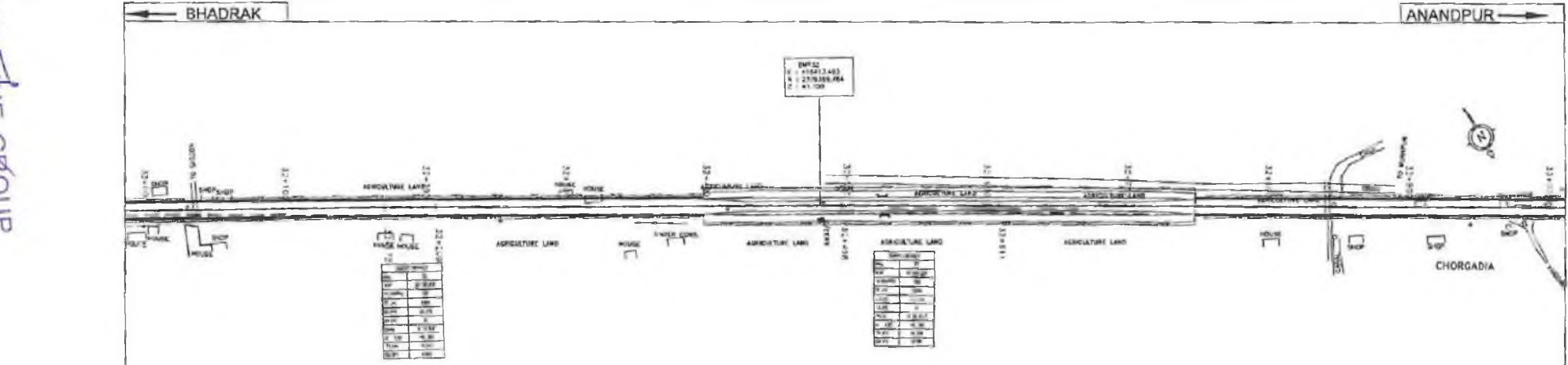
WIDENING AND STRENGTHENING TO TWO LANE  
 PLAN AND LONGITUDINAL SECTION  
 BHADRAK TO ANANDPUR (SH-53) KM 30/000 TO KM 31/000

NO.	DATE	REV.	BY	CHKD.	APPRD.
01	31/05/2024	1	...	...	...

SCALE: HORIZONTAL: 1:2000  
 VERTICAL: 1:400

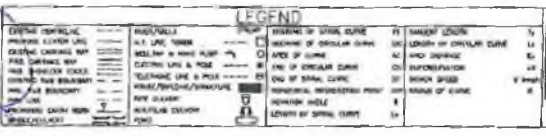


**FORFINE GROUP**  
Forfine Group  
(Contractor)



DATUM = 30.00

PROPOSED ROAD LEVEL (m)	52.85	50.45	49.75	49.30	48.80	48.30	48.30	47.70	47.25	47.25	47.25	47.75	48.25	48.75	49.25	49.75	50.25	50.75	51.25	51.75	52.25	52.75	53.25	53.75	54.25	54.75	55.25	55.75	56.25	56.75	57.25	57.75	58.25	58.75		
EXISTING LEVEL (m)	46.80	46.40	46.30	46.20	46.10	46.00	46.00	45.90	45.80	45.80	45.80	45.90	46.00	46.10	46.20	46.30	46.40	46.50	46.60	46.70	46.80	46.90	47.00	47.10	47.20	47.30	47.40	47.50	47.60	47.70	47.80	47.90	48.00	48.10	48.20	48.30
HORIZONTAL ALIGNMENT	1:1000000												1:1000000										1:1000000													
VERTICAL PROFILE	L=200m												L=200m										L=200m													
SUPERELEVATION /CROSSFALL	0-2.500																																			
CHAINAGE	0+00	0+10	0+20	0+30	0+40	0+50	0+60	0+70	0+80	0+90	0+100	0+110	0+120	0+130	0+140	0+150	0+160	0+170	0+180	0+190	0+200	0+210	0+220	0+230	0+240	0+250	0+260	0+270	0+280	0+290	0+300	0+310	0+320	0+330	0+340	0+350

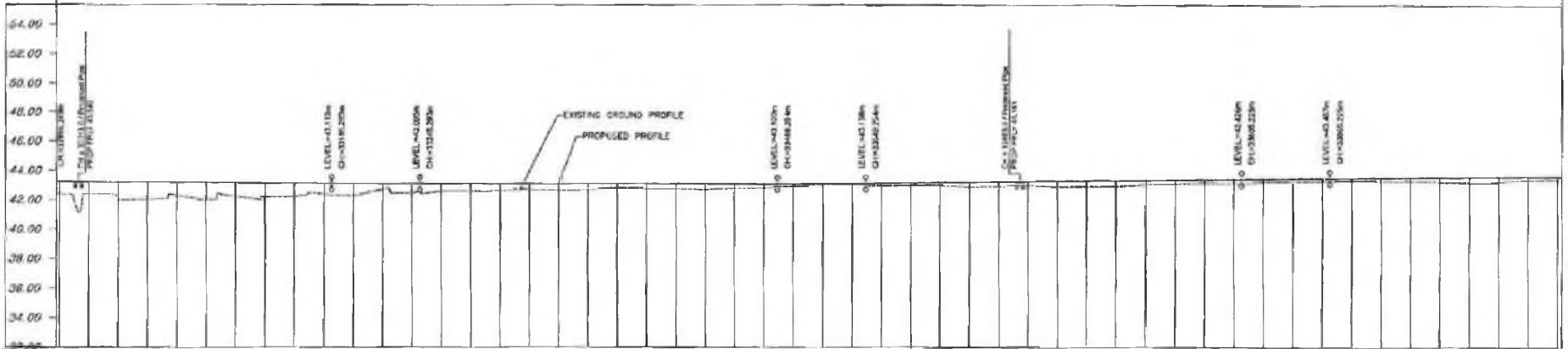
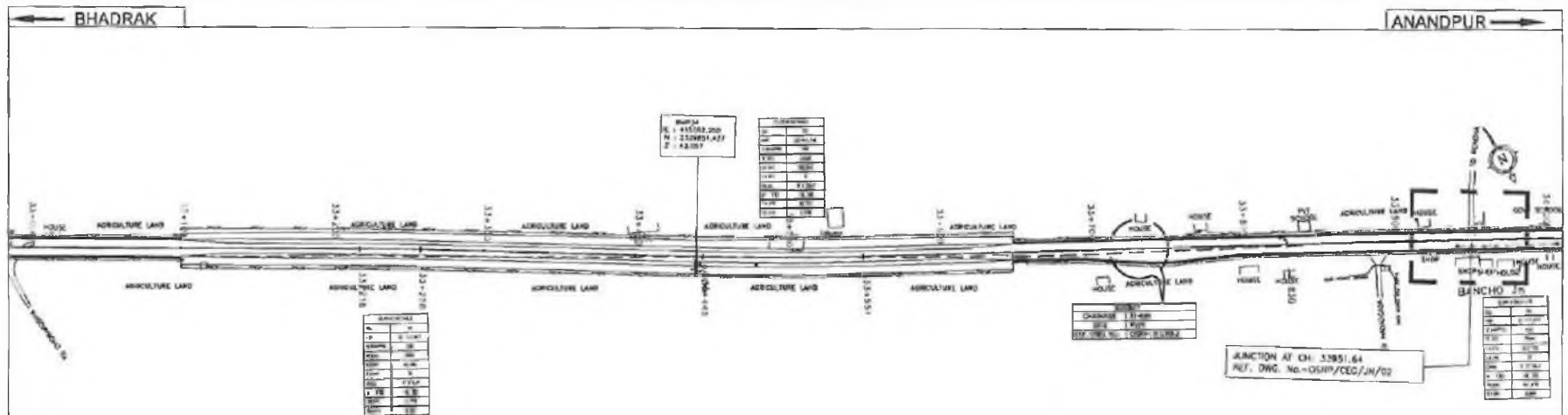


**CEG ENGINEERS GROUP LTD.**  
E-12, Model Colony, Mohiyo Nagar, Jaipur-31  
Tel: +91-141-2523899, 2521999, 2520558  
Fax: 2521146, e-mail: ce@cegindia.com

PROJECT: ODISHA STATE ROAD PROJECT

WIDENING AND STRENGTHENING TO TWO LANE  
PLAN AND LONGITUDINAL SECTION  
BHADRAK TO ANANDPUR (SH-53) KM 32/000 TO KM 33/000

DATE: 31.12.2007	DATE: 31.12.2007	REV: 00	NO: 00
SCALE: HORIZONTAL 1:2000	SCALE: VERTICAL 1:250	K.R.O.	A.B.
		K.R.O.	S.G.



DATUM = 32.00

CHAINAGE	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION /CROSSFALL
0+00	43.53	42.52	PH-100		
0+10	43.49	42.71	PH-100		
0+20	43.36	42.83	PH-100		
0+30	43.59	43.02	PH-100		
0+40	43.03	43.56	PH-100		
0+50	43.02	43.46	PH-100		
0+60	42.97	43.43	PH-100		
0+70	43.50	43.88	PH-100		
0+80	43.61	43.28	PH-100		
0+90	43.70	43.36	PH-100		
0+100	43.72	43.74	PH-100		
0+110	43.78	43.70	PH-100		
0+120	43.70	42.97	PH-100		
0+130	43.77	43.96	PH-100		
0+140	43.87	43.59	PH-100		
0+150	43.87	43.83	PH-100		
0+160	43.87	43.83	PH-100		
0+170	43.87	43.83	PH-100		
0+180	43.87	43.83	PH-100		
0+190	43.87	43.83	PH-100		
0+200	43.87	43.83	PH-100		
0+210	43.87	43.83	PH-100		
0+220	43.87	43.83	PH-100		
0+230	43.87	43.83	PH-100		
0+240	43.87	43.83	PH-100		
0+250	43.87	43.83	PH-100		
0+260	43.87	43.83	PH-100		
0+270	43.87	43.83	PH-100		
0+280	43.87	43.83	PH-100		
0+290	43.87	43.83	PH-100		
0+300	43.87	43.83	PH-100		
0+310	43.87	43.83	PH-100		
0+320	43.87	43.83	PH-100		
0+330	43.87	43.83	PH-100		
0+340	43.87	43.83	PH-100		
0+350	43.87	43.83	PH-100		
0+360	43.87	43.83	PH-100		
0+370	43.87	43.83	PH-100		
0+380	43.87	43.83	PH-100		
0+390	43.87	43.83	PH-100		
0+400	43.87	43.83	PH-100		
0+410	43.87	43.83	PH-100		
0+420	43.87	43.83	PH-100		
0+430	43.87	43.83	PH-100		
0+440	43.87	43.83	PH-100		
0+450	43.87	43.83	PH-100		
0+460	43.87	43.83	PH-100		
0+470	43.87	43.83	PH-100		
0+480	43.87	43.83	PH-100		
0+490	43.87	43.83	PH-100		
0+500	43.87	43.83	PH-100		
0+510	43.87	43.83	PH-100		
0+520	43.87	43.83	PH-100		
0+530	43.87	43.83	PH-100		
0+540	43.87	43.83	PH-100		
0+550	43.87	43.83	PH-100		
0+560	43.87	43.83	PH-100		
0+570	43.87	43.83	PH-100		
0+580	43.87	43.83	PH-100		
0+590	43.87	43.83	PH-100		
0+600	43.87	43.83	PH-100		
0+610	43.87	43.83	PH-100		
0+620	43.87	43.83	PH-100		
0+630	43.87	43.83	PH-100		
0+640	43.87	43.83	PH-100		
0+650	43.87	43.83	PH-100		
0+660	43.87	43.83	PH-100		
0+670	43.87	43.83	PH-100		
0+680	43.87	43.83	PH-100		
0+690	43.87	43.83	PH-100		
0+700	43.87	43.83	PH-100		

**GMC CONSULTING ENGINEERS GROUP LTD.**  
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 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521348, e-mail: leg@gmcgna.com

**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

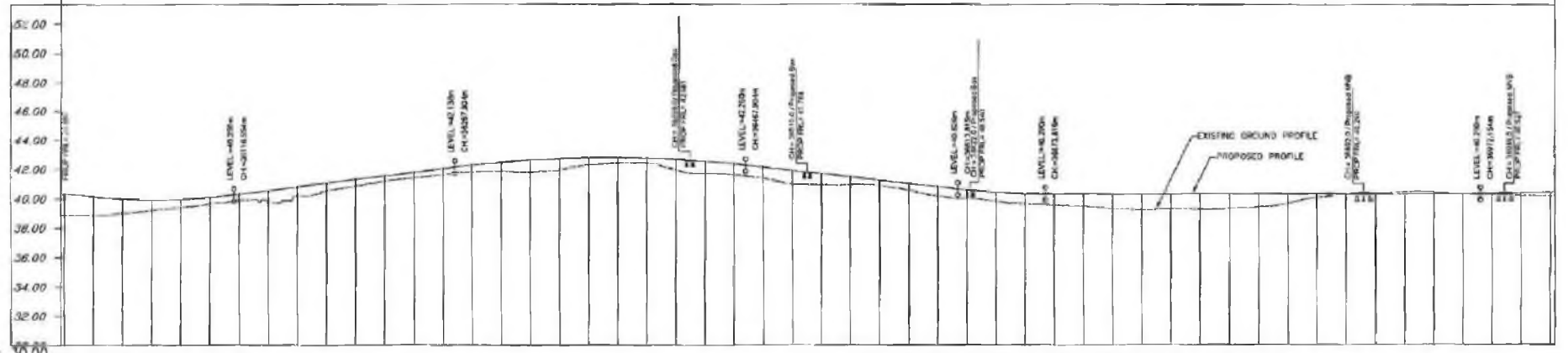
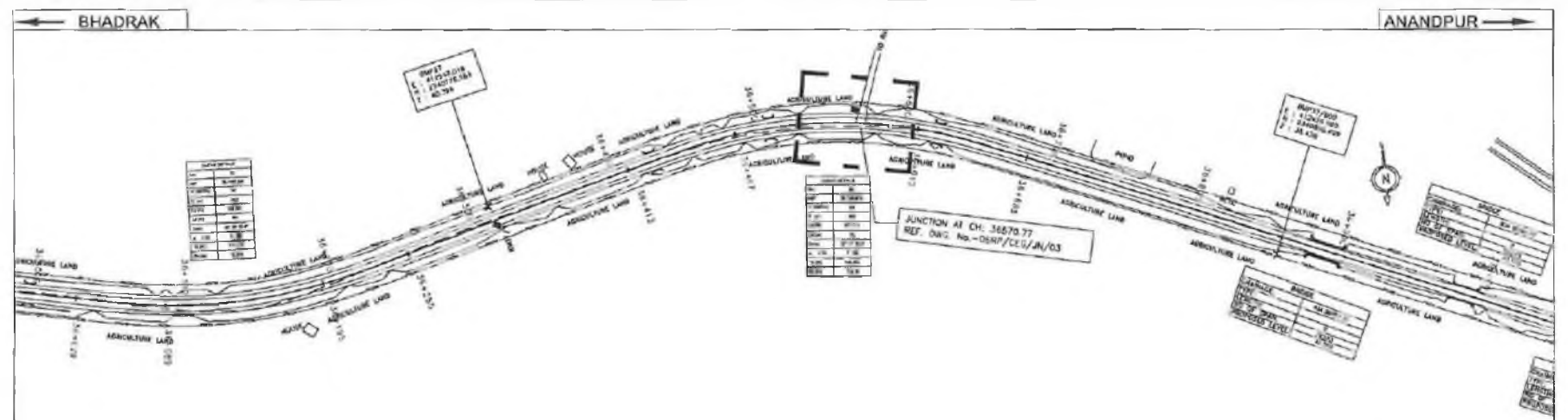
**LEGEND**  
 SYMBOLS FOR: CENTERLINE, CHAINAGE, PROPOSED ROAD, EXISTING ROAD, etc.

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 33/000 TO KM 34/000**

SH. NO.	34	DATE		REV	1
SCALE	HORIZONTAL 1:200				
	VERTICAL 1:200				
		K.S.O	R.R.	K.R.D.A.	S.C.







DATUM = 30.00

CHAINAGE	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION / CROSSFALL
0+000.00	40.00	39.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+100.00	40.50	40.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+200.00	41.00	40.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+300.00	41.50	41.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+400.00	42.00	41.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+500.00	42.50	42.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+600.00	43.00	42.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+700.00	43.50	43.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+800.00	44.00	43.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
0+900.00	44.50	44.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+000.00	45.00	44.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+100.00	45.50	45.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+200.00	46.00	45.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+300.00	46.50	46.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+400.00	47.00	46.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+500.00	47.50	47.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+600.00	48.00	47.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+700.00	48.50	48.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+800.00	49.00	48.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
1+900.00	49.50	49.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
2+000.00	50.00	49.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
2+100.00	50.50	50.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
2+200.00	51.00	50.50	R=300.000m L=1.000m	Q=1.500	Q=5.500
2+300.00	51.50	51.00	R=300.000m L=1.000m	Q=1.500	Q=5.500
2+400.00	52.00	51.50	R=300.000m L=1.000m	Q=1.500	Q=5.500

LEGEND

EXISTING CENTERLINE	SPREAD/PAVEMENT	BOUNDARY OF SPHAL CURVE	SHOULDER LEVEL
PROPOSED CENTERLINE	W.T. LINE	BOUNDARY OF CIRCULAR CURVE	BOUNDARY OF CIRCULAR CURVE
EXISTING ROADWAY	WELLING & SAND FILL	ARC OF PAVEMENT	ARC OF PAVEMENT
PROPOSED ROADWAY	BLASTING LINE & FILL	ARC OF CIRCULAR CURVE	ARC OF CIRCULAR CURVE
EXISTING ROADWAY	BLASTING LINE & FILL	ARC OF SPHAL CURVE	ARC OF SPHAL CURVE
PROPOSED ROADWAY	BLASTING LINE & FILL	ARC OF SPHAL CURVE	ARC OF SPHAL CURVE
EXISTING ROADWAY	BLASTING LINE & FILL	ARC OF SPHAL CURVE	ARC OF SPHAL CURVE
PROPOSED ROADWAY	BLASTING LINE & FILL	ARC OF SPHAL CURVE	ARC OF SPHAL CURVE

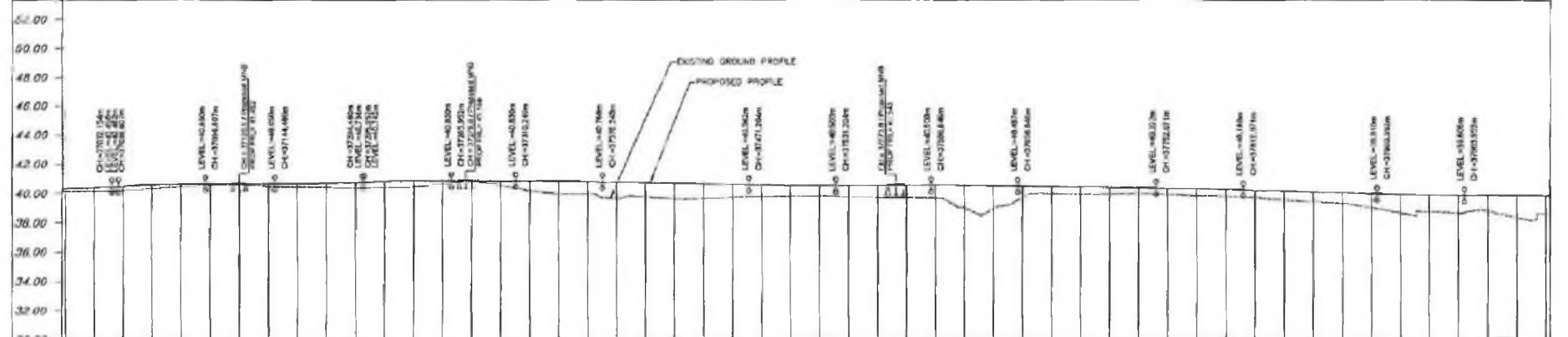
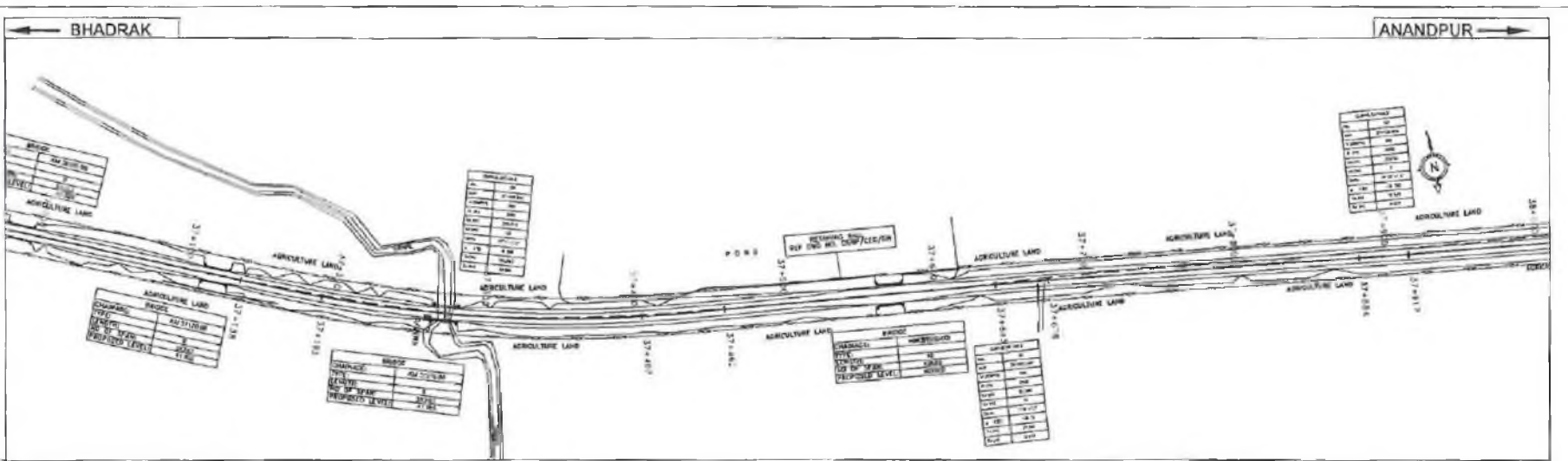
**CEG CONSULTING ENGINEERS GROUP LTD.**  
E-12, Muj. Colony, Melviye Nagar, Jaipur-17  
Tel: +91-141-2520859, 2521899, 2520556  
Fax: 2521348, e-mail: ceg@ceginia.com

**PROJECT:-**  
ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION**  
BHADRAK TO ANANDPUR (SH-53) KM 36/000 TO KM 37/000

DRG NO.	DATE	REV.	BY	CHKD.	APPD.
37					
SCALE	HORIZONTAL 1:2000	VERTICAL 1:200			





DATUM = 50.00	
PROPOSED ROAD LEVEL (m)	39.75, 40.15, 40.35, 41.05, 41.35, 41.65, 41.95, 42.05, 42.15, 42.25, 42.35, 42.45, 42.55, 42.65, 42.75, 42.85, 42.95, 43.05, 43.15, 43.25, 43.35, 43.45, 43.55, 43.65, 43.75, 43.85, 43.95, 44.05, 44.15, 44.25, 44.35, 44.45, 44.55, 44.65, 44.75, 44.85, 44.95, 45.05, 45.15, 45.25, 45.35, 45.45, 45.55, 45.65, 45.75, 45.85, 45.95, 46.05, 46.15, 46.25, 46.35, 46.45, 46.55, 46.65, 46.75, 46.85, 46.95, 47.05, 47.15, 47.25, 47.35, 47.45, 47.55, 47.65, 47.75, 47.85, 47.95, 48.05, 48.15, 48.25, 48.35, 48.45, 48.55, 48.65, 48.75, 48.85, 48.95, 49.05, 49.15, 49.25, 49.35, 49.45, 49.55, 49.65, 49.75, 49.85, 49.95, 50.05, 50.15, 50.25, 50.35, 50.45, 50.55, 50.65, 50.75, 50.85, 50.95, 51.05, 51.15, 51.25, 51.35, 51.45, 51.55, 51.65, 51.75, 51.85, 51.95, 52.05, 52.15, 52.25, 52.35, 52.45, 52.55, 52.65, 52.75, 52.85, 52.95, 53.05, 53.15, 53.25, 53.35, 53.45, 53.55, 53.65, 53.75, 53.85, 53.95, 54.05, 54.15, 54.25, 54.35, 54.45, 54.55, 54.65, 54.75, 54.85, 54.95, 55.05, 55.15, 55.25, 55.35, 55.45, 55.55, 55.65, 55.75, 55.85, 55.95, 56.05, 56.15, 56.25, 56.35, 56.45, 56.55, 56.65, 56.75, 56.85, 56.95, 57.05, 57.15, 57.25, 57.35, 57.45, 57.55, 57.65, 57.75, 57.85, 57.95, 58.05, 58.15, 58.25, 58.35, 58.45, 58.55, 58.65, 58.75, 58.85, 58.95, 59.05, 59.15, 59.25, 59.35, 59.45, 59.55, 59.65, 59.75, 59.85, 59.95, 60.05, 60.15, 60.25, 60.35, 60.45, 60.55, 60.65, 60.75, 60.85, 60.95, 61.05, 61.15, 61.25, 61.35, 61.45, 61.55, 61.65, 61.75, 61.85, 61.95, 62.05
EXISTING LEVEL (m)	39.80, 40.10, 40.20, 40.30, 40.40, 40.50, 40.60, 40.70, 40.80, 40.90, 41.00, 41.10, 41.20, 41.30, 41.40, 41.50, 41.60, 41.70, 41.80, 41.90, 42.00, 42.10, 42.20, 42.30, 42.40, 42.50, 42.60, 42.70, 42.80, 42.90, 43.00, 43.10, 43.20, 43.30, 43.40, 43.50, 43.60, 43.70, 43.80, 43.90, 44.00, 44.10, 44.20, 44.30, 44.40, 44.50, 44.60, 44.70, 44.80, 44.90, 45.00, 45.10, 45.20, 45.30, 45.40, 45.50, 45.60, 45.70, 45.80, 45.90, 46.00, 46.10, 46.20, 46.30, 46.40, 46.50, 46.60, 46.70, 46.80, 46.90, 47.00, 47.10, 47.20, 47.30, 47.40, 47.50, 47.60, 47.70, 47.80, 47.90, 48.00, 48.10, 48.20, 48.30, 48.40, 48.50, 48.60, 48.70, 48.80, 48.90, 49.00, 49.10, 49.20, 49.30, 49.40, 49.50, 49.60, 49.70, 49.80, 49.90, 50.00, 50.10, 50.20, 50.30, 50.40, 50.50, 50.60, 50.70, 50.80, 50.90, 51.00, 51.10, 51.20, 51.30, 51.40, 51.50, 51.60, 51.70, 51.80, 51.90, 52.00
HORIZONTAL ALIGNMENT	Curve data: L=109.840m, L=274.30m, L=776.30m, L=96.150m, L=84.310m, L=255.840m, L=376.50m
VERTICAL PROFILE	Curve data: L=115.000m G=0.300, L=98.000m R, L=107.000m G=-0.200, L=60.000m R, L=102.797m G=0.070, L=80.000m R, L=218.007m G=-0.110, L=60.000m R
SUPERELEVATION / CROSSFALL	Superelevation values: 0=2.500, 0=3.500, 0=2.500
CHAINAGE	0+000.00, 0+005.00, 0+010.00, 0+015.00, 0+020.00, 0+025.00, 0+030.00, 0+035.00, 0+040.00, 0+045.00, 0+050.00, 0+055.00, 0+060.00, 0+065.00, 0+070.00, 0+075.00, 0+080.00, 0+085.00, 0+090.00, 0+095.00, 0+100.00, 0+105.00, 0+110.00, 0+115.00, 0+120.00, 0+125.00, 0+130.00, 0+135.00, 0+140.00, 0+145.00, 0+150.00, 0+155.00, 0+160.00, 0+165.00, 0+170.00, 0+175.00, 0+180.00, 0+185.00, 0+190.00, 0+195.00, 0+200.00, 0+205.00, 0+210.00, 0+215.00, 0+220.00, 0+225.00, 0+230.00, 0+235.00, 0+240.00, 0+245.00, 0+250.00, 0+255.00, 0+260.00, 0+265.00, 0+270.00, 0+275.00, 0+280.00, 0+285.00, 0+290.00, 0+295.00, 0+300.00, 0+305.00, 0+310.00, 0+315.00, 0+320.00, 0+325.00, 0+330.00, 0+335.00, 0+340.00, 0+345.00, 0+350.00, 0+355.00, 0+360.00, 0+365.00, 0+370.00, 0+375.00, 0+380.00, 0+385.00, 0+390.00, 0+395.00, 0+400.00, 0+405.00, 0+410.00, 0+415.00, 0+420.00, 0+425.00, 0+430.00, 0+435.00, 0+440.00, 0+445.00, 0+450.00, 0+455.00, 0+460.00, 0+465.00, 0+470.00, 0+475.00, 0+480.00, 0+485.00, 0+490.00, 0+495.00, 0+500.00, 0+505.00, 0+510.00, 0+515.00, 0+520.00, 0+525.00, 0+530.00, 0+535.00, 0+540.00, 0+545.00, 0+550.00, 0+555.00, 0+560.00, 0+565.00, 0+570.00, 0+575.00, 0+580.00, 0+585.00, 0+590.00, 0+595.00, 0+600.00, 0+605.00, 0+610.00, 0+615.00, 0+620.00, 0+625.00, 0+630.00, 0+635.00, 0+640.00, 0+645.00, 0+650.00, 0+655.00, 0+660.00, 0+665.00, 0+670.00, 0+675.00, 0+680.00, 0+685.00, 0+690.00, 0+695.00, 0+700.00, 0+705.00, 0+710.00, 0+715.00, 0+720.00, 0+725.00, 0+730.00, 0+735.00, 0+740.00, 0+745.00, 0+750.00, 0+755.00, 0+760.00, 0+765.00, 0+770.00, 0+775.00, 0+780.00, 0+785.00, 0+790.00, 0+795.00, 0+800.00, 0+805.00, 0+810.00, 0+815.00, 0+820.00, 0+825.00, 0+830.00, 0+835.00, 0+840.00, 0+845.00, 0+850.00, 0+855.00, 0+860.00, 0+865.00, 0+870.00, 0+875.00, 0+880.00, 0+885.00, 0+890.00, 0+895.00, 0+900.00, 0+905.00, 0+910.00, 0+915.00, 0+920.00, 0+925.00, 0+930.00, 0+935.00, 0+940.00, 0+945.00, 0+950.00, 0+955.00, 0+960.00, 0+965.00, 0+970.00, 0+975.00, 0+980.00, 0+985.00, 0+990.00, 0+995.00, 1000.00

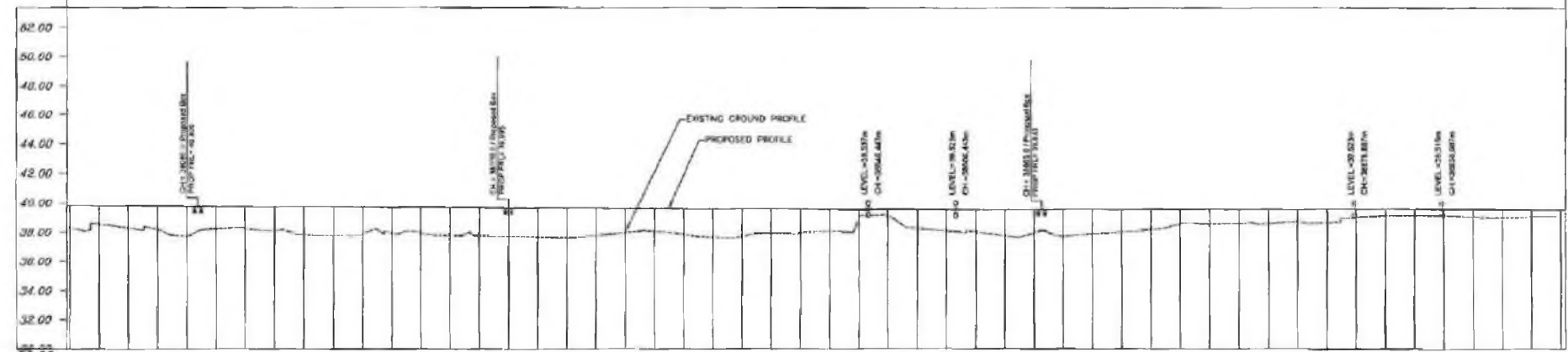
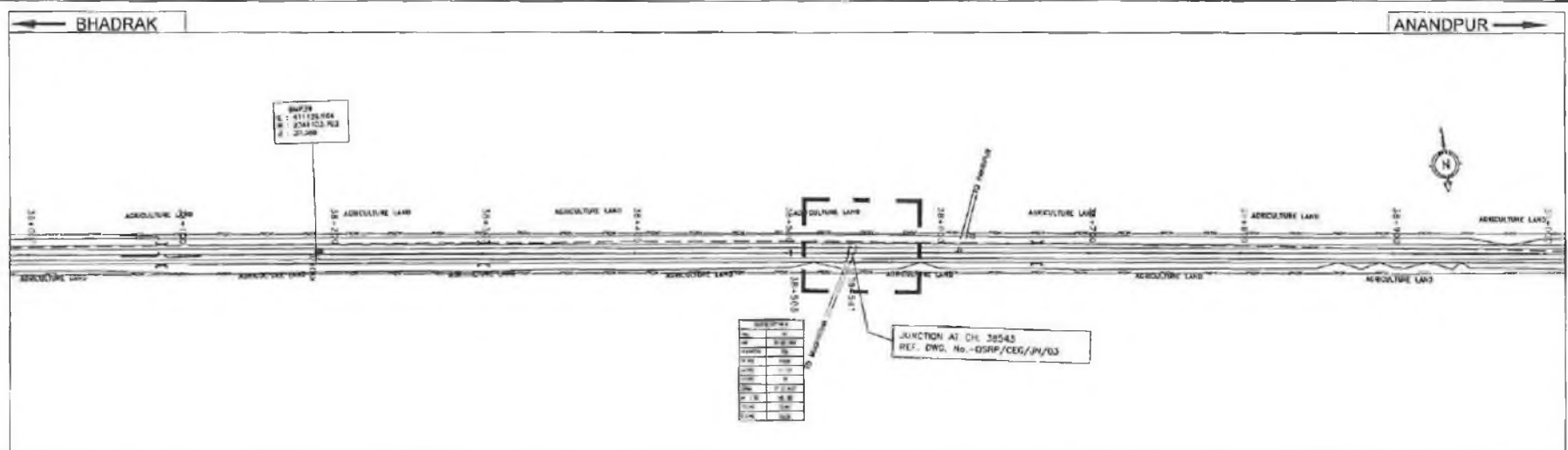
EXISTING CONCRETE ROAD	PROPOSED ROAD	BOUNDARY OF CHANNEL	WATER LEVEL
EXISTING GRAVEL ROAD	PROPOSED GRAVEL ROAD	BOUNDARY OF CHANNEL	WATER LEVEL
EXISTING ASPHALT ROAD	PROPOSED ASPHALT ROAD	BOUNDARY OF CHANNEL	WATER LEVEL
EXISTING BOUNDARY WALL	PROPOSED BOUNDARY WALL	BOUNDARY OF CHANNEL	WATER LEVEL
EXISTING BRIDGE	PROPOSED BRIDGE	BOUNDARY OF CHANNEL	WATER LEVEL

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PROJECT:-  
**ODISHA STATE ROAD PROJECT**

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SM-53) KM 37/000 TO KM 38/000**

REV.	NO.	DATE	BY	CHKD.
1	1	12/01/2010	AS	AS



DATUM = 30.00

CHAINAGE	PROPOSED ROAD LEVEL (m)	EXISTING LEVEL (m)	HORIZONTAL ALIGNMENT	VERTICAL PROFILE	SUPERELEVATION / CROSSFALL
38+000	38.00	38.00	L=147.00m	R=10000m	Q=2.500
38+100	38.10	38.10	L=147.00m	R=10000m	Q=2.500
38+200	38.20	38.20	L=147.00m	R=10000m	Q=2.500
38+300	38.30	38.30	L=147.00m	R=10000m	Q=2.500
38+400	38.40	38.40	L=147.00m	R=10000m	Q=2.500
38+500	38.50	38.50	L=147.00m	R=10000m	Q=2.500
38+600	38.60	38.60	L=147.00m	R=10000m	Q=2.500
38+700	38.70	38.70	L=147.00m	R=10000m	Q=2.500
38+800	38.80	38.80	L=147.00m	R=10000m	Q=2.500
38+900	38.90	38.90	L=147.00m	R=10000m	Q=2.500
39+000	39.00	39.00	L=147.00m	R=10000m	Q=2.500

**LEGEND**

EXISTING CONTOUR	PROPOSED CONTOUR	PROPOSED ROAD	PROPOSED GRADE	PROPOSED SIDEWALK	PROPOSED DRAINAGE	PROPOSED UTILITY	PROPOSED FENCE	PROPOSED SIGN	PROPOSED LIGHT	PROPOSED TREE	PROPOSED PLANT
...	...	...	...	...	...	...	...	...	...	...	...

**GMC CONSULTING ENGINEERS GROUP LTD.**  
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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**WIDENING AND STRENGTHENING TO TWO LANE PLAN AND LONGITUDINAL SECTION BHADRAK TO ANANDPUR (SH-53) KM 38/000 TO KM 39/000**

DATE	BY	REV	NO	REVISION
...	...	...	...	...

SCALE: HORIZONTAL 1:2000, VERTICAL 1:200















FORINT GROUP

**HORIZONTAL CURVE DETAILS**  
**ORRISA STATE ROAD PROJECT (SH 53), BHADRAK TO ANANDPUR KM 0/00 TO 43/000**

Curve No.	Curve Direction	HIP Details			Total Deflection Angle S	Total Division Angle A	Design Speed (Km/Hr)	Curve Radius Rc	Transition Length (m) Ls	Circular Curve Length (m) Lc	Tangent Distance (m) Ts	Shift S	Superelevation (%)	Transition Start Chainage TS	Circular Start Chainage SC	Circular End Chainage CS
		Chainage	Easting	Northing												
102	Left	31250.77	417495.265	2338765.205	0.439	0.439	100	30000	0.000	207.227	500.739	0.772	2.50	31147.229	31354.456	
103	Left	32172.213	416695.451	2339222.765	1.161	1.161	100	5000	0.000	91.239	921.446	0.144	2.50	32126.602	32217.840	
104	Right	32421.887	416476.504	2339342.772	1.530	1.530	100	5000	0.000	120.163	249.679	0.566	2.50	32361.823	32481.986	
105	Right	33075.762	415910.827	2339670.743	0.177	0.177	100	20000	0.000	55.633	653.877	0.106	2.50	33047.838	33103.471	
106	Right	33245.51	415764.213	2339756.295	1.157	1.157	100	4000	0.000	72.729	169.749	0.145	2.50	33209.116	33281.846	
107	Left	33512.131	415536.386	2339894.848	3.605	3.605	100	3000	0.000	169.896	266.650	0.125	2.50	33427.200	33597.096	
108	Right	33769.856	415308.930	2340016.099	0.603	0.603	100	10000	0.000	94.754	257.756	0.153	2.50	33722.429	33817.183	
109	Right	34093.475	415024.855	2340171.007	1.047	1.047	100	15000	0.000	246.901	323.566	0.383	2.50	33969.987	34216.887	
110	Left	35190.075	414070.034	2340712.254	25.840	25.840	80	360	45.000	101.126	591.033	0.313	6.50	35094.402	35139.402	
111	Right	35744.244	413517.920	2340773.113	6.194	6.194	100	3000	0.000	291.893	555.458	0.142	2.50	35598.279	35890.173	
112	Left	36137.77	413131.100	2340854.383	29.889	29.889	80	380	32.000	146.412	395.265	0.189	6.50	36032.489	36064.189	
113	Right	36546.391	412731.387	2340747.016	41.647	41.647	80	285	42.000	144.448	413.882	0.381	7.00	36432.094	36474.094	
114	Left	37055.106	412257.860	2340942.647	0.873	0.873	100	2000	0.000	27.425	512.347	0.109	2.50	37041.380	37068.805	
115	Left	37316.428	412014.094	2341039.466	18.519	18.519	80	950	0.000	276.352	262.289	0.095	3.50	37178.243	37454.595	
116	Right	37572.21	411788.289	2341061.822	1.431	1.431	100	2000	0.000	44.971	256.780	0.256	2.50	37549.747	37594.718	
117	Left	37869.235	411463.047	2341094.328	0.480	0.480	100	5000	0.000	37.757	297.026	0.474	2.50	37850.412	37888.169	
118	Right	38385.608	410949.363	2341146.961	0.593	0.593	100	5000	0.000	46.627	516.373	0.108	2.50	38362.305	38408.932	
119	Right	38541.61	410794.328	2341164.310	0.628	0.628	100	5000	0.000	49.353	156.003	0.106	2.50	38516.926	38566.280	
120	Left	38721.816	410615.446	2341186.116	0.635	0.635	100	10000	0.000	99.762	180.206	0.628	2.50	38672.004	38672.004	
121	Right	39433.931	409907.738	2341265.230	0.872	0.872	100	5000	0.000	68.536	712.116	0.232	2.50	39399.685	39468.221	
122	Right	40151.694	409195.579	2341354.749	0.323	0.323	100	20000	0.000	101.474	451.693	0.637	2.50	40101.071	40202.545	
123	Left	40883.173	408470.279	2341449.653	1.832	1.832	100	3000	0.000	86.363	731.483	0.081	2.50	40840.029	40926.391	
124	Right	41048.093	408306.201	2341466.335	1.284	1.284	100	4000	0.000	80.698	164.924	0.274	2.50	41007.753	41088.451	
125	Right	41403.792	407953.121	2341509.446	1.510	1.510	100	3500	0.000	83.031	355.702	0.178	2.50	41362.279	41445.310	
126	Right	41693.711	407665.286	2341551.542	29.929	29.929	60	170	60.000	19.923	290.897	0.197	7.00	41623.790	41683.790	
127	Left	42039.733	407381.011	2341752.502	34.626	34.626	60	170	65.000	27.464	348.134	0.166	7.00	41960.799	42025.799	
128	Left	42301.248	407115.325	2341771.518	76.634	76.634	40	30	0.000	36.113	266.366	0.191	2.50	42283.866	42319.980	
129	Right	42522.136	407020.388	2341569.060	49.297	49.297	40	30	0.000	23.231	223.612	0.065	2.50	42510.751	42533.981	

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PROJECT:-  
 ODISHA STATE ROAD PROJECT

**HORIZONTAL CURVE DETAILS**  
**BHADRAK-ANANDPUR (SH-53 KM 0/00 TO KM 43/00)**

DRG NO. QSRP/CEG/SH-53/MC/03	DESIGNER (A)	DRAWN (B)	CHECKED (C)	APPROVED (D)
SH. NO. E	DATE	REV	TR	
SCALE	NTS			
	B.M.	J.P.	R.R.D.K	S.G

**VERTICAL CURVE DETAILS**  
**ORISSA STATE ROAD PROJECT (SH 53), BHADRAK TO ANANDPUR KM 0/00 TO 43/00**

Curve No.	Curve Type	VIP Details		Curve Length m.	k	Curve Start		Curve End		Start Gradient (%)	End Gradient (%)	Grade Difference (%)	Remarks
		Chainage	Level			Chainage	Level	Chainage	Level				
1	Valley	587.481	20.685	60	1,548.633	557.481	20.668	617.481	20.713	0.056	0.095	-0.039	
2	Summit	957.081	21.035	60	2,308.110	927.081	21.007	987.081	21.056	0.095	0.069	0.026	
3	Valley	2526.183	22.113	60	66.363	2,496.183	22.092	2,556.183	22.405	0.069	0.973	-0.904	
4	Valley	2600.397	22.834	85	35.824	2,557.397	22.421	2,642.797	24.256	0.973	3.346	-2.373	
5	Summit	3602.262	36.282	155	23.196	2,924.762	33.689	3,079.762	33.696	3.346	-3.337	6.682	
6	Valley	3386.962	23.446	90	33.887	3,341.962	24.947	3,431.962	23.140	-3.337	-0.681	-2.656	
7	Valley	3562.510	22.251	60	84.809	3,532.510	22.455	3,592.510	22.259	-0.681	0.027	-0.707	
8	Valley	4119.842	22.400	60	1,195.288	4,089.842	22.392	4,149.842	22.423	0.027	0.077	-0.050	
9	Summit	4737.539	22.875	60	1,146.353	4,707.539	22.852	4,767.539	22.882	0.077	0.053	0.052	
10	Valley	4937.097	22.924	60	1,495.172	4,907.097	22.917	4,967.097	22.943	0.025	0.065	-0.040	
11	Summit	5830.683	23.502	60	1,550.650	5,800.683	23.483	5,860.683	23.510	0.065	0.026	0.039	
	Summit	6438.641	23.721	60	1,606.129	6,423.641	23.683	6,483.641	23.765	0.026	-0.167	0.193	
12	Valley	6558.574	23.690	60	310.288	6,538.574	23.740	6,588.574	23.698	-0.167	0.026	-0.193	
13	Valley	7916.579	24.043	80	492.608	7,876.579	24.033	7,956.579	24.118	0.026	0.188	-0.162	
14	Summit	8213.828	24.603	80	760.679	8,173.828	24.528	8,253.828	24.636	0.188	0.083	0.105	
15	Valley	8506.736	24.930	80	409.110	8,566.736	24.897	8,646.736	25.042	0.083	0.279	-0.196	
16	Summit	8941.777	25.864	80	547.388	8,901.777	25.752	8,981.777	25.917	0.279	0.133	0.146	
17	Valley	9379.860	26.445	80	1,093.183	9,339.860	26.392	9,419.860	26.527	0.133	0.206	-0.073	
18	Summit	9604.832	26.908	80	776.539	9,564.832	26.826	9,644.832	26.949	0.206	0.103	0.103	
19	Summit	9974.543	27.288	80	211.606	9,934.543	27.247	10,014.543	27.178	0.103	-0.275	0.378	
20	Valley	10198.680	26.671	80	481.869	10,158.680	26.781	10,238.680	26.627	-0.275	-0.109	-0.166	
21	Valley	10528.144	26.311	50	208.478	10,503.144	26.339	10,553.144	26.343	-0.109	0.130	-0.239	
22	Summit	10700.860	26.535	116	336.664	10,642.825	26.460	10,758.895	26.410	0.130	-0.215	0.345	
23	Valley	10975.650	25.944	75	132.511	10,938.045	26.025	11,013.255	26.077	-0.215	0.353	-0.568	
24	Summit	11320.613	27.160	120	340.424	11,260.613	26.948	11,380.613	27.160	0.353	0.000	0.353	
25	Summit	11526.410	27.160	160	139.267	11,446.410	27.160	11,606.410	26.241	0.000	-1.149	1.149	
26	Valley	11650.532	25.734	80	49.780	11,610.532	26.194	11,690.532	25.917	-1.149	0.458	-1.607	
27	Summit	11938.837	27.055	60	167.945	11,908.837	26.918	11,988.837	27.085	0.458	0.101	0.357	
28	Summit	12451.039	27.572	60	1,396.711	12,421.039	27.542	12,481.039	27.589	0.101	0.058	0.043	
29	Summit	13301.351	28.065	60	202.128	13,271.351	28.048	13,331.351	27.993	0.058	-0.239	0.297	
30	Valley	13440.343	27.733	80	314.019	13,400.343	27.829	13,480.343	27.739	-0.239	0.016	-0.255	
31	Valley	13779.997	27.787	60	604.723	13,749.997	27.782	13,809.997	27.822	0.016	0.115	-0.099	
32	Valley	13899.873	27.925	60	200.692	13,869.873	27.890	13,929.873	28.049	0.115	0.414	-0.299	
33	Summit	13970.632	28.218	60	203.394	13,940.632	28.094	14,000.632	28.254	0.414	0.119	0.295	
34	Valley	14241.858	28.541	60	1,352.682	14,211.858	28.505	14,271.858	28.590	0.119	0.163	-0.044	
35	Summit	15107.591	29.956	60	668.974	15,077.591	29.907	15,137.591	29.978	0.163	0.074	0.090	
36	Summit	15315.357	30.116	60	1,656.900	15,285.357	30.094	15,345.357	30.127	0.074	0.038	0.036	
37	Valley	15450.102	30.167	60	1,690.947	15,420.102	30.156	15,480.102	30.189	0.038	0.073	-0.035	
38	Summit	16416.927	30.876	60	351.340	16,386.927	30.854	16,446.927	30.847	0.073	-0.097	0.171	
39	Valley	16661.174	30.638	60	274.077	16,631.174	30.667	16,691.174	30.674	-0.097	0.121	-0.219	
40	Valley	17056.319	31.118	60	58.544	17,026.319	31.082	17,086.319	31.462	0.121	1.146	-1.025	
41	Summit	17212.643	32.910	90	78.656	17,167.643	32.394	17,257.643	32.911	1.146	0.002	1.144	
42	Summit	17825.800	32.923	75	272.403	17,788.300	32.922	17,863.300	32.821	0.002	-0.273	0.275	
43	Valley	18130.697	32.090	75	287.315	18,093.197	32.192	18,168.197	32.085	-0.273	-0.012	-0.261	
44	Valley	18525.142	32.042	60	308.569	18,495.142	32.046	18,555.142	32.097	-0.012	0.182	-0.194	
45	Summit	18878.999	32.687	60	807.327	18,848.999	32.632	18,908.999	32.719	0.182	0.108	0.074	
46	Summit	19762.676	33.641	60	80.707	19,732.676	33.609	19,792.676	33.450	0.108	-0.635	0.743	

**PROJECT:-**  
OOISHA STATE ROAD PROJECT

VERTICAL CURVE DETAILS  
BHADRAK-ANANDPUR (SH-53 KM 0/00 TO KM 43/00)



DRG NO.	DSRP/CDR/SH-53/AC/01	DESIGNED (A)	DRAWN (B)	CHECKED (C)	APPROVED (E)		
SH. NO.	F	DATE	REV	RO			
SCALE	NTS			B.M.	J.P.	R.R.D.K	S.G

VERTICAL CURVE DETAILS  
 ORRISA STATE ROAD PROJECT (SH 53), BHADRAK TO ANANDPUR KM 0/00 TO 43/00

Curve No	Curve Type	VIP Details		Curve Length m	k	Curve Start		Curve End		Start Gradient (%)	End Gradient (%)	Grade Difference (%)	Remarks
		Chainage	Level			Chainage	Level	Chainage	Level				
47	Valley	19853.474	33.064	60	35.872	19,823.474	33.255	19,883.474	33.375	-0.635	1.037	-1.673	
48	Summit	19962.522	34.195	70	53.658	19,927.522	33.832	19,997.522	34.101	1.037	-0.267	1.305	
49	Valley	20060.500	33.933	60	90.771	20,030.500	34.013	20,090.500	34.051	-0.267	0.394	-0.661	
50	Summit	20224.882	34.580	90	78.977	20,178.883	34.403	20,269.883	34.244	0.394	-0.746	-1.140	
51	Valley	20375.157	33.459	60	71.084	20,345.157	33.683	20,405.157	33.488	-0.746	0.098	-0.844	
52	Valley	20987.776	34.060	60	111.627	20,957.776	34.031	21,017.776	34.251	0.098	0.636	-0.538	
53	Summit	21051.337	34.464	60	108.419	21,021.337	34.273	21,081.337	34.489	0.636	0.083	0.553	
54	Valley	21706.374	35.008	60	3,984.166	21,676.374	34.983	21,736.374	35.037	0.083	0.398	-0.016	
55	Summit	21960.000	35.257	60	5,633.915	21,930.000	35.228	21,990.000	35.283	0.098	0.088	0.011	
56	Summit	22544.967	35.769	100	41,204.527	22,494.967	35.725	22,594.967	35.812	0.088	0.085	0.002	
57	Valley	23352.257	36.456	60	5,953.775	23,322.257	36.430	23,382.257	36.485	0.085	0.095	-0.010	
58	Summit	23549.783	36.614	60	1,537.444	23,519.783	36.615	23,579.783	36.661	0.095	0.056	0.099	
59	Valley	23747.463	36.755	30	382.372	23,732.463	36.747	23,762.463	36.775	0.056	0.135	-0.078	
60	Summit	23795.750	36.820	30	406.172	23,780.750	36.800	23,810.750	36.829	0.135	0.061	0.074	
61	Summit	23907.688	36.888	60	594.101	23,877.688	36.870	23,937.688	36.876	0.061	-0.040	0.101	
62	Valley	23964.836	36.865	30	745.447	23,949.836	36.871	23,979.836	36.865	-0.040	0.000	-0.040	
63	Valley	24282.204	36.865	60	128.225	24,252.204	36.865	24,312.204	37.005	0.000	0.468	-0.468	
64	Summit	24498.476	37.877	60	145.701	24,468.476	37.737	24,528.476	37.894	0.468	0.056	0.412	
65	Valley	24927.865	38.118	60	2,051.530	24,897.865	38.101	24,957.865	38.144	0.056	0.085	-0.029	
66	Summit	25014.545	38.192	60	1,335.305	24,984.545	38.166	25,044.545	38.204	0.085	0.040	0.045	
67	Summit	25418.767	38.259	70	558.420	25,383.767	38.270	25,453.767	38.204	0.040	-0.158	0.198	
68	Valley	25951.054	37.419	401	668.773	25,750.098	37.735	26,151.410	38.303	-0.158	0.441	-0.599	
69	Summit	26278.901	38.866	60	124.235	26,248.901	38.734	26,308.901	38.854	0.441	-0.042	0.483	
70	Valley	26579.451	38.741	70	1,323.185	26,544.451	38.756	26,614.451	38.745	-0.042	0.011	-0.053	
71	Summit	26880.014	38.775	70	2,348.944	26,845.014	38.771	26,915.014	38.769	0.011	-0.018	0.030	
72	Valley	27307.322	38.696	70	548.708	27,272.322	38.702	27,342.322	38.734	-0.018	0.109	-0.128	
73	Valley	28081.039	39.540	70	693.071	28,046.039	39.502	28,116.039	39.614	0.109	0.210	-0.101	
74	Summit	28597.774	40.626	60	344.562	28,567.774	40.563	28,627.774	40.637	0.210	0.037	0.173	
75	Valley	29551.232	40.976	60	738.563	29,521.232	40.965	29,581.232	41.011	0.037	0.118	-0.081	
76	Summit	29802.189	41.272	60	375.186	29,772.189	41.237	29,832.189	41.259	0.118	-0.042	0.160	
77	Valley	30138.972	41.131	60	249.589	30,108.972	41.143	30,168.972	41.191	-0.042	0.199	-0.241	
78	Summit	30390.799	41.633	60	316.576	30,360.799	41.573	30,420.799	41.636	0.199	0.010	0.190	
79	Valley	30737.218	41.667	60	759.639	30,707.218	41.664	30,767.218	41.694	0.010	0.089	-0.079	
80	Summit	31229.337	42.104	60	3,352.082	31,199.337	42.077	31,259.337	42.125	0.089	0.071	0.018	
81	Valley	32137.655	42.748	60	3,390.414	32,107.655	42.727	32,167.655	42.775	0.071	0.089	-0.018	
82	Valley	32846.478	43.376	60	7,075.993	32,816.478	43.349	32,876.478	43.405	0.089	0.097	-0.008	
83	Summit	34110.428	44.603	60	1,270.186	34,080.428	44.574	34,140.428	44.618	0.097	0.050	0.047	
84	Summit	34631.584	44.863	60	360.924	34,601.584	44.848	34,661.584	44.828	0.050	-0.116	0.165	
85	Summit	35124.727	44.293	100	62.004	35,074.727	44.351	35,174.727	43.429	-0.116	-1.728	1.613	
86	Valley	35260.808	41.941	80	40.214	35,220.808	42.632	35,300.808	42.045	-1.728	0.261	-1.989	
87	Summit	35825.262	43.414	150	59.675	35,750.262	43.218	35,900.262	41.725	0.261	-2.253	2.514	
88	Valley	36009.801	39.257	130	38.096	35,944.801	40.721	36,074.801	40.011	-2.253	1.160	-3.412	
89	Summit	36366.591	43.395	140	61.408	36,396.591	42.853	36,436.591	42.611	1.160	-1.120	2.280	
90	Valley	36643.815	40.290	60	53.570	36,613.815	40.628	36,673.815	40.290	-1.120	0.000	-1.120	
91	Valley	36957.529	40.290	60	82.077	36,927.529	40.390	36,987.529	40.509	0.000	0.731	-0.731	
92	Summit	37132.627	41.570	60	59.229	37,102.627	41.351	37,162.627	41.485	0.731	-0.282	1.013	
93	Valley	37512.412	40.499	60	171.359	37,482.412	40.584	37,542.412	40.519	-0.282	0.068	-0.350	

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PROJECT:-  
 ODISHA STATE ROAD PROJECT

VERTICAL CURVE DETAILS  
 BHADRAK-ANANDPUR (SH-53 KM 0/00 TO KM 43/00)

DRG NO.	CSP/CDS/SH-53/VG/02	DESIGNED (A)	DRAWN (B)	CHECKED (C)	APPROVED (D)
SH. NO.	C   DATE	REV	RD	B.M.	J.P.
SCALE	NTS			R.R.D.K	S.G.

Odisha, Bhubaneswar  
 Civil & Infra  
 Design & Details

**VERTICAL CURVE DETAILS**  
**ORRISA STATE ROAD PROJECT (SH 53), BHADRAK TO ANANDPUR KM 0/00 TO 43/00**

Curve No.	Curve Type	VIP Details		Curve Length m.	k	Curve Start		Curve End		Start Gradient (%)	End Gradient (%)	Grade Difference (%)	Remarks
		Chainage	Level			Chainage	Level	Chainage	Level				
94	Summit	37725.209	40.644	60	343.632	37.695.209	40.624	37.755.209	40.612	0.068	-0.106	0.175	
95	Valley	38003.236	40.348	60	1,238.847	37,973.236	40.380	38,033.236	40.331	-0.106	-0.058	-0.048	
96	Summit	38160.043	40.257	60	888.904	38,130.043	40.274	38,190.043	40.219	-0.058	-0.126	0.067	
97	Summit	38266.788	40.123	60	230.116	38,236.788	40.161	38,296.788	40.007	-0.126	-0.386	0.261	
98	Valley	38337.205	39.851	60	123.140	38,307.205	39.967	38,367.205	39.881	-0.386	0.101	-0.487	
99	Summit	38459.996	39.975	60	225.280	38,429.996	39.945	38,489.996	39.925	0.101	-0.165	0.266	
100	Valley	38672.267	39.624	60	421.207	38,642.267	39.674	38,702.267	39.617	-0.165	-0.023	-0.142	
101	Valley	38859.988	39.581	20	31.201	38,849.988	39.583	38,869.988	39.643	-0.023	0.618	-0.641	
102	Summit	38881.667	39.715	20	26.835	38,871.667	39.653	38,891.667	39.702	0.618	-0.127	0.745	
103	Summit	38966.576	39.607	30	59.476	38,951.576	39.626	38,981.576	39.512	-0.127	-0.632	0.504	
104	Valley	39011.224	39.325	30	49.656	38,996.224	39.420	39,026.224	39.321	-0.632	-0.027	-0.604	
105	Valley	39164.235	39.283	60	152.734	39,134.235	39.291	39,194.235	39.393	-0.027	0.365	-0.393	
106	Summit	39262.212	39.641	60	448.298	39,232.212	39.531	39,292.212	39.710	0.365	0.232	0.134	
107	Summit	39485.059	40.157	60	318.669	39,455.059	40.088	39,515.059	40.170	0.232	0.043	0.188	
108	Valley	40435.272	40.568	105	42.468	40,382.772	40.545	40,487.772	41.889	0.043	2.516	-2.472	
109	Summit	40610.172	44.968	170	33.626	40,525.172	42.830	40,695.172	42.809	2.516	-2.540	5.056	
110	Valley	40763.796	41.066	113	42.987	40,707.056	42.507	40,820.536	41.123	-2.540	0.100	-2.640	
111	Valley	41148.132	41.450	85	53.025	41,105.632	41.408	41,190.632	42.174	0.100	1.703	-1.603	
112	Summit	41330.524	44.556	162	54.209	41,249.374	43.174	41,411.674	43.508	1.703	-1.291	2.994	
113	Valley	41490.550	42.490	121	91.229	41,430.050	43.271	41,551.050	42.511	-1.291	0.035	-1.326	
114	Summit	41601.050	42.529	65	328.325	41,568.550	42.518	41,633.550	42.476	0.035	-0.163	0.198	
115	Valley	42107.556	41.705	65	36.397	42,075.056	41.758	42,140.056	42.233	-0.163	1.623	-1.786	
116	Summit	42222.514	43.571	66	35.571	42,189.594	43.037	42,255.434	43.496	1.623	-0.228	1.851	
117	Valley	42334.478	43.316	81	17.959	42,293.978	43.408	42,374.978	45.050	-0.228	4.283	-4.510	
118	Summit	42460.898	48.730	80	18.680	42,420.898	47.017	42,500.898	48.730	4.283	0.000	4.283	
119	Summit	42588.202	48.730	80	19.509	42,548.202	48.730	42,628.202	47.090	0.000	-4.101	4.101	

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PROJECT:-  
ODISHA STATE ROAD PROJECT

**VERTICAL CURVE DETAILS**  
**BHADRAK-ANANDPUR (SH-53 KM 0/00 TO KM 43/00)**

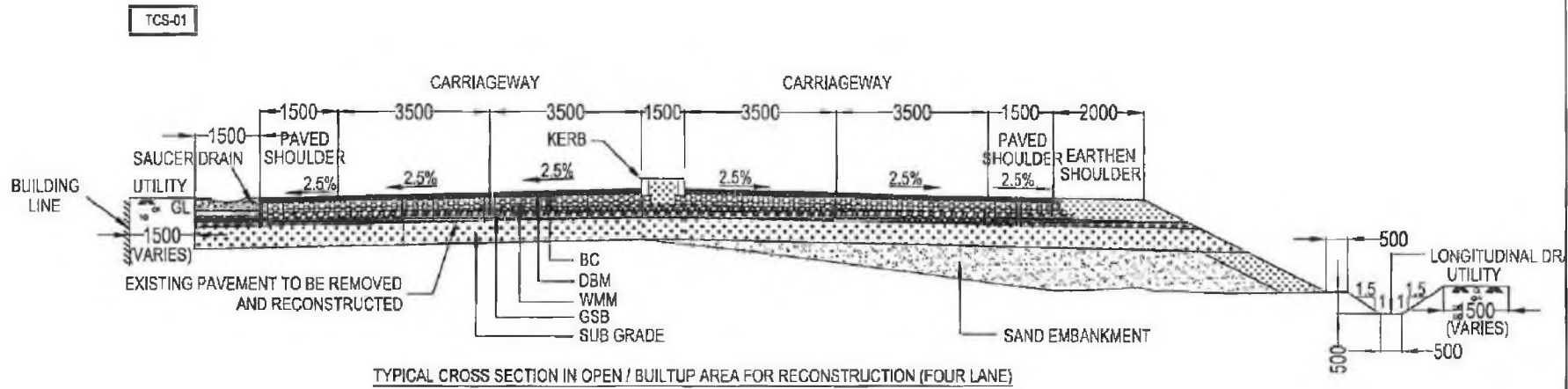
DRG NO.	ORR/OD/SH-53/VC/03	DESIGNED (A)	DRAWN (B)	CHECKED (C)	APPROVED (D)
SH. NO.	H	DATE	REV	RD	
SCALE	NTS			E.M.	J.P.
				R.R.D.K	S.G



**SCHEDULE FOR PAVEMENT DESIGN , TYPE OF CONSTRUCTION AND TYPICAL CROSS SECTION FOR BHADRAK TO ANANDPUR ROAD - P02 (SH-53)**

Sl. No	Chainage (Km)		Length (Km.)	Thickness design (IRC: 58-2002) - RIGID PAVEMENT						Type of Area	Type of Construction	TCS	Type of Pavement	Remarks
	From	To		PQC Slab (mm)	Seperation layer, Micron	DLC (mm)	GSB (mm)	Subgrade (mm)	Total Thickness (mm)					
1	18.850	20.240	1.390	300	125 μ	150	150	500	1100	Built Up	New Construction	TCS-35B	Rigid	
2	20.240	20.390	0.150	300	125 μ	150	150	500	1100	Built Up	New Construction	TCS-35C	Rigid	
3	20.390	20.600	0.210	300	125 μ	150	150	500	1100	Built Up	New Construction	TCS-35B	Rigid	
4	31.110	32.450	1.340	300	125 μ	150	150	500	1100	Built Up	Re-Construction	TCS-35A	Rigid	
5	35.820	36.070	0.250	300	125 μ	150	150	500	1100.00	Open	New Construction	TCS-40A	Rigid	

PROJECT		SCHEDULE OF PAVEMENT COMPOSITION									
ODISHA STATE ROAD PROJECT	DRG NO.	OSRP/CEG/SH-53/SCH/PAV			REV :	R2	DESIGNED BY	REV R2			APPROVED
	SH.NO.	DATE :				CEG	EE/PMU				
	SCALE	NTS									



TYPICAL CROSS SECTION IN OPEN / BUILTUP AREA FOR RECONSTRUCTION (FOUR LANE)

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/CEG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/CEG/ID 02
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/CEG/ED
6. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/STREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

LEGENDS		
1) BC	6) DLC	13) W - Water Supply Line
2) DBM	7) PCC	14) G - Gas Line
3) WMM	8) EARTH FILL	15) E - Sewer
4) GSB	9) SAND FILL	16) E - Electricity Cable
5) SUBGRADE	10) E - Electricity Cable	17) T - Telecom Cable

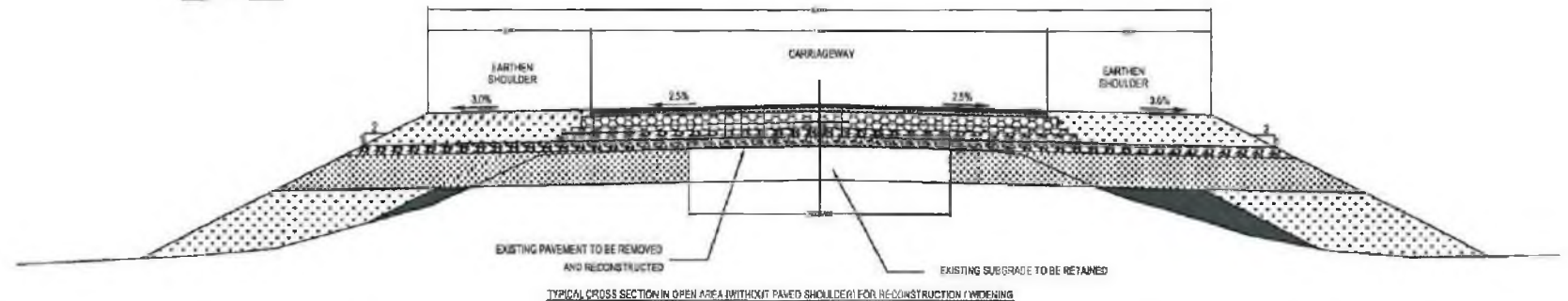
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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

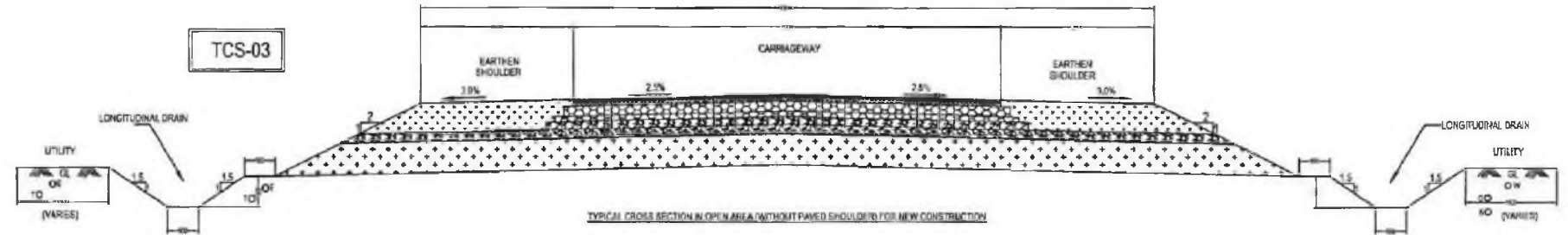
**TYPICAL CROSS-SECTION  
 TCS - 01  
 (BHADRAK-ANANDPUR-BALANCE WORK)**

DRG NO.	DATE	REV	APPROVED
SH. NO. 03	18/01/13	R-1	CEG
SCALE	NTS		CEG

**TCS-02**



**TCS-03**



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/EG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE GROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/EG/RIGID 02
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/EG/ADD
6. PCC PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. INCASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

**LEGENDS**

- |             |  |                            |  |                           |
|-------------|--|----------------------------|--|---------------------------|
| 1) BC       |  | 6) DLC                     |  | 12) W - Water Supply Line |
| 2) DBM      |  | 7) PCC                     |  | 13) G - Gas Line          |
| 3) WMB      |  | 8) EARTH FILL              |  | 14) S - Sewer             |
| 4) GSB      |  | 9) SAND FILL               |  |                           |
| 5) SUBGRADE |  | 10) E - Electrically Cable |  |                           |
|             |  | 11) T - Telecom Cable      |  |                           |



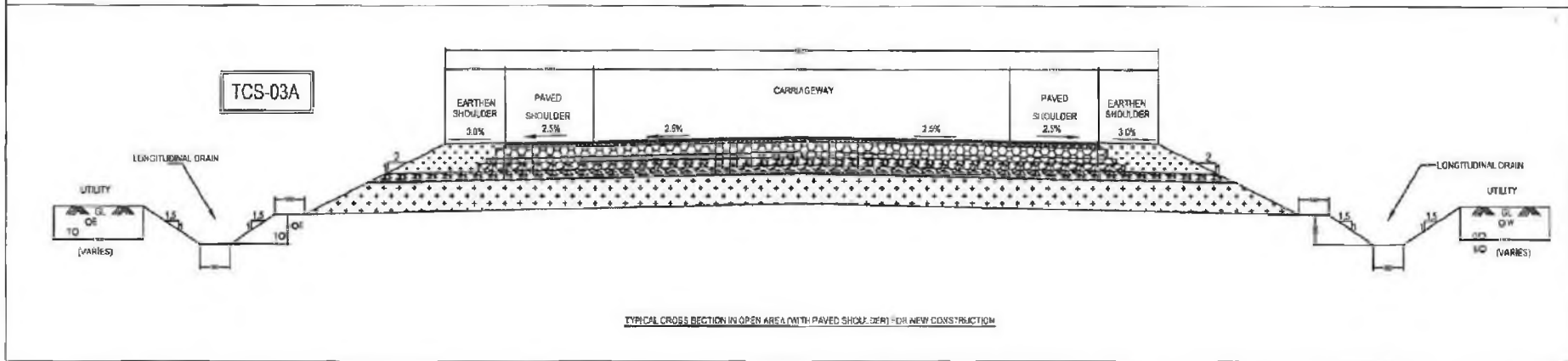
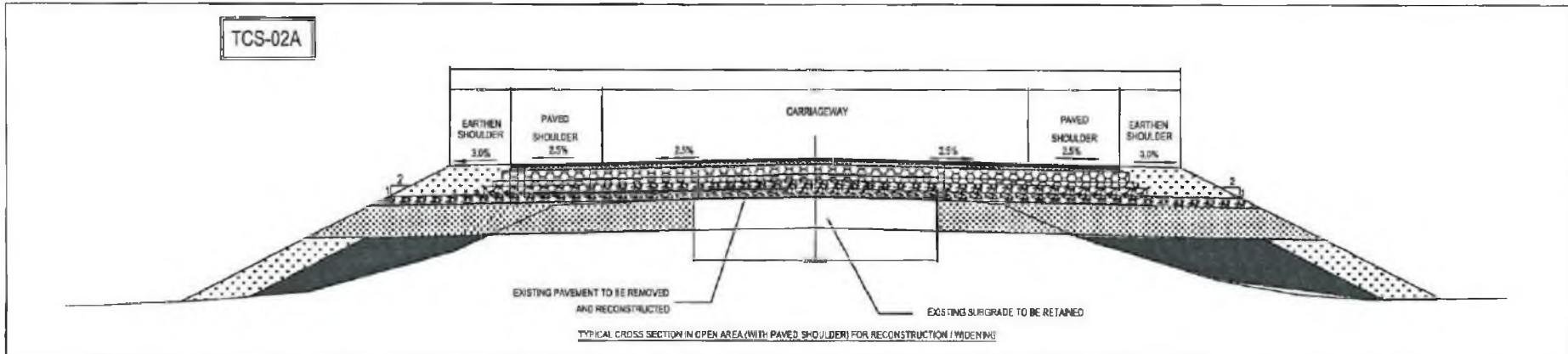
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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**TYPICAL CROSS-SECTION**  
**TCS - 02 & TCS - 03**  
**(BHADRAK - ANANDPUR-BALANCE WORK)**

DRG NO.	OSR/PC/EG/102901				DESIGNED BY	DRAWN BY	REVIEW	APPROVED
SH. NO.	01	DATE	18/01/13	REV	R-1	CEG	CEG	EE/PMU
SCALE	NTS				CEG	CEG	EE/PMU	CEI/WBP





**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/CEG/D
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/CEG/RIGID 02
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/CEG/D
6. PCC PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

**LEGENDS**

- |             |                           |                           |
|-------------|---------------------------|---------------------------|
| 1) BC       | 6) DUC                    | 12) W - Water Supply Line |
| 2) DBM      | 7) PCC                    | 13) G - Gas Line          |
| 3) WBM      | 8) EARTH FILL             | 14) S - Sewer             |
| 4) GSB      | 9) SAND FILL              |                           |
| 5) SUBGRADE | 10) E - Electricity Cable |                           |
|             | 11) T - Telecom Cable     |                           |

CEG

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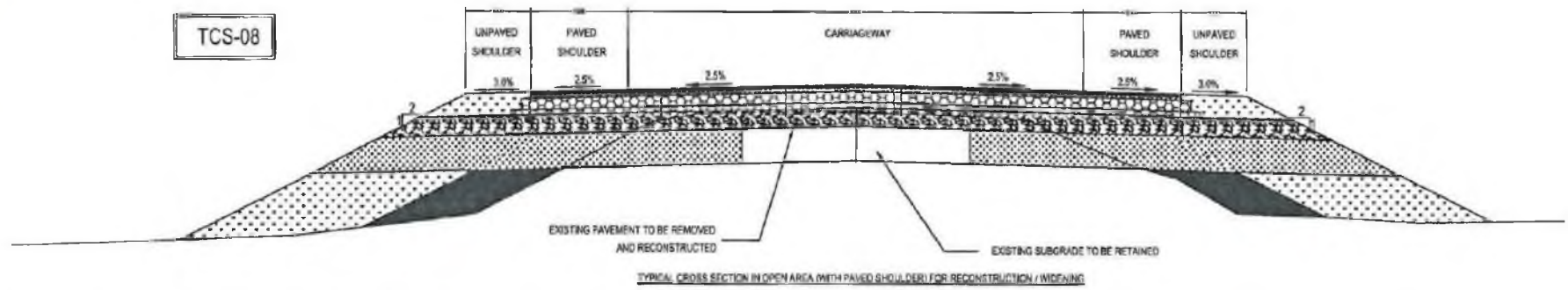
E-12, Mooli Colony, Malviya Nagar Jaipur-17  
 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521348, e-mail: ceg@cegindia.com

**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

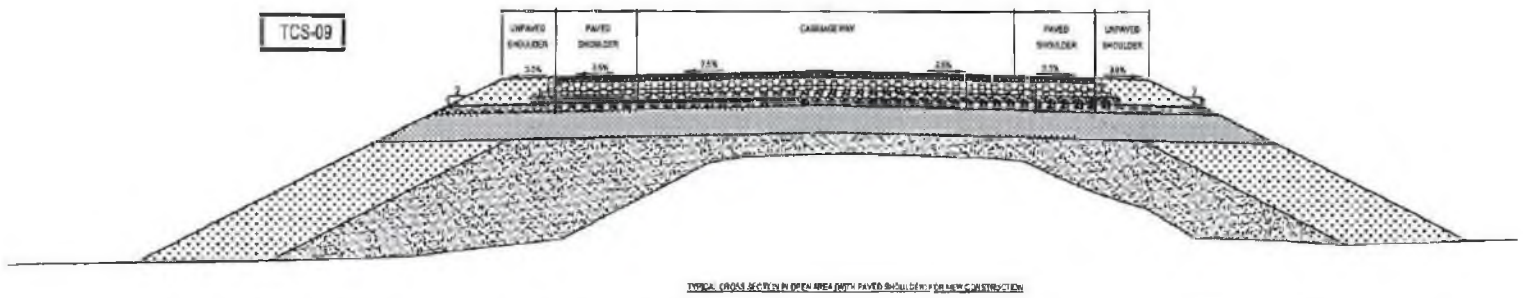
**TYPICAL CROSS-SECTION  
 TCS - 02A & TCS - 03A  
 (BHADRAK - ANANDPUR-BALANCE WORK)**

DRG NO.	DATE	REV	R-1	DESIGNED BY	DRAWN BY	REF BY	APPROVED
OSR/PC/CEG/243A	18/01/13						
SH. NO.	01			CEG	CEG	EE/PMU	CE/JWB
SCALE	NTS						

**TCS-08**



**TCS-09**



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/CEG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/CEG/RIGID 02.
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/CEG/ED
6. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEER'S DIRECTIONS

LEGENDS				
1) BC		9) DUC		11) W - Water Supply Line
2) DBN		7) PCC		12) G - Gas Line
3) WUM		8) EARTH FILL		13) S - Sewer
4) OSB		5) E - Electricity Cable		
5) SUBGRADE		10) T - Telecom Cable		

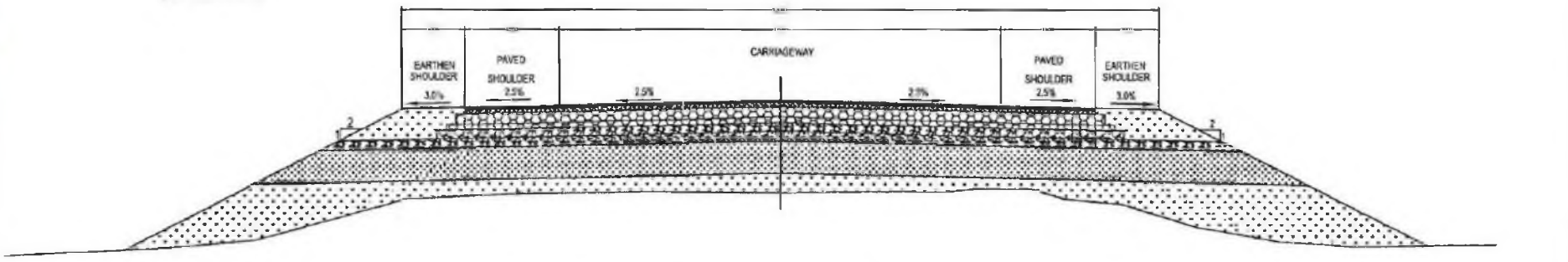
**CEG CONSULTING ENGINEERS GROUP LTD.**  
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 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521348, e-mail: ceg@cegindia.com

**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**TYPICAL CROSS-SECTION**  
**TCS - 08 & 09**  
**(BHADRAK-ANANDPUR-BALANCE WORK)**

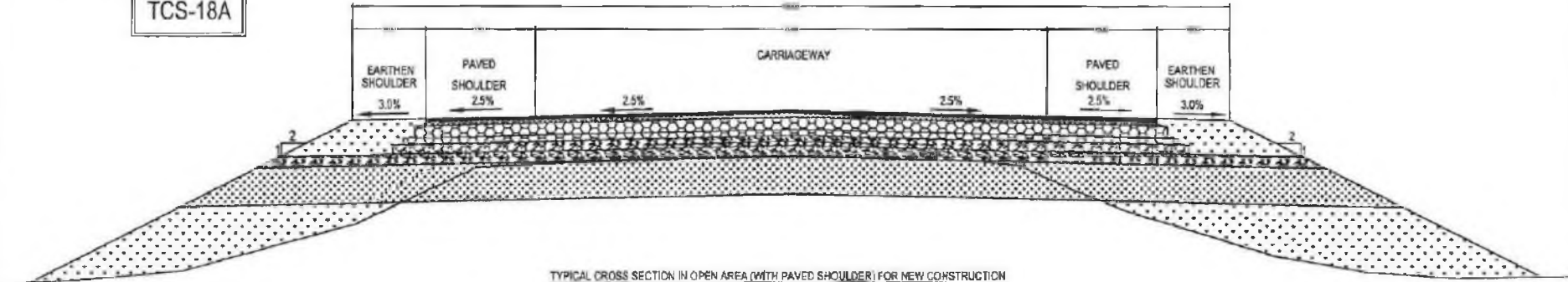
DRG NO.	DATE	REV	REV BY	REV BY	APPROVED
SH. NO. 05	18/01/13	R-1			
SCALE	NTS			CEG	EE/PMU CE/WBP

**TCS-09A**



TYPICAL CROSS SECTION IN OPEN AREA (WITH PAVED SHOULDER) FOR NEW CONSTRUCTION

**TCS-18A**



TYPICAL CROSS SECTION IN OPEN AREA (WITH PAVED SHOULDER) FOR NEW CONSTRUCTION

**NOTES:**

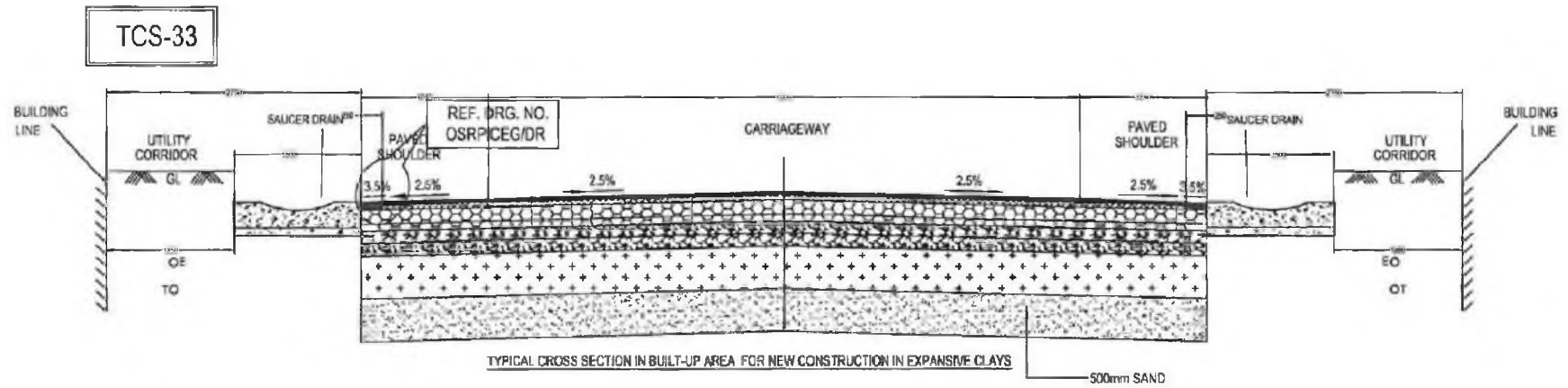
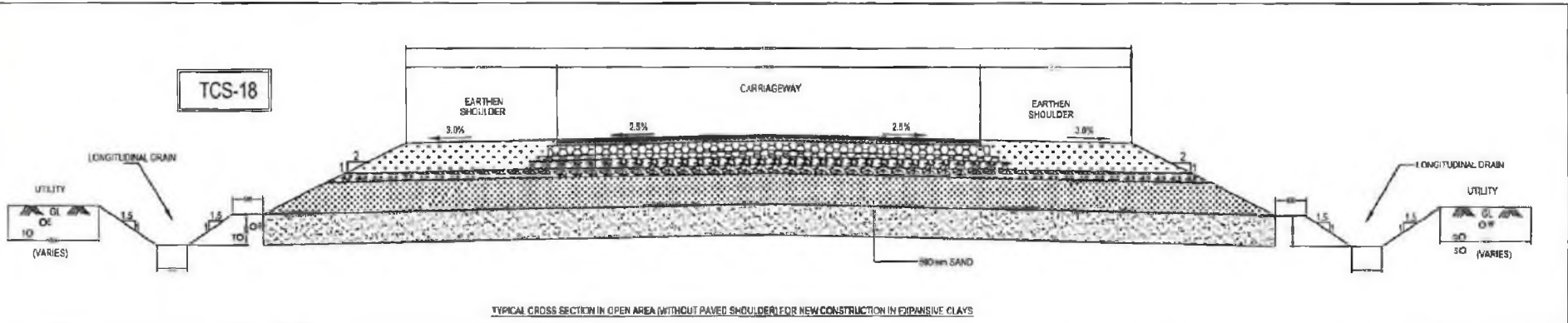
1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/EGDR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/EGRUGID 02.
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/EGOD
6. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYND LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

LEGENDS				
1) WC		6) D/C		11) W - Water Supply Line
2) DM		7) PCC		12) G - Gas Line
3) W/M		8) EARTH FILL		13) S - Sewer
4) G/S		9) E - Electricity Cable		
5) SUBGRADE		10) T - Telecom Cable		

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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

TYPICAL CROSS-SECTION						
TCS - 09A & 18A						
(BHADRAK-ANANDPUR-BALANCE WORK)						
DRG NO.	OSR/PC/07/CL-BA-18A			DESIGNED BY:	REV. BY:	APPROVED
SH. NO.	05	DATE	18/01/13	REV	R-1	
SCALE	NTS			CEG	EE:PMU	CE:WBP



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PCG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PCG/RIGID 02.
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PCG/GOOD
6. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

**LEGENDS**

1) BC	6) CLC	13) W - Water Supply Line
2) DEM	7) PCC	12) G - Gutter
3) WMM	8) EARTH FILL	13) S - Sewer
4) GSB	9) E - Existing Curb	
5) SUBGRADE	10) T - T-Channel Curb	

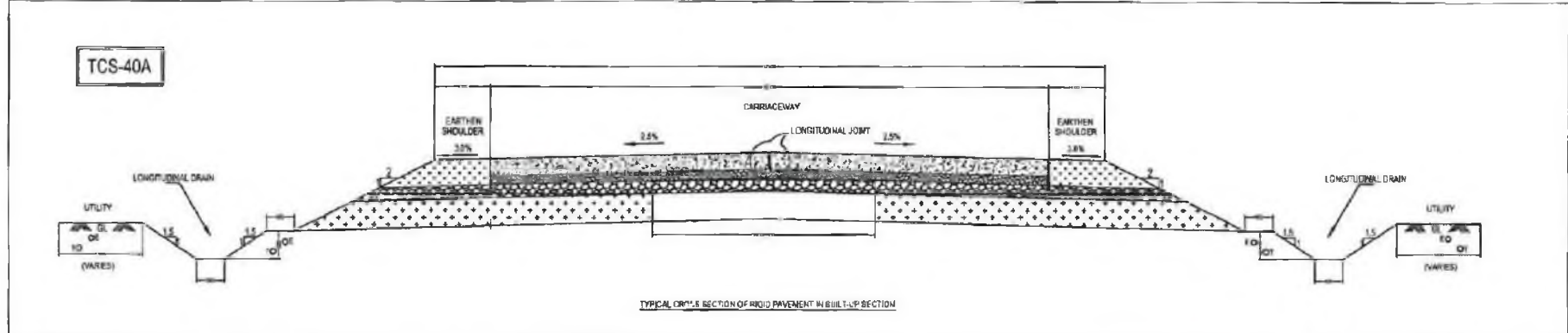
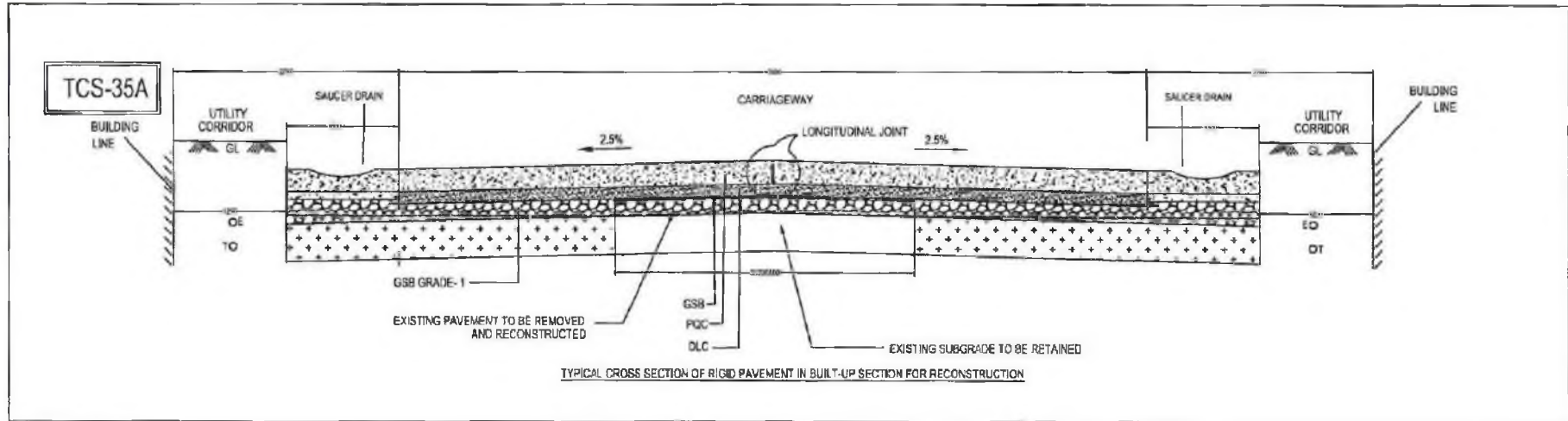


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**PROJECT:-**  
ODISHA STATE ROAD PROJECT

**TYPICAL CROSS-SECTION**  
**TCS - 18 & 33**  
**(BHADRAK-ANANDPUR-BALANCE WORK)**

DRG NO.	OSR/PCG/TCB/18&33				REV	R-1	REVISION	APPROVED
SH. NO.	05	DATE	18/07/13	REV	R-1		EE/PMU	CE/WSB
SCALE	NTS							



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/EG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/EG/RIGID 02
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/EG/03
6. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES NEEDS OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

LEGENDS		
1) BC	2) GSB	3) W/M
4) GSB	5) SUBGRADE	6) DLC
7) PCC	8) EARTH FILL	9) SAND FILL
10) E - Electric Cable	11) T - Telecom Cable	12) W - Water Supply Line
13) G - Gas Line	14) S - Sewer	



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**PROJECT:-**

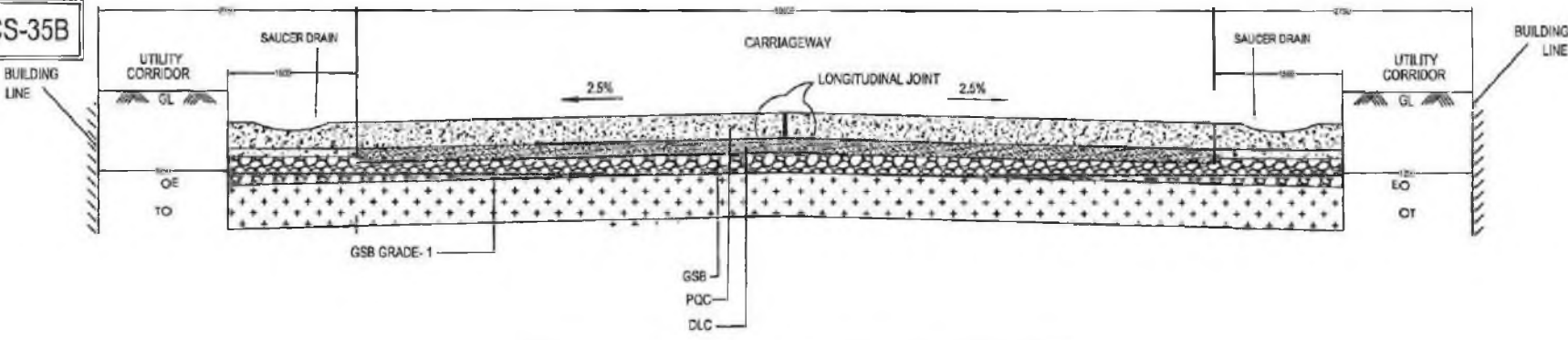
**ODISHA STATE ROAD PROJECT**

**TYPICAL CROSS-SECTION**

**TCS - 38A & TCS - 40A  
 (BHADRAK-ANANDPUR-BALANCE WORK)**

DRG NO.	OSR/PC/EG/38A & 40A				DESIGNED BY	DRAWN BY	REVRI	APPROVED
SH. NO.	03	DATE	18/01/13	REV	R-1	CEG	CEG	EE/PMU
SCALE	NTS							CE/WBP

**TCS-35B**



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILT-UP SECTION FOR NEW CONSTRUCTION

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/EG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/EG/RO/D 2
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/EG/D
6. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS.

LEGENDS		
1) BC	2) DBM	3) WUM
4) GSB	5) SUBGRADE	6) DLC
7) PCC	8) EARTH FILL	9) SAND FILL
10) E - Electricity Cable	11) W - Water Supply Line	12) G - Gas Line
13) S - Sewer	14) T - Telecom Cable	

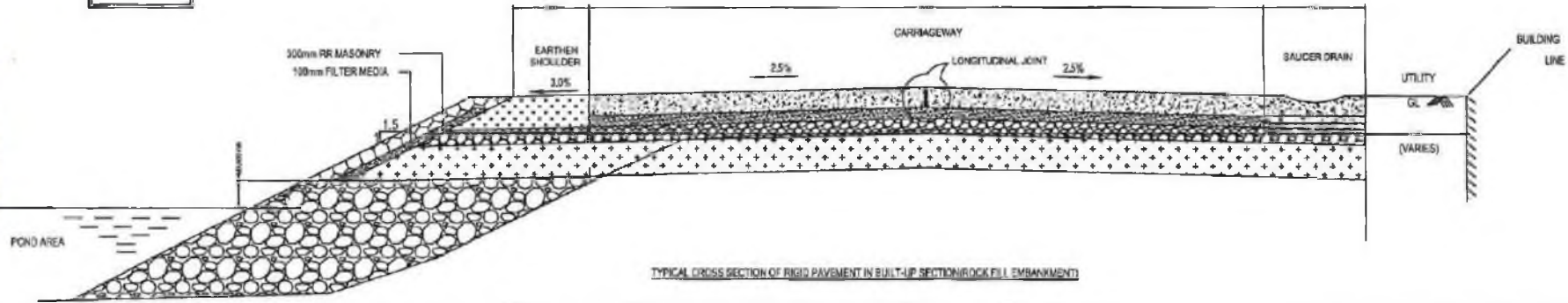
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**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**TYPICAL CROSS-SECTION**  
**TCS - 35B & TCS - 38A**  
**(BHADRAK-ANANDPUR-BALANCE WORK)**

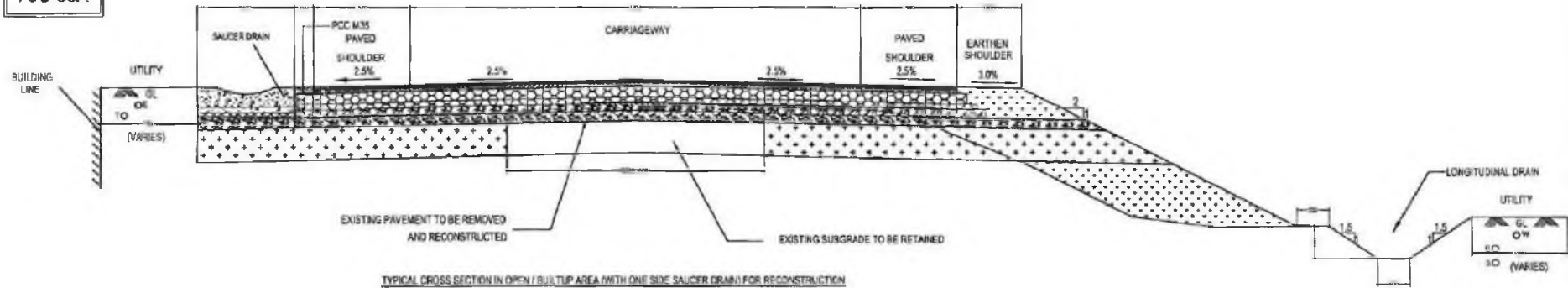
DRG NO.	OSR/PC/EG/TC/35B					DESIGNED BY	DRAWN BY	REVIEW	APPROVED
SH. NO.	03	DATE	18/01/13	REV	R-1	CEG	CEG	EE/PWU	CE/WBP
SCALE	NTS								

TCS-35C



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILT-UP SECTION (ROCK FILL EMBANKMENT)

TCS-38A



TYPICAL CROSS SECTION IN OPEN / BUILT-UP AREA (WITH ONE SIDE SAUCER DRAIN) FOR RECONSTRUCTION

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSR/PC/CEG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSR/PC/CEG/RIGID 02.
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSR/PC/CEG/EO
6. PCC PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

**LEGENDS**

1) BC		6) D/C		11) W - Water Supply Line
2) CRH		7) PCC		12) G - Gas Line
3) W/M		8) EARTH FILL		13) S - Sewer
4) OSD		9) E - Electricity Cable		
5) SUBGRADE		10) T - Telecom Cable		

**CONSULTING ENGINEERS GROUP LTD.**

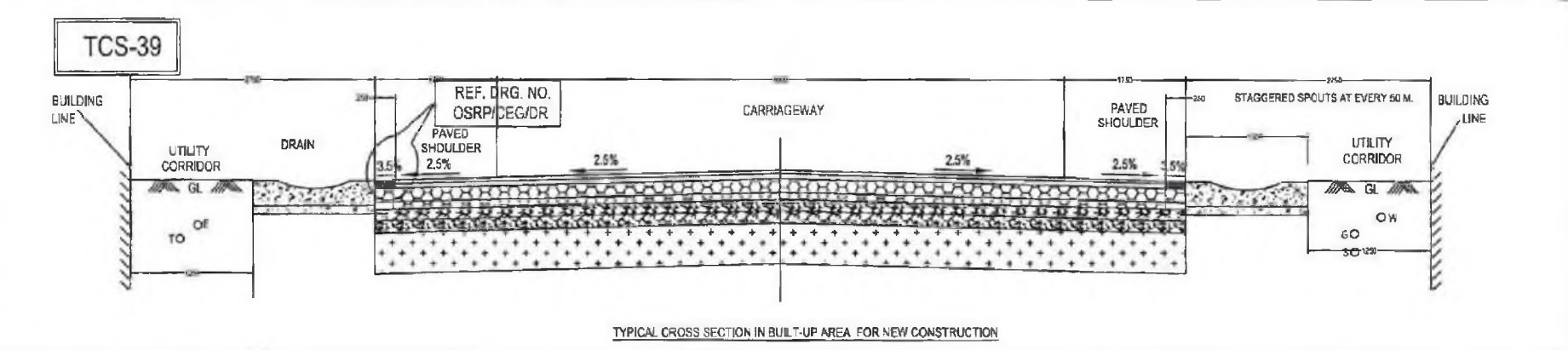
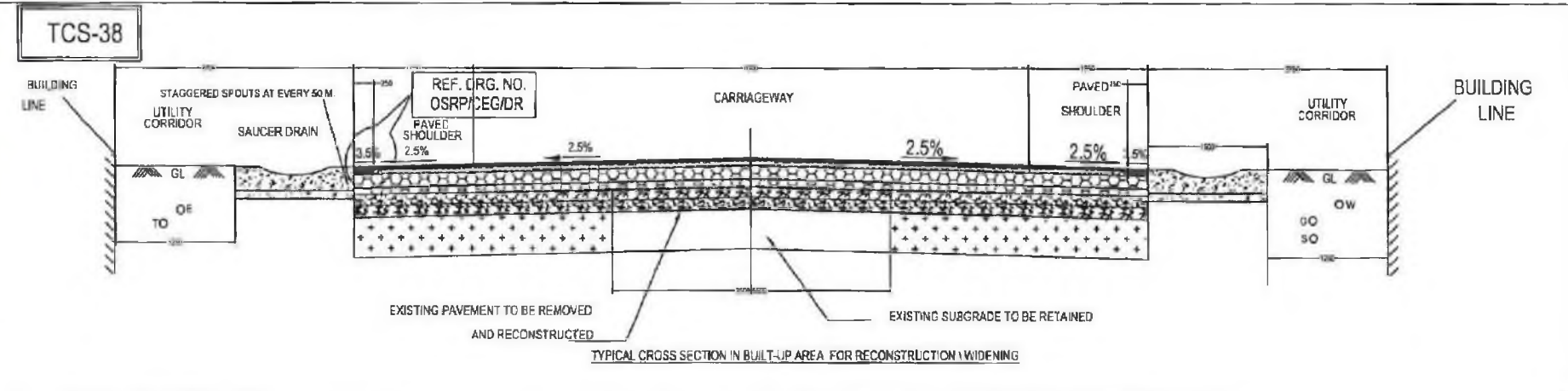
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**PROJECT:-**  
ODISHA STATE ROAD PROJECT

**TYPICAL CROSS-SECTION**  
**TCS -**  
**(BHADRAK-ANANDPUR-BALANCE WORK)**

DRG NO.	05	DATE	18/01/13	REV	R-1	REV BY	APPROVED
SH. NO.						EE/PMU	CE/WBP
SCALE	NTS						

Chief Engineer  
 Odisha State Road  
 Dpt & Roads  
 Odisha, Bhubaneswar



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. FOR DRAIN DETAILS REFER DRAWING NO. OSRP/CEG/DR
3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
4. THE CROSS SECTIONS SHALL BE READ WITH TAIL OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSRP/CEG/DR/D2
5. FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSRP/CEG/D0
6. P.C.C-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
7. IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

LEGENDS		
1) BC		8) DLC
2) DBU		9) P.C.C.
3) W/M		10) SAND FILL
4) CSR		11) E - Economy Gade
5) SUBGRADE		12) T - Telecom Gade
		13) W - Water Supply Line
		14) G - Gas Line
		15) S - Sewer

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 Fax: 2521348, e-mail: ceg@cegroup.com

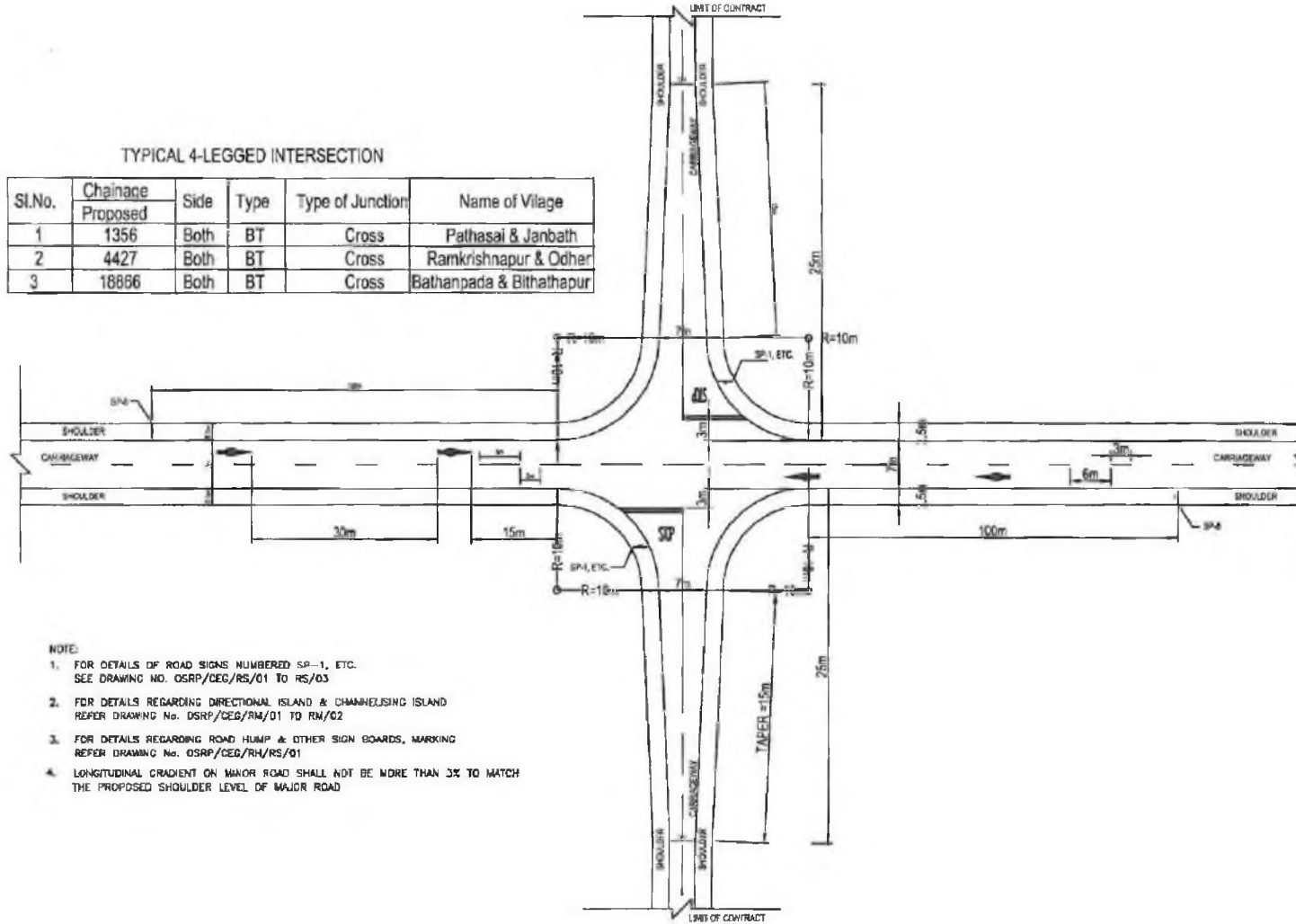
**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

TYPICAL CROSS-SECTION									
TCS - 38 & TCS - 39									
(BHADRAK-ANANDPUR-BALANCE WORK)									
DRG NO.	OSRP/CEG/DR	DATE	REV	R-1	DESIGNED BY	DRAWN BY	REV'D	APPROVED	
SH. NO.	03	18/01/13			CEG	CEG	EE/PMU	GE/WBP	
SCALE	NTS								



TYPICAL 4-LEGGED INTERSECTION

Sl.No.	Chainage Proposed	Side	Type	Type of Junction	Name of Village
1	1356	Both	BT	Cross	Pathasai & Janbath
2	4427	Both	BT	Cross	Ramkrishnapur & Odher
3	18866	Both	BT	Cross	Bathanpada & Bithathapur



NOTE:

- FOR DETAILS OF ROAD SIGNS NUMBERED SP-1, ETC. SEE DRAWING NO. OSRP/CEG/RS/01 TO RS/03
- FOR DETAILS REGARDING DIRECTIONAL ISLAND & CHANNELSING ISLAND REFER DRAWING No. OSRP/CEG/RM/01 TO RM/02
- FOR DETAILS REGARDING ROAD HUMP & OTHER SIGN BOARDS, MARKING REFER DRAWING No. OSRP/CEG/RH/RS/01
- LONGITUDINAL GRADIENT ON MAJOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD



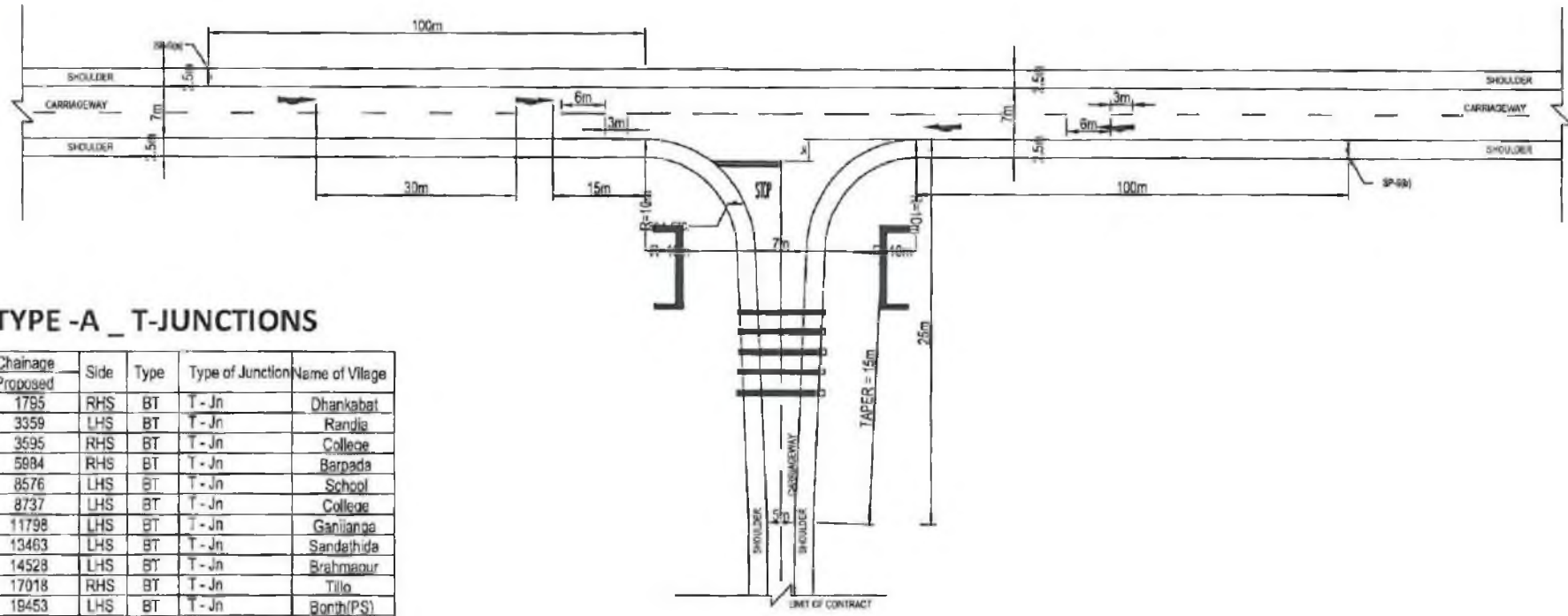
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 Fax: 2521348, e-mail: ceg@cegindia.com

PROJECT:-  
 ODISHA STATE ROAD PROJECT

STANDARD DRAWINGS  
 TYPICAL 4-LEGGED INTERSECTION WITH  
 SINGLE LANE BT ROAD  
 (BHADRAK-ANANDPUR-BALANCE WORK)

DRG NO.	OSRP/CEG/RS/01					DESIGNED BY	DRAWING	REVIS	APPROVED
SH. NO.	18	DATE	18/01/13	REV	R-1	CEG	CEG	EE/PMU	CE/JWP
SCALE	NTS								



**TYPE -A \_ T-JUNCTIONS**

Sl.No.	Chainage Proposed	Side	Type	Type of Junction	Name of Village
1	1795	RHS	BT	T - Jn	Dhankabat
2	3359	LHS	BT	T - Jn	Randla
3	3595	RHS	BT	T - Jn	College
4	5984	RHS	BT	T - Jn	Barpada
5	8576	LHS	BT	T - Jn	School
6	8737	LHS	BT	T - Jn	College
7	11798	LHS	BT	T - Jn	Ganilanga
8	13463	LHS	BT	T - Jn	Sandahida
9	14528	LHS	BT	T - Jn	Brahmapur
10	17018	RHS	BT	T - Jn	Tillo
11	19453	LHS	BT	T - Jn	Bonhi(PS)
12	24252	LHS	BT	T - Jn	Manirip
13	30339	LHS	BT	T - Jn	Somaha
14	31476	LHS	BT	T - Jn	Sullona
15	33952	LHS	BT	T - Jn	Boncha
16	35809	RHS	BT	T - Jn	Otharak
17	36571	LHS	BT	T - Jn	Raklo
18	39977	RHS	BT	T - Jn	Chalavanthi
19	40048	LHS	BT	T - Jn	Fakipur

TYPE - A



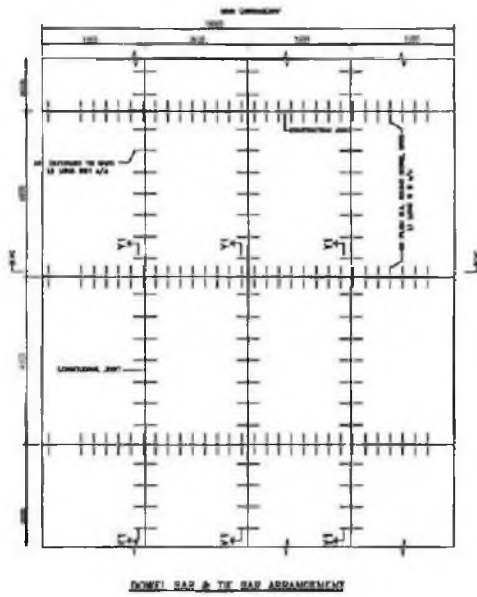
**CONSULTING ENGINEERS GROUP LTD.**

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 Fax: 2521348, e-mail: ceg@cegindia.com

PROJECT:-  
 ODISHA STATE ROAD PROJECT

STANDARD DRAWINGS  
 TYPICAL T- JUNCTION  
 WITH SINGLE LANE BT ROAD  
 (BHADRAK-ANANDPUR-BALANCE WORK)

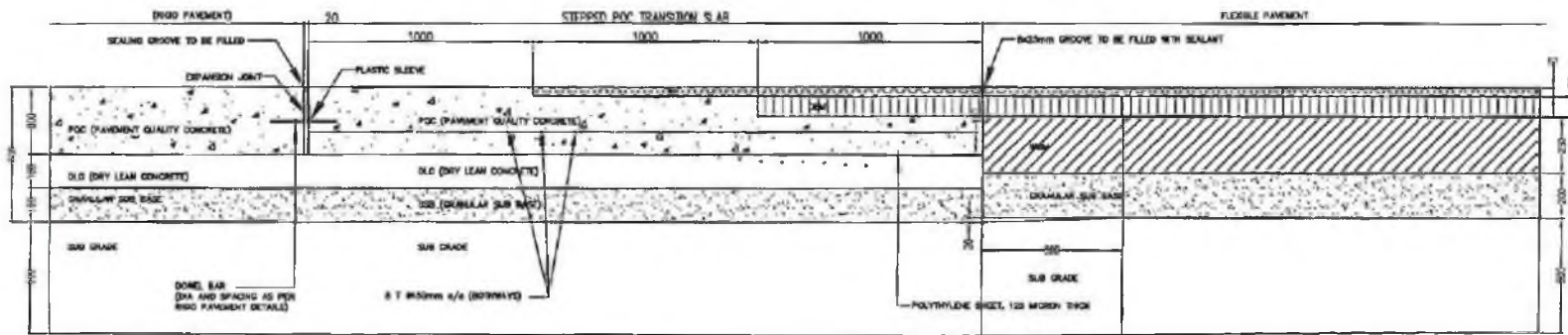
DRG NO.	DATE	REV	DESIGNED BY	DRAWN BY	REVIEW	APPROVED
SH. NO. 19	18/01/13	R-1	CEG	CEG	EE/PMU	CE/WBP
SCALE	NTS					



**NOTATIONS**

T1	Pavement Thickness
T2	D/C Thickness
S	Spacing of Dowel Bars
ST	Spacing of Tie Bars
D	Dowel Bar Dia
T	Tie Bar Dia
L1	Length of Dowel Bar
L2	Length of Tie Bar

- NOTES**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.
  2. THIS DRG IS TO BE READ ALONG WITH TYPICAL CROSS SECTION FOR ROAD PAVEMENT (DRG NO. OSRP/CEG/A/S/76) SCHEDULE FOR ROAD PAVEMENT.
  3. FOR PAVEMENT THICKNESS AND OTHER DIMENSIONS REFER PAVEMENT SCHEDULE FOR ROAD PAVEMENT.
  4. ALL REINFORCEMENTS SHALL BE CONFORMED TO IS-400

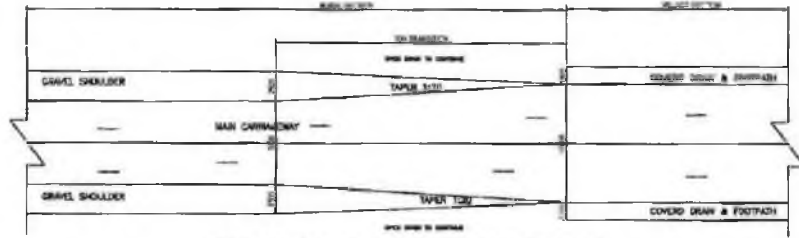


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Fax: 2521348, e-mail: ceg@ceginidia.com

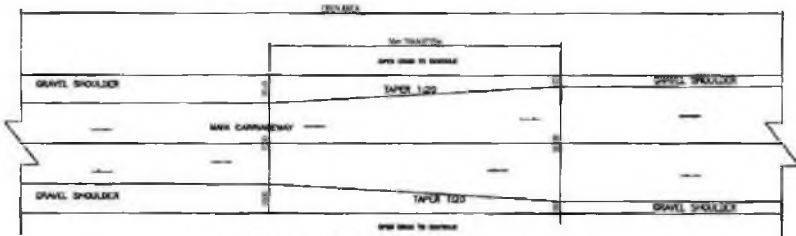
**PROJECT:-**  
ODISHA STATE ROAD PROJECT

**DETAIL OF DOWEL/TIE BAR ARRANGEMENT AND TRANSITION SLAB (BHADRAK-ANANDPUR-BALANCE WORK)**

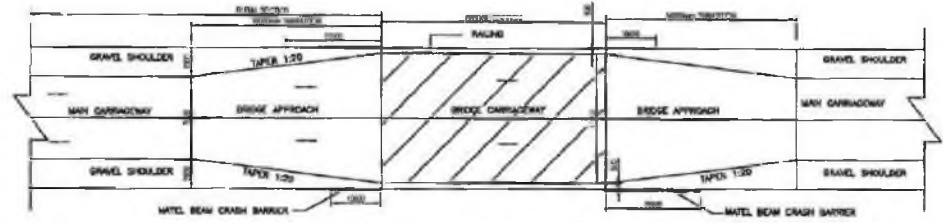
DRG NO.	OSRP/CEG/SH-53/DBA&TS			DESIGNED BY:	DRAWN BY:	REVIEW:	APPROVED:
SH. NO.	35	DATE	18/01/13	REV	R-1		
SCALE	NTS			CEG	CEG	EE/PMU	CE/WBP



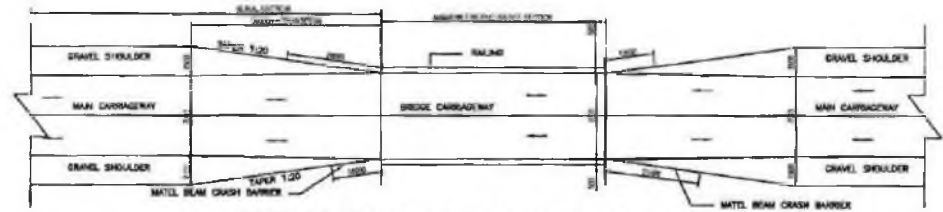
TRANSITION FROM RURAL 12m SECTION TO VILLAGE 10m WITH DRAIN SECTION 10m



TRANSITION FROM 12m PW TO 10m PW IN RURAL 10m



TRANSITION FROM RURAL 12m SECTION TO BRIDGE WITH 11m CLEAR SPAN SECTION



TRANSITION FROM RURAL 12m SECTION TO MAIN ROAD CROSS SECTION SECTION

- NOTE
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS INDICATED OTHERWISE.
  2. FOR DETAILS OF STRUCTURES REFER STRUCTURAL DWS.
  3. GUARD POSTS ARE INSTALLED WHERE EMBANKMENT HEIGHT IS MORE THAN 2 METRES & AT BRIDGE APPROACHES.
  4. FOR GUARD POST DETAIL REFER DWS NO. OSH/CEG/AM & CP.
  5. FOR HAZARD MARKER DETAIL REFER TYPICAL ROAD SIGN & DETAILS OF ROAD DELINEATORS.
  6. DRAWING TO BE READ WITH TCS- 1 TO TCS-18 AND DWS NO. OSH/CEG/5550/03.



**CONSULTING ENGINEERS GROUP LTD.**

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PROJECT:-  
ODISHA STATE ROAD PROJECT

TOPICAL DETAILS OF TRANSITION OF  
DIFFERENT ROAD SECTION  
(BHADRAK-ANANDPUR-BALANCE WORK)

DRG NO.	DATE	REV	DESIGNED BY	DRAWN BY	REV'D	APPROVED
SH. NO. 15	18/01/13	R-1	CEG	CEG	EE/PMU	CE/DBP
SCALE	NTS					

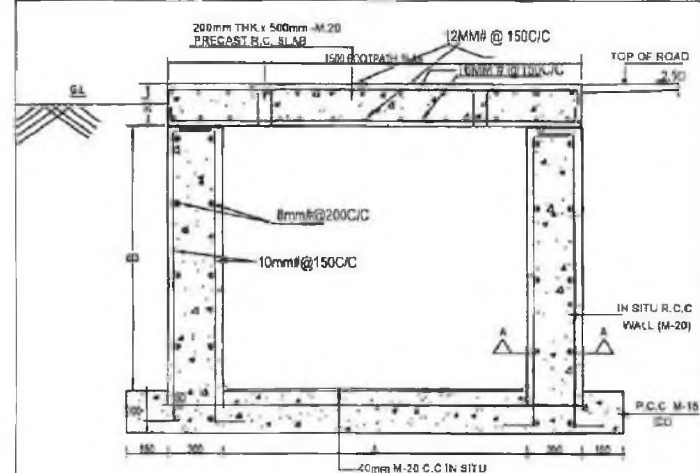
**SCHEDULE OF BOX DRAIN**

Sl.No.	Village Name	Proposed		SIDE	Distance
		From	To		
1	BARAPADA	8400	8570	LHS	170
2	BONTH	18920	19520	RHS	700

**SCHEDULE OF SAUCER DRAIN**

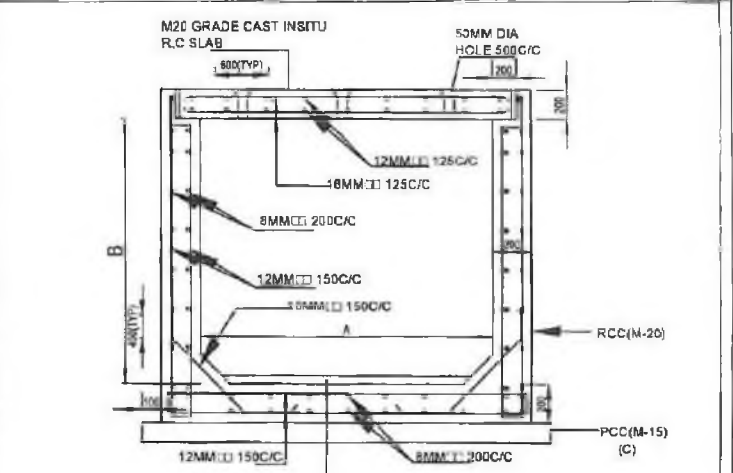
Sl.No.	Village Name	Proposed		SIDE	Distance
		From	To		
1	BAGURAI	200	2200	LHS	2000
2	RANDIA	3500	3700	BOTH	200
3	GANJANGA	11800	11800	BOTH	200
4	TILLO	17520	17800	BOTH	280
5	BONTH	19400	19700	LHS	300
6	BONTH	19700	20400	BOTH	700
7	CHHENAPADI	31465	31615	BOTH	150
8	CHHENAPADI	31750	31790	BOTH	40
9	FAKIRPUR	40480	40900	BOTH	420
10	ANANDPUR	41850	42100	BOTH	250

- FOR DETAILS OF LINED DRAINS REFER DWG NO. CEB/1/100/10
- THE PROVISION AND LENGTH OF THE LINED DRAIN SHALL BE REALISED DURING THE TIME OF CONSTRUCTION
- FOOTPATHS/ROADS SHALL BE PROVIDED AS PER DWG. NO. CEB/1/100/10
- FOR BARBICADES OPENING SHALL BE PROVIDED
- LINED DRAIN SIZES SHALL SUPERSEDE THE PLAN
- ALL REVISIONS SHOULD BE REFERRED TO THE PLAN



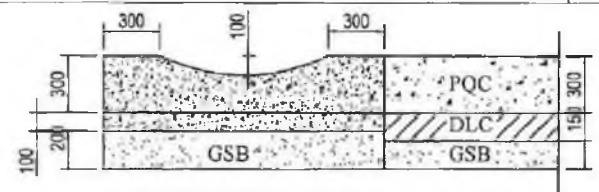
**DETAIL OF BOX DRAIN**

Sl.No.	Location	Dimension in mm			Precast cover slab
		A	H	C	
1	BONTH	1100	1000	75	M20

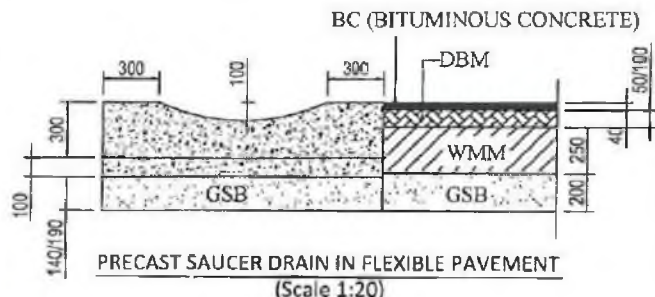


**DETAILS OF BOX DRAIN**

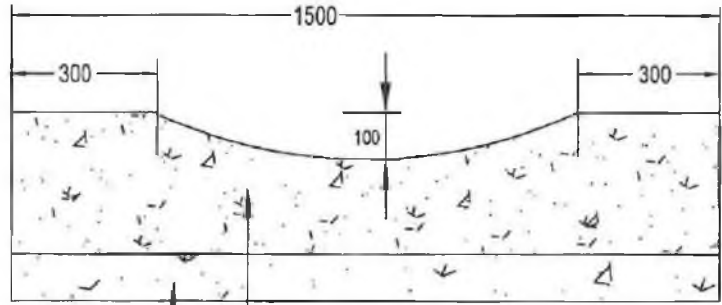
Sl.No.	Location	Dimension in mm			Precast cover slab
		A	H	C	
1	BARAPADA	2000	1750	100	M30



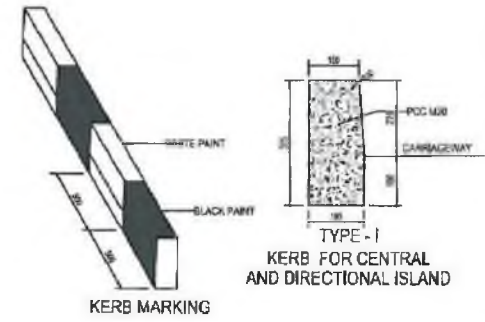
**PRECAST SAUCER DRAIN IN RIGID PAVEMENT**  
(Scale 1:20)



**PRECAST SAUCER DRAIN IN FLEXIBLE PAVEMENT**  
(Scale 1:20)



**PRECAST SAUCER DRAIN**  
300MM THK. PCC (M-35)  
100MM THK. PCC (M-15)

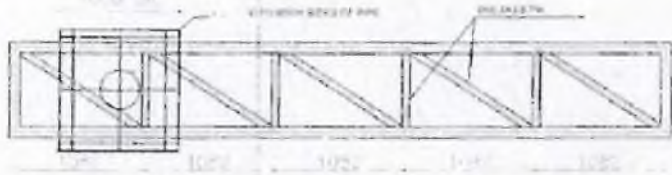


**PROJECT:-**  
ODISHA STATE ROAD PROJECT

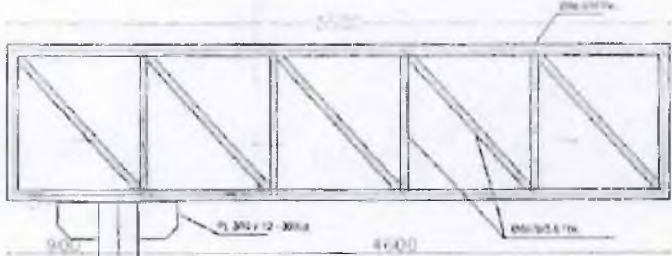
**STANDARD DRAWINGS**  
**DETAILS OF DRAIN AND KERB**  
**(BHADRAK-ANANDPUR-BALANCE WORK)**

DRG NO.	DESIGNED BY	DESIGNED BY	DRAWN BY	REVIEW	APPROVED
SH. NO. 16	DATE 18/01/13	REV R-1	CEG	CEG	EE/PMU CE/WBP
SCALE	NTS				

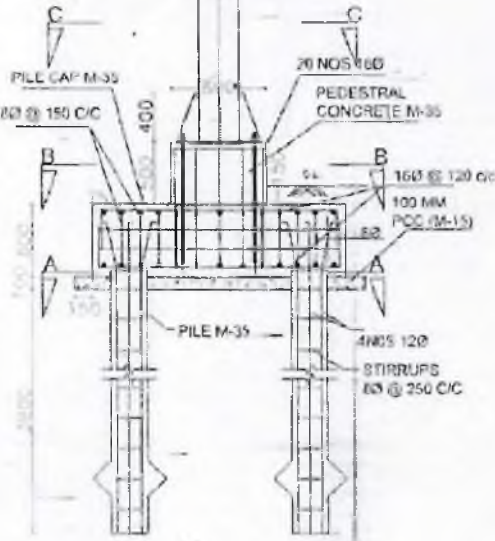
**CEG CONSULTING ENGINEERS GROUP LTD.**  
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TOP & BOTTOM PLAN



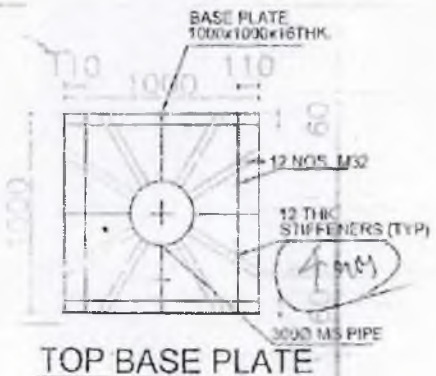
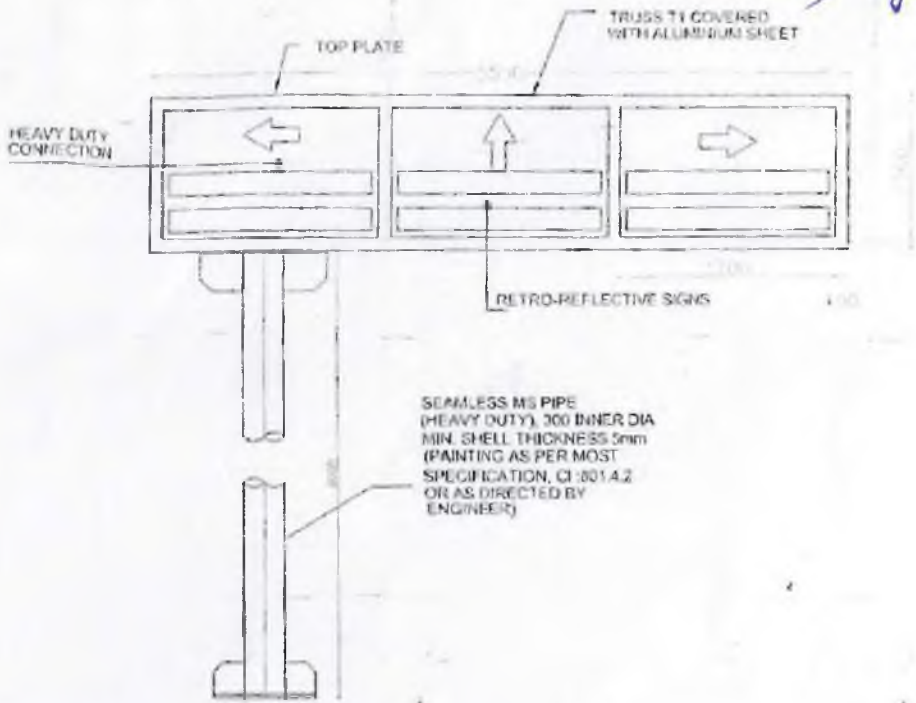
FRONT ELEVATION



**G.M.C. CONSULTING ENGINEERS GROUP LTD.**  
C-12, 2nd Floor, Market, Nagar, Cuttack - 753005  
Tel: 93-141-7520894, 7527899, 2270395  
Fax: 2421145, e-mail: gmcc@rediffmail.com

PROJECT -

ODISHA STATE ROAD PROJECT



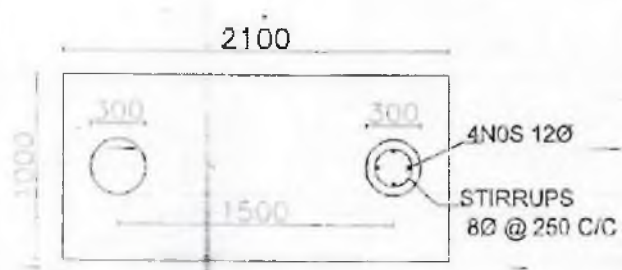
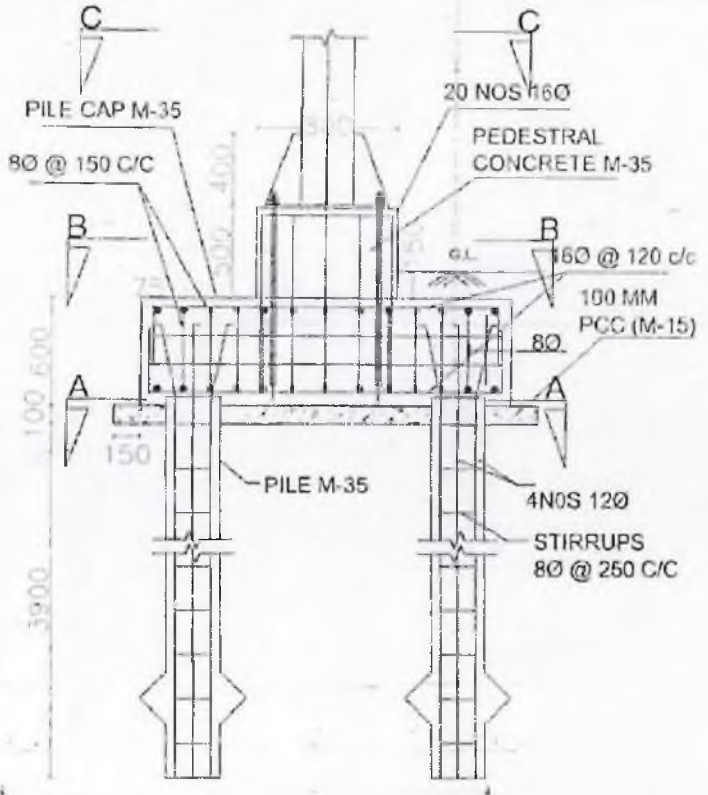
**NOTES**

- 1 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED
- 2 ALL STEEL CONFORM TO MILD STEEL AS PER IS: 2002
- 3 BOLT COMPOSITION: M30x160x16mm (GRADE: 4.6)
- 4 STRUCTURAL WELD SHALL CONFORM TO IS: 1414
- 5 ALL UNDESIGNED WELD ARE KAWI JOINT

**DETAIL OF OVER HEAD CANTILEVER GANTRY  
 BHADRAK-ANANDPUR-BALANCE WGR4**

DESIGN NO.	DATE	REV	BY	ISSUED BY	SCALE
1000	10/10/2017	01	NTS	B.M.	1:1

(Employer)  
 D.P.F. & R.O.S. (Engineer)  
 Civil Engineer



VIEW A-A



SECTION B-B

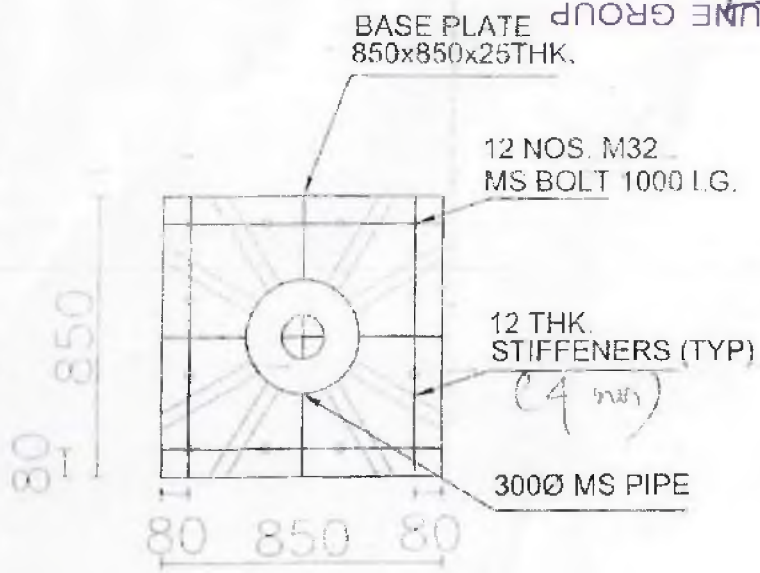


**CONSULTING ENGINEERS GROUP LTD.**  
 Plot No. 12, Sector 17, Gurgaon, Haryana  
 Tel: 29571411, 29570889, 29571889, 29570556  
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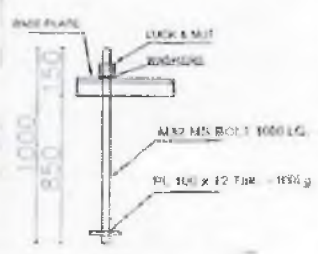
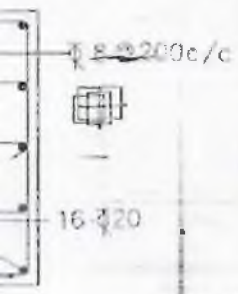
PROJECT

GO SHIA STATE ROAD PROJECT





# BOTTOM BASE PLATE



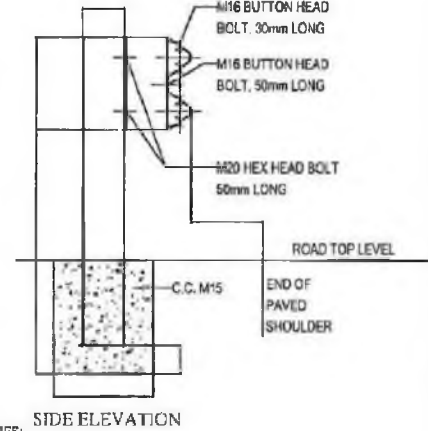
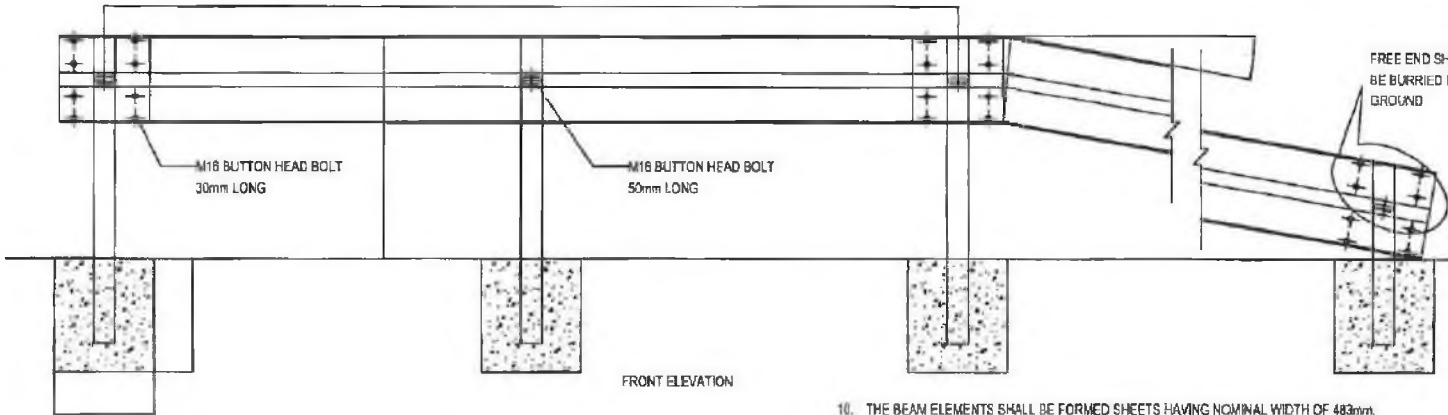
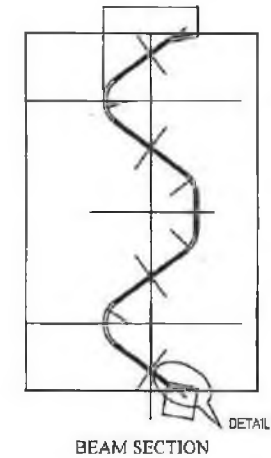
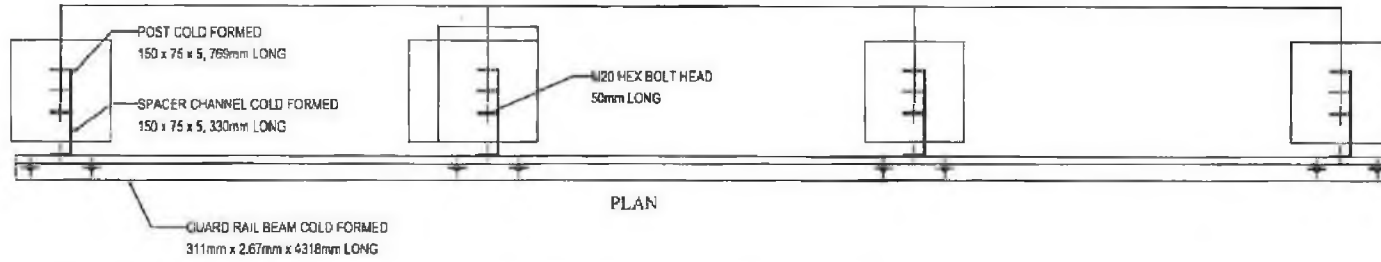
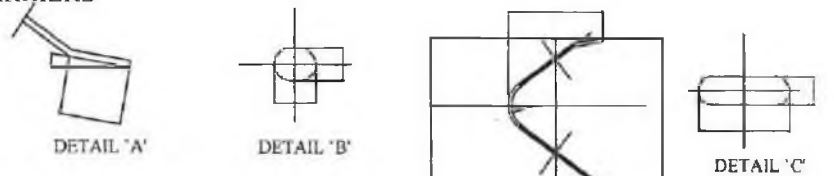
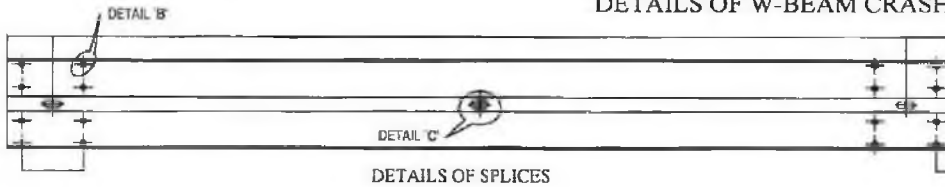
FOUNDATION BOLT

NOTES

1. ALL DIMENSIONS ARE IN MM. USE ROUNDOFF TO NEAREST OPERATIVE.
2. ALL STEEL COMPONENTS SHALL BE MS. AS PER IS - 2062.
3. BOLT CIRCUMFERENCE SHALL EXCEED 50% OF NOMINAL DIAMETER OF THE BOLT.
4. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
5. ALL GROUPS SHALL BE TO BE CHECKED.

FOUNDATION DETAIL							
OVER HEAD CANTILEVER GALLERY							
BEA BRAK - ANANDPUR - BALANCE WORK							
DRG. NO.	DATE	REV.	BY	CHKD.	APPD.	DESIGNED BY	SCALE
MS/15	15/05/2015	1	MS	MS	MS	MS	1:1

DETAILS OF W-BEAM CRASH BARRIERS



NOTE:

- HEIGHT OF POSTS SHOULD BE 785mm LONG ABOVE THE FINISHED ROAD LEVEL.
- SPACING OF POSTS SHOULD BE 2.0m C/C.
- 1 No. SPACER CHANNEL SHOULD BE PLACED AT EACH POST.
- W PROFILE FORMED CORRUGATED BEAMS (EFFECTIVE LENGTH OF 4318mm), 311mm x 83mm.
- POST CONSISTS OF FORMED CHANNEL OF SIZE 150 x 75 x 5, 785mm LONG ABOVE GROUND LVL.
- SPACER CONSISTS OF FORMED CHANNEL OF SIZE 150 x 75 x 5, 330mm LONG.
- BUTTON HEAD BOLTS M16 x 30mm LONG, 8 Nos FOR THE SPLICING OF THE W PROFILE AT EACH LOCATION.
- BUTTON HEAD BOLTS M16 x 50mm LONG, 1 Nos AT THE CONNECTION OF THE W BEAM TO SPACER.
- HEX HEAD BOLTS M20 x 50mm LONG, 2 Nos AT THE CONNECTION OF THE SPACER TO POST.

- THE BEAM ELEMENTS SHALL BE FORMED SHEETS HAVING NOMINAL WIDTH OF 483mm.
- THE BASE MATERIAL OF THE CORRUGATED BEAM SHALL COMPLY TO FOLLOWING MECHANICAL PROPERTIES:-  
I. TENSILE STRENGTH, MIN=483 MPA. II. ELONGATION, in 2 inches, MIN = 12%  
III. YIELD, MIN=345 MPA.
- ALL MEMBERS OF THE SYSTEM SHOULD BE HOT DIPPED GALVANIZED AND TO HAVE A MINIMUM COATING OF 550g/5q m, EACH FACE IN CONFORMANCE TO M.O.R.T & H. SPECIFICATIONS (CLAUSE 810).
- BEAMS TO BE ERECTED ON A RADIUS OF 46m (150) OR LESS SHALL BE SHAPE CURVED TO APPROPRIATE CURVATURE.
- CRASH BARRIERS ARE POSTED ON ALL SECTION OF EMBANKMENT WHOSE HEIGHT IS >= TO 3m. HORIZONTAL CURVES OF RADIUS < 170m AND ALSO AT ALL BRIDGE APPROACHES FOR LENGTH OF 20m ON BOTH SIDES.
- BEAM SURFACE FACING THE TRAFFIC IS PAINTED WITH ALTERNATE BANDS (800mm WIDE) OF BLACK & YELLOW COLOR REFLECTORIZED PAINT CONFORMING CL.803.5 OF M.O.R.T & H SPEC.

SCHEDULE :

AT 5 MINOR BRIDGES : 5CM AT 2 SIDES ON BOTH WAYS

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PROJECT:-  
ODISHA STATE ROAD PROJECT

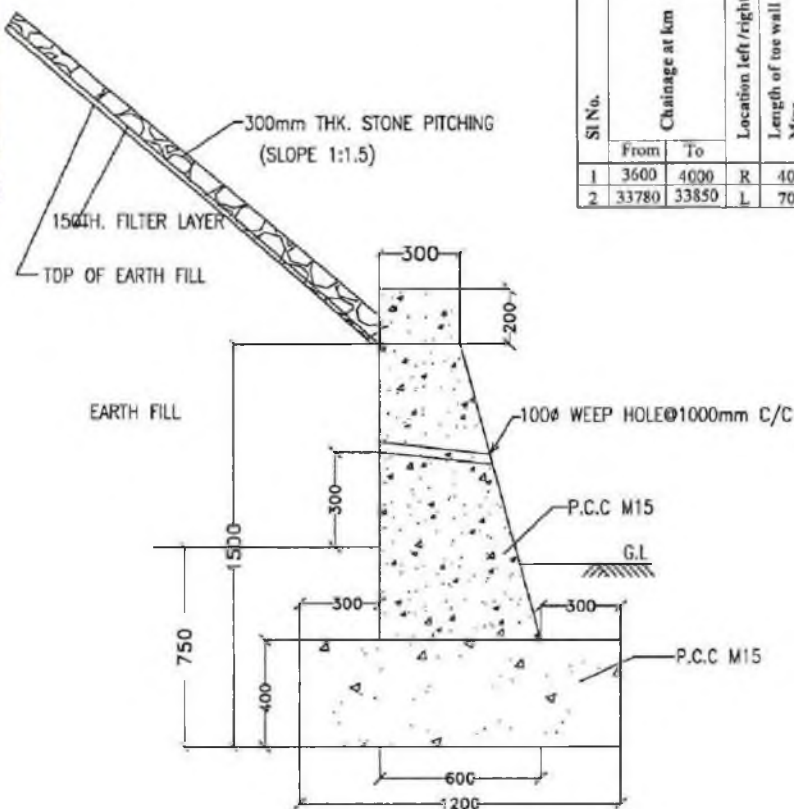
STANDARD DRAWINGS  
METAL BEAM CRASH BARRIER DETAILS  
(BHADRAK-ANANDPUR-BALANCE WORK)

DRG NO.	OSR/PC/CGCB				DESIGNED BY	DRAWN BY	REVIEW	APPROVED
SH. NO.	24	DATE	11/01/13	REV	R-1			
SCALE	NTS				CEG	CEG	EE/PMU	CE/WBP

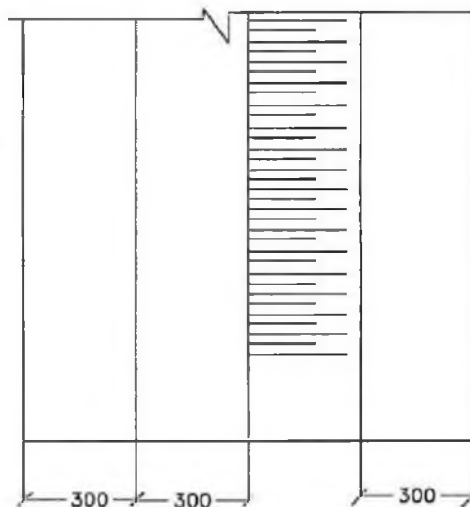
Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar

SCHEDULE OF TOE WALL SH-53

Sl No.	Chainage at km		Location left/right	Length of toe wall in Mtrs.
	From	To		
1	3600	4000	R	400
2	33780	33850	L	70



TOE WALL  
( CROSS SECTION )



PLAN OF TOE WALL FOR WATER BODY

TO MINIMISE IMPACT ON STORAGE CAPACITY & WATER SPREAD OF PONDS/WATER BODIES NALA BED TOE WALLS TO BE ERECTED SUCH THAT IT PREVENTS ACCIDENTAL FALL INTO THE DEPRESSION AND WASHING OF VEHICLES/BATHING/WASHING ON THE ROAD SIDE

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PROJECT:-

ODISHA STATE ROAD PROJECT

TYPICAL PCC TOE WALL WITH STONE PITCHING FOR WATER BODIES AS ENVIRONMENTAL MITIGATION.

(BHADRAK-ANANDPUR/BALANCE WORK)

DRG NO.	OSRP/CEG/SH-53/ENV/01	DESIGNED BY	DRAWN BY	REV./J	APPROVED
SH. NO.	DATE 31/12/12/REV R-1	CEG	CEG	EE, PMU	CE, WBP
SCALE	NTS				

Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar

GENERAL

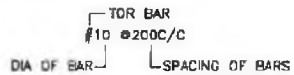
- THESE NOTES ARE APPLICABLE FOR RCC SLAB BRIDGES.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DRAWING SHALL BE SCALED.
- DESIGN CRITERIA:
  - THE DESIGN IS ACCORDING TO FOLLOWING CODES:
    - IRC : 5-1998
    - IRC : 6-2000
    - IRC : 21-2000
    - IRC : 7B-2000
  - THE FOLLOWING LOADS HAVE BEEN CONSIDERED IN THE DESIGN:
    - IRC 70R TRACKED & ONE LANE OF CLASS A
    - IRC 70R WHEELED & ONE LANE OF CLASS A
    - THREE LANE OF CLASS A
    - WEARING COAT LOAD OF 2.20 KN/SQ. M.
    - TEMPERATURE VARIATION =  $\pm 25'$
  - THE DESIGN ARE APPLICABLE FOR 'MODERATE' CONDITIONS OF EXPOSURE.
- WEARING COAT SHALL CONSIST OF THE FOLLOWING
  - A COAT OF MASTIC ASPHALT 12mm THICK, WITH A PRIME COAT OVER THE TOP OF DECK IS TO BE PROVIDED BEFORE THE WEARING COAT IS LAID.
  - 53mm THICK ASPHALT CONCRETE WEARING COAT AS PER CLAUSE 512 OF MOST'S SPECIFICATIONS FOR ROADS AND BRIDGE WORKS (THIRD REV -1995).
- WEARING COAT SHALL BE DISCONTINUED AT EXPANSION JOINT LOCATION JOINT FILLERS SHALL EXTEND UP TO THE TOP OF WEARING COAT.
- WIDTH OF EXPANSION JOINT HAS BEEN KEPT 20 MM ONLY WHICH DOES NOT CATER FOR ANY ALLOWANCE FOR POSSIBLE TITLING OF ABOUTMENT.
- SUPPORT FOR THE DECK SLAB SHALL PROVIDE A BEARING WIDTH OF 400 MM MEASURED IN A DIRECTION PERPENDICULAR TO SUPPORT.
- NO PUBLIC UTILITY SERVICES SHALL BE CARRIED OUT OVER THE BRIDGE.

CONCRETE

- CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150MM CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED IN DRAWING FOR MODERATE CONDITIONS OF EXPOSURE
- HIGH STRENGTH ORDINARY PORTLAND CEMENT CONFORMING TO IS:8112 OR ORDINARY PORTLAND CEMENT CONFORMING TO IS:268 CAPABLE OF ACHIEVING THE REQUIRED DESIGN CONCRETE STRENGTH SHALL ONLY BE USED.
- THE MINIMUM CEMENT CONCRETE AND WATER CEMENT RATIO IN THE CONCRETE DESIGN MIX SHALL BE 310 KG PER CUM AND 0.45 RESPECTIVELY FOR 'MODERATE' CONDITIONS OF EXPOSURE.
- TO IMPROVE WORKABILITY OF CONCRETE USE OF ADMIXTURES CONFORMING TO I.S 9103 MAY BE MADE WITH APPROVAL OF ENGINEER INCHARGE.
- AGGREGATE SHALL CONFIRM TO CL 302.3 OF IRC:21-2000

REINFORCEMENT

- ALL REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS (GRADE DESIGNATION S 415) CONFORMING TO IS:1786 CONFIGURATION IS SHOWN AS :



- SPACING GIVEN FOR ALL REINFORCEMENT IS PERPENDICULAR TO BAR UNLESS OTHERWISE SHOWN ON DRAWINGS.

EARTH FILL/EMBANKMENT

- BACK FILLING MATERIAL SHOULD CONFIRM TO CL 305.2 OF MoRT&H'S SPECIFICATION (FOURTH REVISION 2001).

WATER

- WATER TO BE USED IN CONCRETING AND CURING SHALL BE CONFORMING TO CLAUSE 302.4 OF IRC 21-2000.

WORKMANSHIP/DETAILING

- MINIMUM CLEAR COVER TO ANY REINFORCEMENT INCLUDING STIRRUPS SHALL BE 50 MM UNLESS OTHERWISE SHOWN IN THE DRAWINGS.
- FOR ENSURING PROPER COVER OF CONCRETE TO REINFORCEMENT SPECIALLY MADE POLYMER COVER BLOCKS SHALL BE USED .

CONSTRUCTION JOINTS:

- THE LOCATION PROVISION OF CONSTRUCTION JOINTS SHALL BE APPROVED BY ENGINEER-IN-CHARGE. THE CONSTRUCTION OPERATION SHALL BE CARRIED OUT CONTINUOUSLY UP TO THE CONSTRUCTION JOINT.
- THE CONCRETE SURFACE AT THE JOINT SHALL BE BRUSHED WITH A STIFF BRUSH AFTER CASTING WHILE THE CONCRETE IS STILL FRESH AND IT HAS ONLY SLIGHTLY HARDENED.
- BEFORE NEW CONCRETE IS POURED THE SURFACE OF OLD CONCRETE SHALL BE PREPARED AS UNDER:
  - FOR HARDENED CONCRETE, THE SURFACE SHALL BE THOROUGHLY CLEANED TO REMOVED DEBRIS/LAINTANCE AND MADE ROUGH SO THAT 1/4 OF THE SIZE OF THE AGGREGATE IS EXPOSED.
  - FOR PARTIALLY HARDENED CONCRETE, THE SURFACE SHALL BE TREATED BY WIRE BRUSH FOLLOWED BY AN AIR JET.
  - THE OLD SURFACE SHALL BE SMOOTH WITH WATER WITHOUT LEAVING PUDDLES IMMEDIATELY, BEFORE STARTING CONCRETING TO PREVENT THE ABSORPTION OF WATER FROM NEW CONCRETE.
- NEW CONCRETE SHALL BE THOROUGHLY COMPACTED IN THE REGION OF THE JOINT.

- WELDING OF REINFORCEMENT BARS SHALL NOT BE PERMITTED.

LAPS IN REINFORCEMENT:

- MINIMUM LAP LENGTH OF REINFORCEMENT SHALL BE DECIDED AS PER THE REINFORCEMENT ARRANGEMENT BASED ON THE CLAUSE - 3D4.6.6 OF IRC:21-2000.
- NOT MORE THAN 50 % OF REINFORCEMENT SHALL BE LAPPED AT ANY ONE LOCATION

- BENDING OF REINFORCEMENT BARS SHALL BE AS PER IS:2502
- SUPPORTING CHAIRS OF 12 MM DIAMETER SHALL BE PROVIDED AT SUITABLE INTERVALS AS PER IS:2502.
- CONCRETE SHALL BE PRODUCED IN A MECHANICAL MIXER OF CAPACITY NOT LESS THAN 200 LTR. HAVING INTEGRAL WEIGH-BATCHING FACILITY AND AUTOMATIC WATER MEASURING AND DISPENSING DEVICE.
- PROPER COMPACTION OF CONCRETE SHALL BE ENSURED BY USE OF FORM AND/ OR NEEDLE VIBRATORS. USE OF FULL WIDTH SCREED VIBRATORS FOR COMPACTION OF CONCRETE IN DECK SLAB SHALL BE ENSURED.
- PROPERLY BRACED STEEL PLATES SHALL BE USED AS SHUTTERING.
- SHARP EDGES OF CONCRETE SHALL BE CHAMFERED.

- FILTER MEDIA SHOULD BE PROVIDED IN ACCORDANCE TO CLAUSE 2504.2.2 OF MOST SPECIFICATIONS (FOURTH REV. 2001).
- IN PRESENCE OF SOIL WITH AGGRESSIVE SOIL CONDITION, THE CONCRETE FACES IN CONTACT WITH EARTH SHALL BE PROTECTED WITH APPROVED BITUMINOUS PAINT OR COATING AS DECIDED BY THE ENGINEER-IN-CHARGE.

GENERAL SPECIFICATIONS:

- THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH MoRT&H'S SPECIFICATION FOR ROAD AND BRIDGE WORKS (FOURTH REVISION 2001) EXCEPT WHEREVER OTHERWISE MENTIONED.

FOUNDATION :-

- FOR OPEN FOUNDATIONS RESTINGS ON ROCK, THE MINIMUM DEPTH OF EMBEDMENT SHALL BE AS PER ROAD ROCKS WITH ULTIMATE CRUSHING STRENGTH OF 100 MPa OR MORE FOR RUMBLE MAT OR OTHER TYPE ROCKS.
- IN CASE OF EMBEDMENT IN ROCK IN TRENCHES, ROUND THE FOOTING SHALL BE FILLED UP WITH CEMENT CONCRETE OF MIN. GRADE UP TO THE TOP OF THE ROCK. DEPTH OF FILL IN EXCESS OF 0.30 M IN SOFT ROCK OR 0.30 M IN HARD ROCK SHALL BE FILLED WITH CONCRETE OR BRICK BOLDERS GROUTED WITH CEMENT.

Chief Engineer  
Odisha State Road  
Odisha, Bhubaneswar

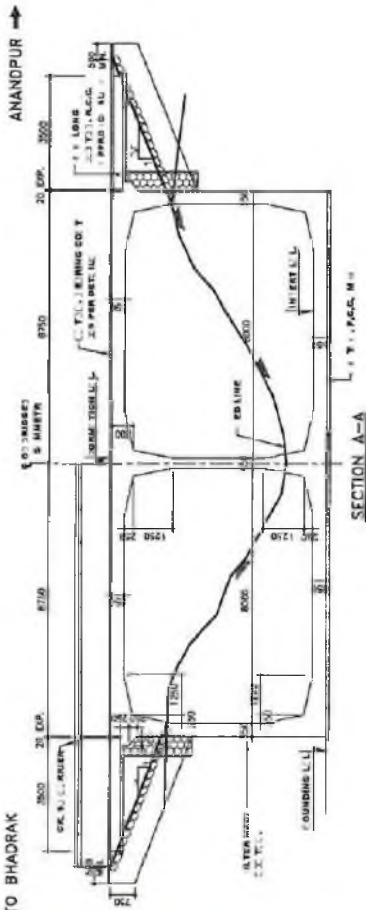
**CEG CONSULTING ENGINEERS GROUP LTD.**  
 C-12/3rd Colony, Bhubaneswar, Odisha - 751017  
 Tel: 8-931-141-2300/898, 2321404, 2320956  
 Fax: 2321348, E-Mail: ceg@cegindia.com

PROJECT: ODISHA STATE ROAD PROJECT

GENERAL NOTES  
(FOR RCC SLAB BRIDGES)

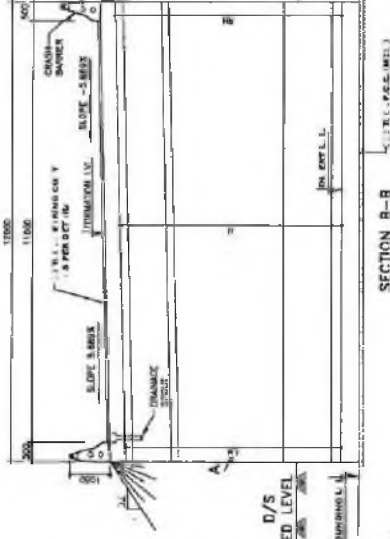
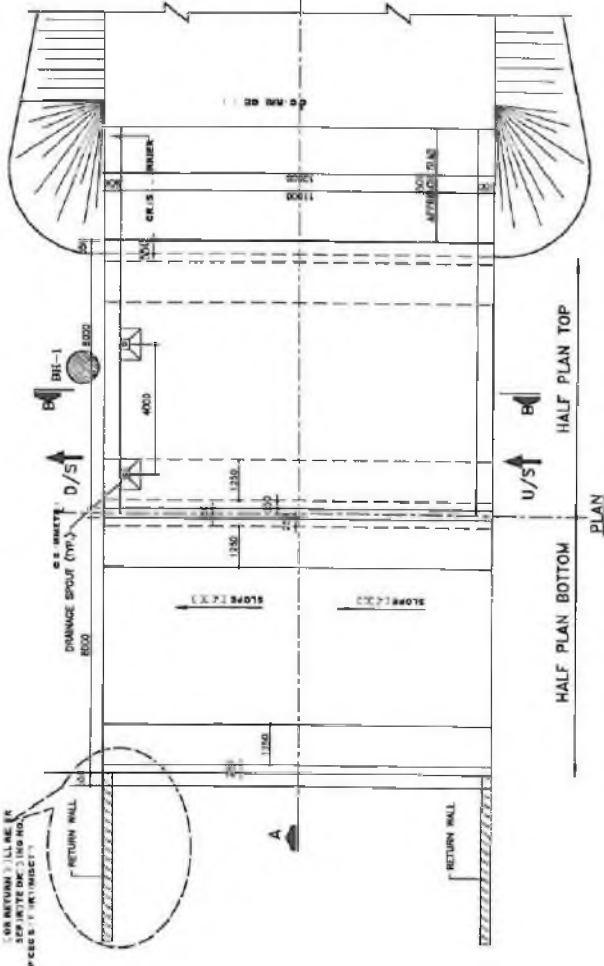
DATE	ISSUED BY	APPROVED BY





FORMATION LEVEL (m)	RED LVL (m)	FINISHING LVL (m)	CLEAR HEIGHT (MAX) L <sub>1</sub> (m)	H (m)	R TO L
11+400	27.160	25.405	23.553	30.38	5.382
11+400	27.160	25.405	23.553	30.38	5.379

FORMING LOCATION (m)	PROPOSED CHAINAGE (m)	RED LVL (m)	FINISHING LVL (m)	CLEAR HEIGHT (MAX) L <sub>1</sub> (m)	H (m)	R TO L
11+400	11+399	27.160	25.405	23.553	30.38	5.382
11+400	11+399	27.160	25.405	23.553	30.38	5.379



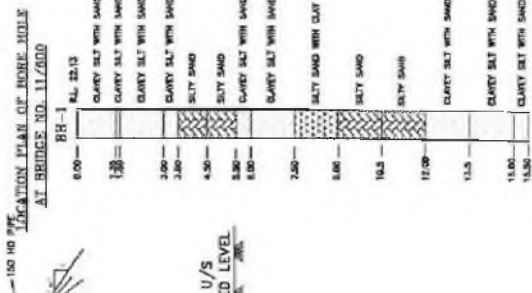
**HYDROLOGICAL DATA**

Design Discharge (cumecs)	Maximum Flood Level (m)	Design Flood Level (m)	Design Flood Depth (m)	Design Flood Velocity (m/s)	Design Flood Force (kN/m <sup>2</sup> )
87.44	18.371	15.15	3.20	3.0	3.5

**NOTE:**  
 50% BELOW FOUNDING LEVEL UP TO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE COARSE RIVER SAND TO GET THE REQUIRED S.B.C.

- NOTES:**
- ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
  - ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
  - CHANGES SHOWN ARE C/O OF PROPOSED ROAD.
  - LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  - FORMATION LEVEL & SUPERELEVATION IS PROVIDED AS PER THE APPROVED 'PLAN & PROFILE' DRAWING.
  - ASPHALTIC PLUS TYPE EXPANSION JOINT IS PROVIDED AS PER DRAWING NO. CSRP/CEG/BR/AJSC-02
  - GRADE OF CONCRETE:
    - P.C.C. LEAN CONC. --- M-15
    - BOX STRUCTURE --- M-35
    - APPROACH SLAB --- M-30
    - RETURN WALL --- M-30
    - CRASH BARRIER --- M-40
  - FOR FLOOR PROTECTION DETAILS REFER SEPARATE DRAWING.

- REFERENCE DRAWINGS**
- CSRP/CEG/SH-53/BR/11+400/02
  - CSRP/CEG/SH-53/BR/11+400/03
  - CSRP/CEG/BR/AJSC-02
  - CSRP/CEG/SH-9/BR/PPM/01
  - CSRP/CEG/SH-53/BR/PPM/02

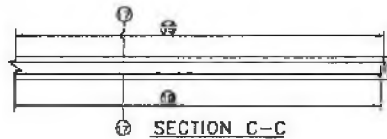
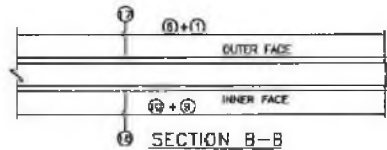
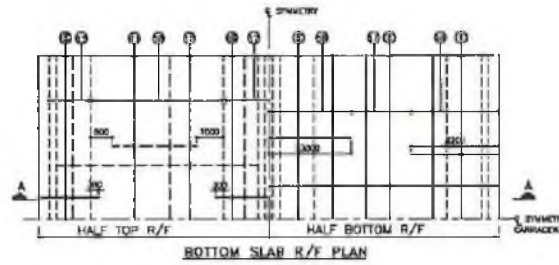
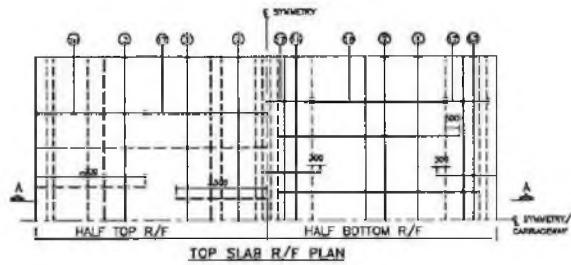
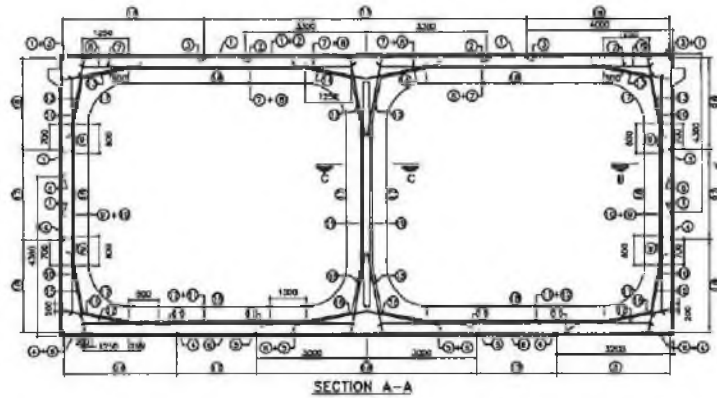
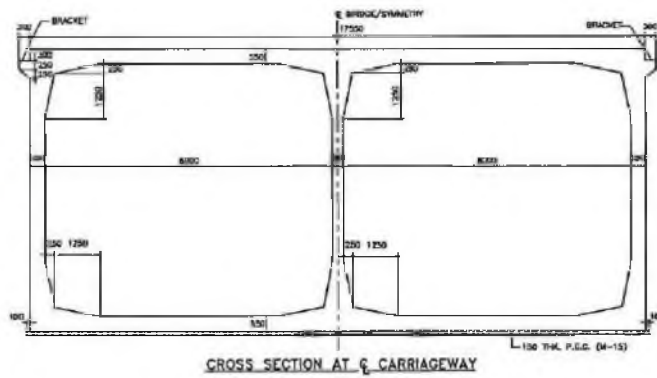


**CG CONSULTING ENGINEERS GROUP LTD.**  
 E-12 May Colony, Bhubaneswar, No. 45, Sector-17  
 Ph. 2532345, E-mail: cgce@rediffmail.com

ODISHA STATE ROAD PROJECT  
 BRIDGE AT PROPOSED CH. 11+407  
 (GANJANGA BRIDGE)

GENERAL ARRANGEMENT DRAWING

DATE: 11/01/2017  
 SCALE: 1:1000  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]



**REINF. DETAILS**

BAR NO	BAR DIA.	SPACING	SHAPE
1	12	200 C/C	—
2	20	200 C/C	—
3	20	200 C/C	—
4	20	200 C/C	—
5	20	200 C/C	—
6	16	200 C/C	—
7	12	200 C/C	—
8	20	200 C/C	—
9	12	200 C/C	—
10	20	200 C/C	—
11	12	200 C/C	—
12	20	200 C/C	—
13	16	200 C/C	—
14	16	200 C/C	—
15	12	200 C/C	—
16	12	200 C/C	—
17	10	200 C/C	—
18	12	200 C/C	—
19	12	200 C/C	—



**NOTES:**

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONC. FOR R.C.C. WORKS. = M-35  
GRADE OF CONC. FOR LEAN CONC. = M-15
4. HYSD REINFORCEMENT IS CONFORMED TO IS:1786 GRADE Fe 415.
5. ANTI CORROSIVE REINFORCING BAR SHALL BE PROVIDED.
6. CLEAR COVER TO ANY REINFORCEMENT:  
(a) BASE SLAB - 75mm  
(b) ALL OTHER COMPONENTS - 50mm.
7. NOT MORE THAN 50% OF BAR IS LAPPED AT A SECTION AND LAPPING IS STAGGERED AND MINIMUM LAP LENGTH IS 63X DIA OF BAR FOR MAIN BARS AND 30 TIMES DIA OF BAR FOR ALL OTHER BARS.
8. FOR DETAILS OF CRASH BARRIER, EXPANSION JOINT, BRACKET, APPROACH SLAB AND WEARING COAT REFER DRAWING No. OSRP/CEG/BR/MISC-02

**REFERENCE DRAWINGS:**

- (1) OSRP/CEG/SH-53/BR/11-400/01 G. A. D.
- (2) OSRP/CEG/BR/MISC-02 MISC DETAILS

**BOX LEVELS DETAILS**

EXISTING LOCATION	PROPOSED CHAINAGE	FORMATION LEVEL (m)	DESIGN H/L (m)	BED LVL (m)	PROV. D/L (m)	FOUNDING LVL (m)	CELLAR HEIGHT (mm)	DIR. OF FLOW
17+700	17+275	20.810	20.840	24.230	25.230	24.230	8.978	7.134
								7.221

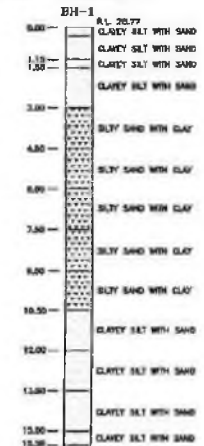
**NOTES:**

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DO NOT SCALE THE DIMENSIONS.
3. CHAINAGES SHOWN ARE C/L OF PROPOSED ROAD.
4. LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
5. FORMATION LEVEL & SUPERELEVATION IS PROVIDED AS PER THE APPROVED 'PLAN & PROFILE' DRAWING.
6. ASPHALTIC PLUG TYPE EXPANSION JOINT IS PROVIDED AS PER DRAWING NO. OSRP/CEG/BR/MISC-02
7. GRADE OF CONCRETE:  
 F.C.C. LEAN CONC. ----- M-15  
 BOX STRUCTURE ----- M-35  
 APPROACH SLAB ----- M-30  
 RETURN WALL ----- M-30  
 CRASH BARRIER ----- M-40
8. FOR FLOOR PROTECTION DETAILS REFER SEPARATE DRAWING.

**REFERENCE DRAWINGS**

1. OSRP/CEG/SH-33/BR/17+700/02
2. OSRP/CEG/SH-53/BR/17+700/03
3. OSRP/CEG/BR/MISC-02
4. OSRP/CEG/SH-9/BR/FFW/01
5. OSRP/CEG/SH-53/RW/MSC-02

**LOCATION PLAN OF BORE HOLE AT BRIDGE NO. 17/00**

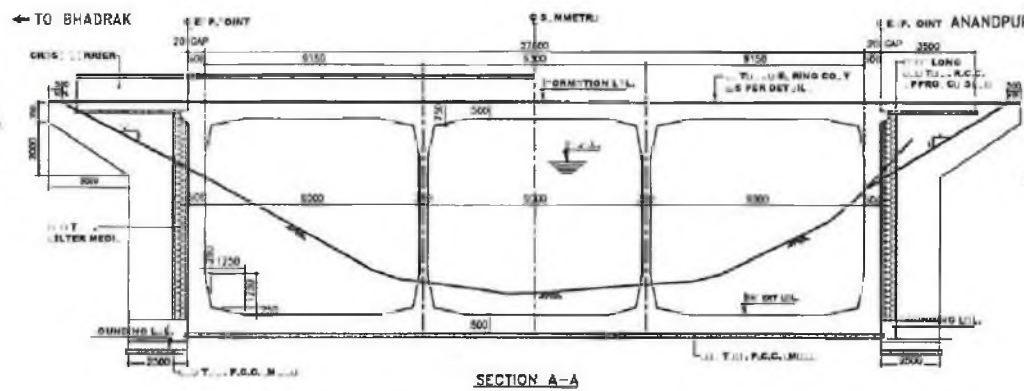


**HYDROLOGICAL DATA**

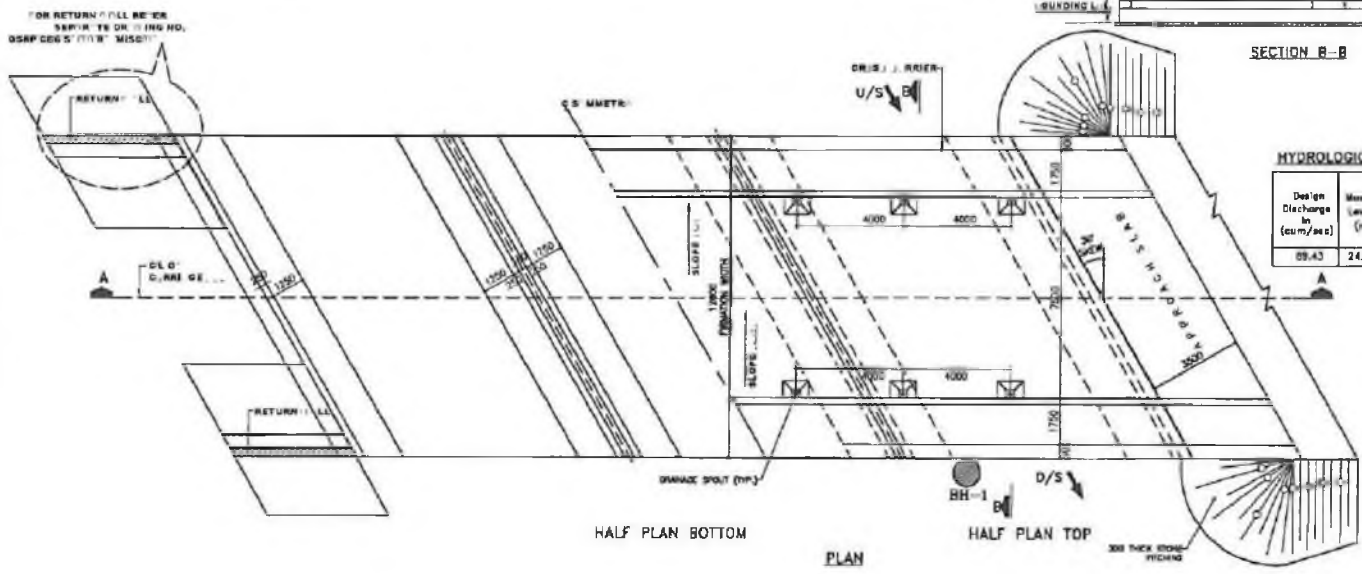
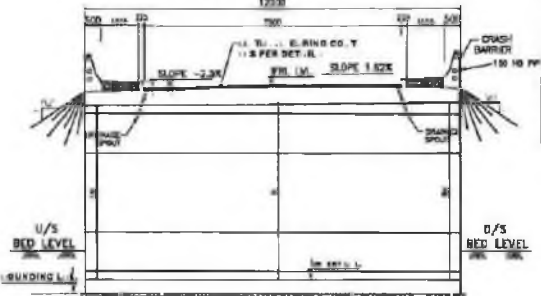
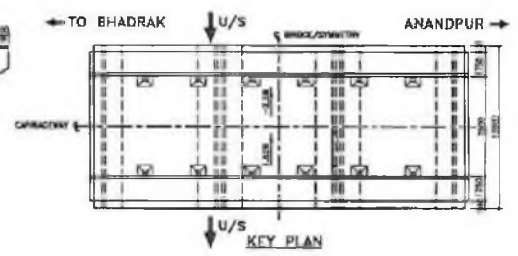
Design Discharge in (cum/Sec)	Max. water level in (m)	Depth of outlet Wall in (m)		Length of Right Apron in (m)		Length of Flexible Apron in (m)	
		W/S	D/S	W/S	D/S	W/S	D/S
29.43	24.323	2.5	3.0	3.0	3.0	4.0	6.0

**NOTE:**

SOIL BELOW FOUNDING LEVEL UP TO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE COARSE RIVER SAND TO GET THE REQUIRED S.B.C.



FORMATION LEVEL (m)	20.810	20.810	20.810
BED LEVEL (m)	24.230	24.230	24.230
CHAINAGE (m)	17+275	17+275	17+275



**CONSULTING ENGINEERS GROUP LTD.**  
 C-12, Me P Colony, Malviya Nagar, Jaipur-17  
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 Fax: 2521344, E-mail: ceg@cegroupdi.com

PROJECT: ODISHA STATE ROAD PROJECT

GENERAL ARRANGEMENT DRAWING  
 BRIDGE AT PROPOSED CH. 17+275  
 (TILLO POLO KAPALI RIVER)

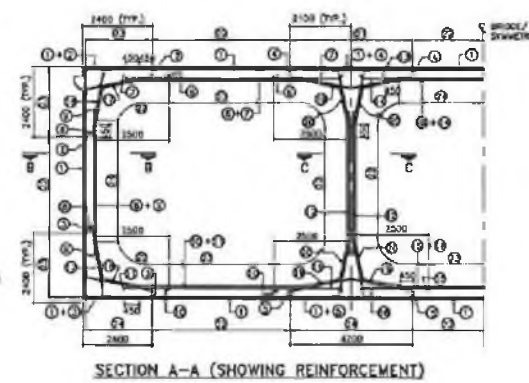
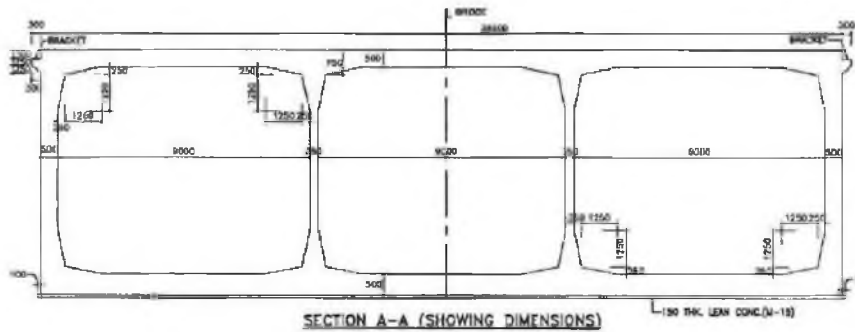
DATE: 15.08.2011  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 APPROVED BY: [Signature]

DPI & Roads  
 Odisha, Bhubaneswar



Engineer Group  
(Consultant)

ENGINEERS GROUP

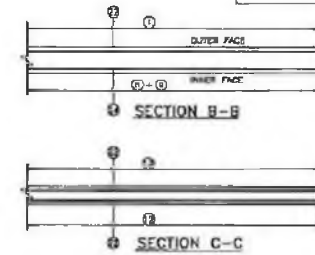
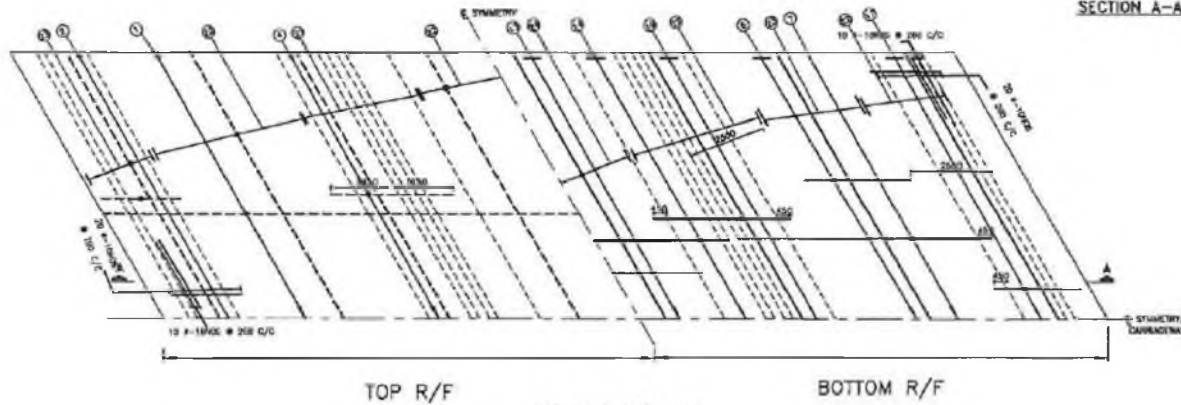


**NOTES:**

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
2. DO NOT SCALE THE DIMENSIONS, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONC. FOR R.C.C. WORKS = M-20  
GRADE OF CONC. FOR LEAN CONC. = M-15
4. WEAR REINFORCEMENT IS CONFORMED TO IS-1786 GRADE Fx 415.
5. ANY CORROSIVE REINFORCING BAR SHALL BE PROVIDED.
6. CLEAR COVER TO ANY REINFORCEMENT:  
(a) BASE SLAB = 30mm  
(b) ALL OTHER COMPONENTS = 30mm.
7. NOT MORE THAN SIZE OF BAR IS LAPPED AT A SECTION AND LAPPING IS STAGGERED AND MINIMUM LAP LENGTH IS 50x DIA. OF BAR FOR MAIN BARS AND 30 TIMES DIA. OF BAR FOR ALL OTHER BARS.
8. FOR DETAILS OF CRASH BARRIER, EXPANSION JOINT, BRACKET, APPROACH ROAD AND BEARING CAP REFER DRAWING NO. OSRP/CEG/BR/MSC-02

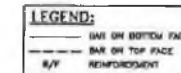
**REFERENCE DRAWINGS:**

- (M) OSRP/CEG/BR-03/BR/17+700/01 G. A. D.
- (D) OSRP/CEG/BR/MSC-02 MSC DETAILS



**REINF. DETAILS**

BAR NO.	BAR DIA.	SPACING	REMARKS
1	16	150 C/C	
2	16	150 C/C	
3	20	150 C/C	
4	12	150 C/C	
5	20	150 C/C	
6	32	300 C/C	
7	32	300 C/C	
8	32	300 C/C	
9	32	300 C/C	
10	32	300 C/C	
11	12	150 C/C	
12	12	150 C/C	
13	33	600 C/C	
14	25	600 C/C	
15	16	150 C/C	
16	16	150 C/C	
17	12	150 C/C	
18	16	150 C/C	
19	12	150 C/C	
20	12	150 C/C	
21	16	150 C/C	
22	10	150 C/C	
23	12	150 C/C	
24	12	150 C/C	



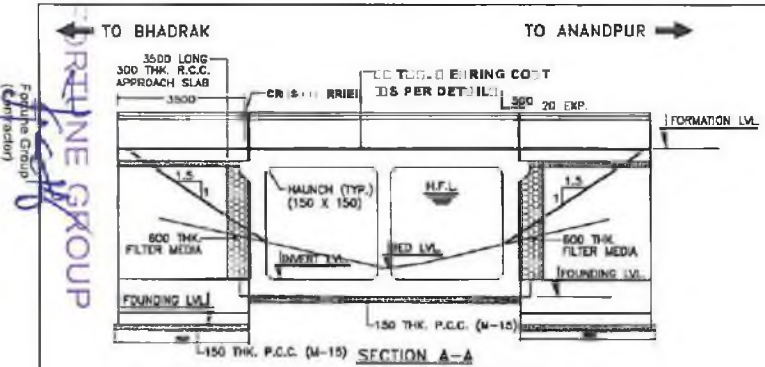
Chief Engineer  
DPI & Roads  
Odisha, Bhubaneswar

**GMC CONSULTING ENGINEERS GROUP LTD.**  
E-12, May Colony, Bhubaneswar, Odisha-751013  
Tel: +91-11-25128033, 25218899, 25291556  
Fax: 2521348, E-Mail: ceg@odisha.com

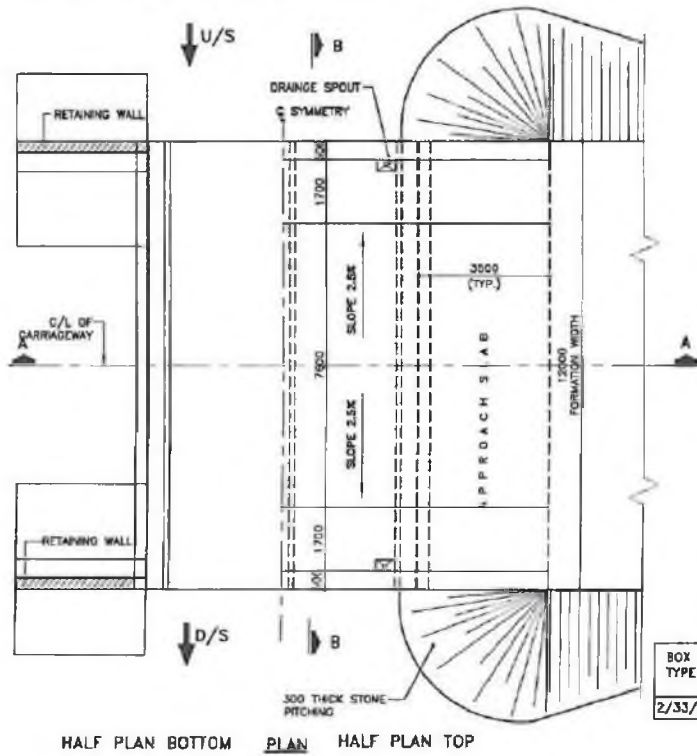
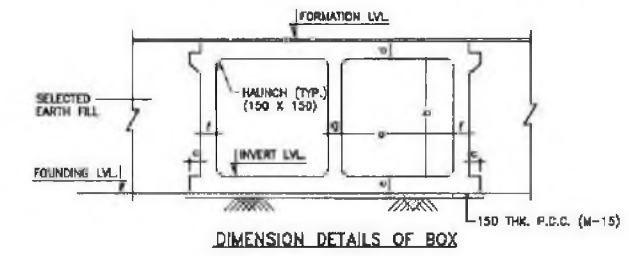
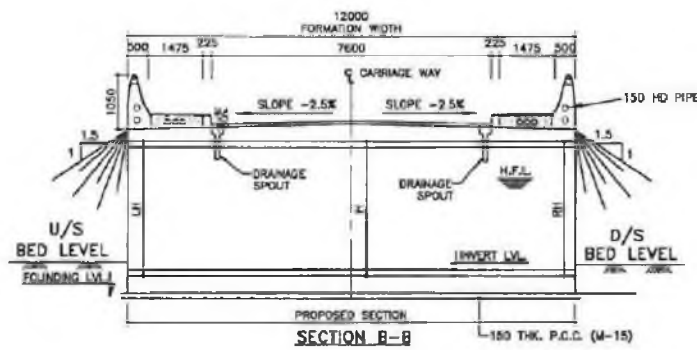
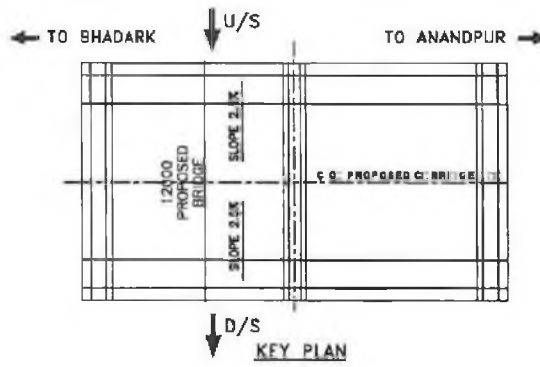
PROJECT: ODISHA STATE ROAD PROJECT

DIMENSION AND REINFORCEMENT DETAILS  
BRIDGE AT PROPOSED CH. 17+275  
(TILLO POLO KAPALI RIVER)

DRAWING NO.: OSRP/CEG/BR/17+700/01  
REV. NO. 01



FORMATION LEVEL (m)	32.925	32.825	32.830
BED LEVEL (m)	29.140	29.140	31.750
CHAINAGE (m)	17+830.0	17+830.0	17+833.565



DIMENSION DETAILS OF BOX

BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	a (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	THICKNESS g (mm)	BEARING CAPACITY
2/33/0	3000	3000	300	470	450	420	350	10 T/M <sup>2</sup>

BOX TYPE	EXISTING LOCATION (m)	PROPOSED CHAINAGE (m)	FORMATION LEVEL (m)	DESIGN HFL (m)	BED LVL (m)	INVERT LEVEL (m)	FOUNDING LVL (m)	CLEAR HEIGHT (MAX)			DIRECTION OF FLOW
								LH (m)	H (m)	RH (m)	
2/33/0	18+400	17+830.0	32.925	31.750	29.140	28.840	28.390	3.409	3.559	3.409	R TO L

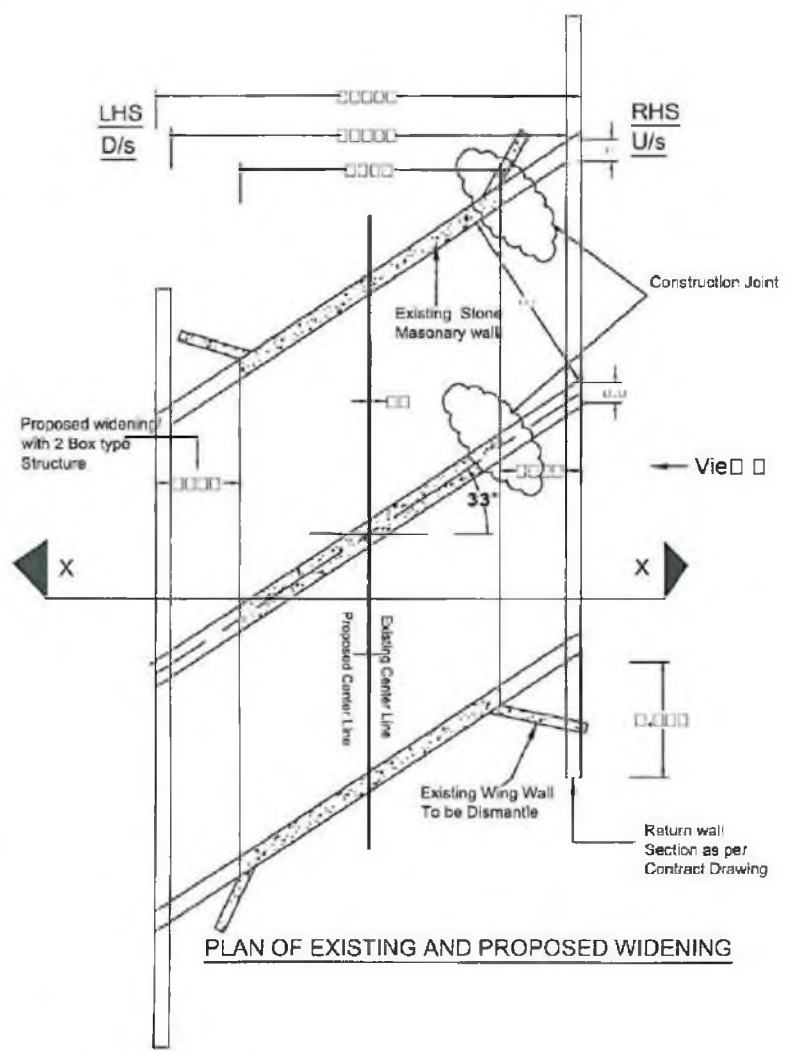
- NOTES:**
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  - ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
  - LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  - GRADE OF CONCRETE:-  
BOX - M-25  
RETURN WALL - M-25  
APPROACH SLAB - M-30  
P.C.C. LEAN CONC. - M-15
  - CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
  - FOR REINF. DETAILS OF RETURN WALL REFER SEPERATE DRAWING.
  - IN CASES WHERE INVERT LEVEL IS HICHER THAN GROUND LEVEL AT ENDS OF STRUCTURE OR WHERE UNSUITABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE ADEQUATE CUT OFF WALLS AT ENDS OF STRUCTURE TO PREVENT SCOUR/EROSION.
  - ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG.NO. OSRP/CEG/BR/MISC-02
  - SITE PLAN ON SEPERATE SHEET.
  - FOR FLOOR PROTECTION DETAILS REFER SEPERATE DRAWING.

- REFERENCE DRAWING:-**
- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/104, SD/110 (SHEET 1 OF 2), SD/110 (SHEET 2 OF 2).
  - FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB, RCC RAILING, DRAINAGE SPOUT FLOOR PROTECTION WORKS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/101, SD/115 (SHEET 1 OF 4), (SHEET 2 OF 4), (SHEET 3 OF 4), (SHEET 4 OF 4) & SD/111.
  - OSRP/CEG/SH-53/BR/18+400/02
  - OSRP/CEG/RW/MISC-01
  - OSRP/CEG/SH-53/BR/FPW/01
  - DRG.NO. OSRP/CEG/BR/MISC-02

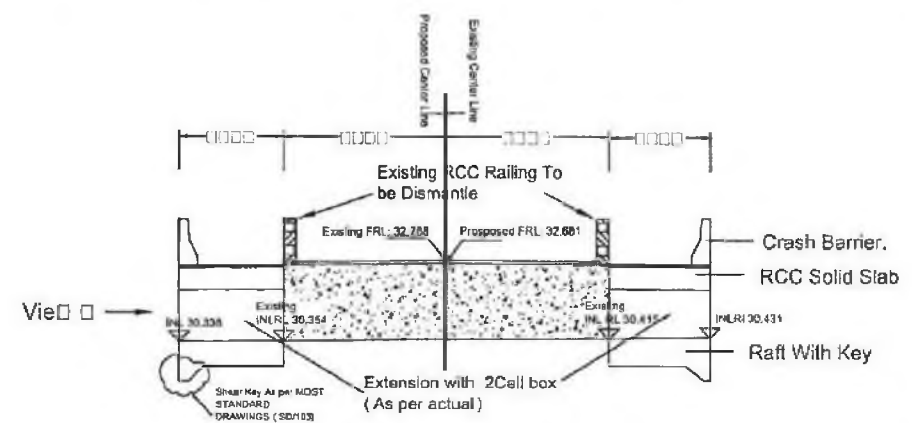
**HYDROLOGICAL DATA**

Design Discharge In (cum/Sec)	Max. scour Level In (m)	Depth of scour In (m)		Length of Rigid Apron In (m)		Length of Flexible Apron In (m)	
		u/s	d/s	u/s	d/s	u/s	d/s
		DCW <sub>1</sub>	DCW <sub>2</sub>	LRA <sub>1</sub>	LRA <sub>2</sub>	LFA <sub>1</sub>	LFA <sub>2</sub>
10.44	30.451	2.0	2.5	3.0	5.0	3.0	6.0

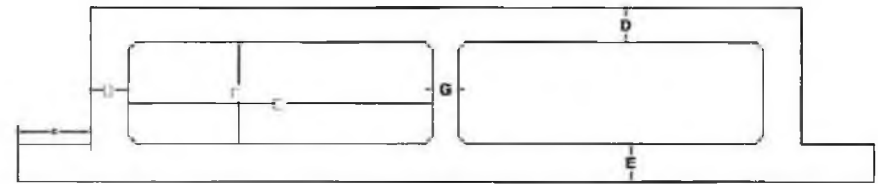
*Chief Engineer*  
**Dr. P. & R.**  
Odisha, Bhubaneswar



**PLAN OF EXISTING AND PROPOSED WIDENING**



**SECTION X-X**



**DIMENSION DETAILS OF BOX**

BOX TYPE	LOCATION	PROPOSED FRL	INVERT LEVEL		EXTENSION WIDTH		DIMENSIONS							HEIGHT OF RETURN WALL	LENGTH OF RETURN WALL
			RHS	LHS	RHS	LHS	A	B	C	D	E	F	G		
20330	18+878	32.661	30.43	30.414	2450	2550	6000	1550	1100	680	750	750	500	2750	3500

NO.	DATE	DESCRIPTION OF REVISIONS	BY	CHKD

**CEG CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Moji Colony, Malviya Nagar, Jaipur-17  
 Tel: +91-141- 2520899, 2521888, 2520558  
 Fax: 2521348, E-Mail: ceg@ceginia.com

CLIENT  
**ODISHA STATE ROADS PROJECT**

PROJECT  
**ODISHA STATE ROADS PROJECT**

TITLE  
**DRAWING OF EXISTING AND PROPOSED WIDENING OF Existing Irrigation STRUCTURE AT CH-18V/278 SH-53**

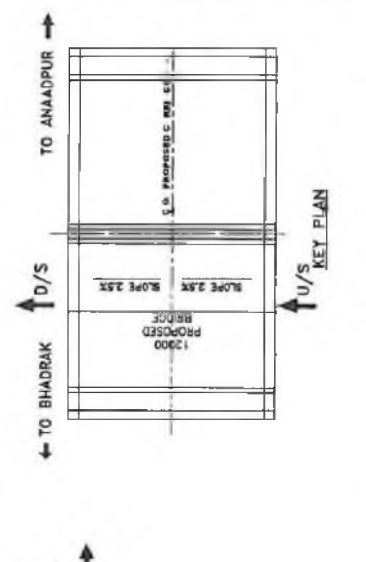
DATE:      DWG NO:      **OSP/SH-53/ROAD/CH-18V/278**      REV: 0

SHEET 1 OF 1  
 SCALE: MTS

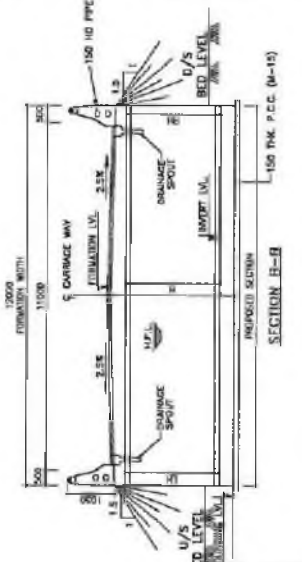
*Chief Engineer*  
**DPI & Roads**  
 Odisha, Bhubaneswar

Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)

- NOTES:**
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  - ONLY RETAINING DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
  - LOGS / UNSUBSIDIABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  - GRADE OF CONCRETE:
    - RETURN WALL - M-25
    - BOX - M-25
    - APPROACH SLAB - M-20
    - P.A.C. LEAN CONC. - M-15
  - CHANGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
  - FOR R.O.P.F. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
  - IN CASES WHERE INVERT LEVEL IS HIGHER THAN GROUND LEVEL AT ENDS OF STRUCTURE OR WHERE UNSUBSIDIABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE APPROPRIATE CUT OFF WALLS AT ENDS OF STRUCTURE TO PREVENT SCOUR/TOSSION.
  - ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG. NO. ODRP/CEG/SR/MISC-02
  - SITE PLAN ON SEPARATE SHEET.
  - FOR FLOOR PROTECTION DETAILS REFER SEPARATE DRAWING.



- REFERENCE DRAWING:-**
- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST ODRP/CEG/SR/284/100/02
  - FOR GENERAL NOTES/MECHANISMS DETAILS APPROACH SLAB, RCC CHANGING DRAINAGE SPOUT FLOOR PROTECTION WORKS REFER MOST ODRP/CEG/SR/287/101/02/113
  - GENERAL DRAWING OF BOXES NO. 287/101/02/113 (SHEET OF 4) (SHEET 2 OF 4), (SHEET 3 OF 4), (SHEET 4 OF 4) & 50/111.
  - ODRP/CEG/SR-4/BR/281/100/03
  - ODRP/CEG/SR/MISC-02
  - ODRP/CEG/SR-4/BR/170/01
  - ODRP/CEG/SR-4/BR/NSM
  - ODRP/CEG/SR-4/BR/MISC-02



**LOCATION PLAN OF JONK ROAD AT BRIDGE NO.3/200**

**DIMENSION DETAILS OF BOX**

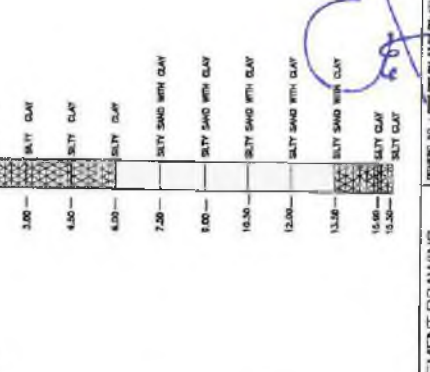
BOX NO.	HEIGHT (mm)	THICKNESS (mm)	INVERT (mm)	INVERT (mm)	INVERT (mm)	INVERT (mm)	INVERT (mm)	INVERT (mm)	INVERT (mm)
287/274/02	6000	2000	1100	880	700	500	350	200	150

**HYDROLOGICAL DATA**

Design Discharge Level in (cum³/sec)	W/F (m/s)	D/S (m/s)	D/S (m)	U/A (m/s)	S/A (m/s)	W/A (m/s)	D/W (m)	D/W (m)	Length of Flexible Apron in (m)	Length of Flexible Apron in (m)	Clear Height (mm)	
											U/A	D/W
104.37	34.012	2.5	3.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0

**UNDESIRABLE DATA**

DESIGN DISCHARGE LEVEL (m)	W/F (m/s)	D/S (m/s)	D/S (m)	U/A (m/s)	S/A (m/s)	W/A (m/s)	D/W (m)	D/W (m)	LENGTH OF FLEXIBLE APRON (m)	LENGTH OF FLEXIBLE APRON (m)	U/A (m/s)	D/W (m)	U/A (m/s)	D/W (m)
104.37	34.012	2.5	3.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0



**NOTE:**  
SOL. BELOW FOUNDING LEVEL UP TO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE CHANGE RIVER SAND TO GET THE REQUIRED S.B.C.

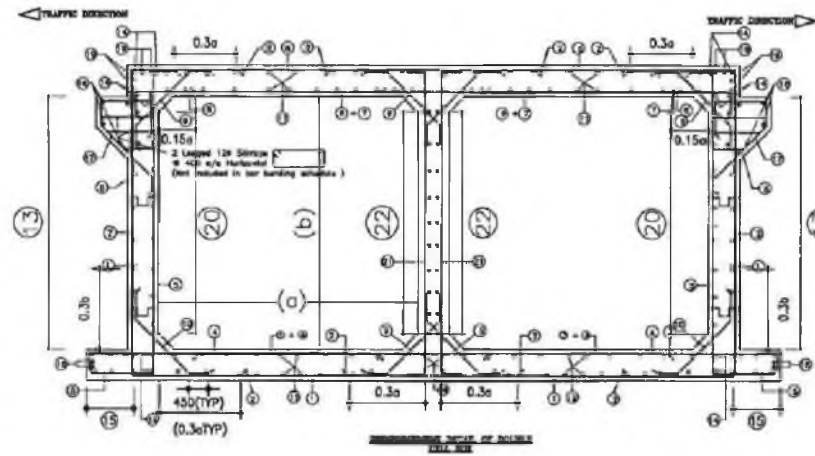
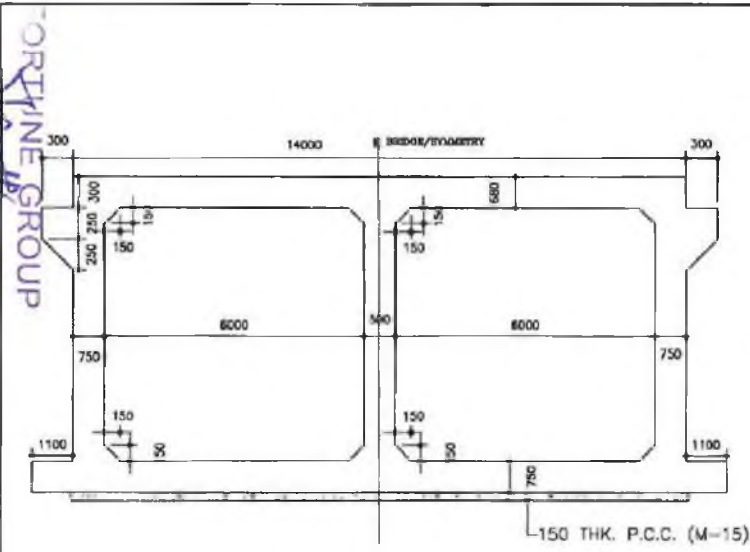
**FORLINE GROUP**  
Managing Partner

**CE CONSULTING ENGINEERS GROUP LTD.**  
Chief Engineer, DPI & Roads, Odisha (Employer)

**ODISHA STATE ROAD PROJECT**

GENERAL ARRANGEMENT DRAWING  
BRIDGE AT PROPOSED CH. 37+573

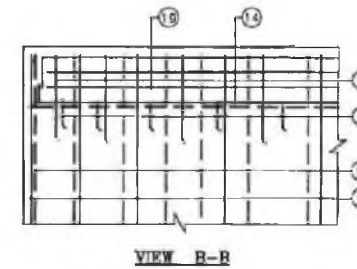
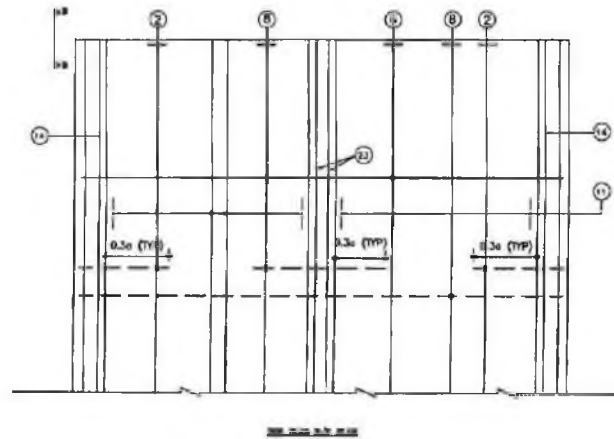
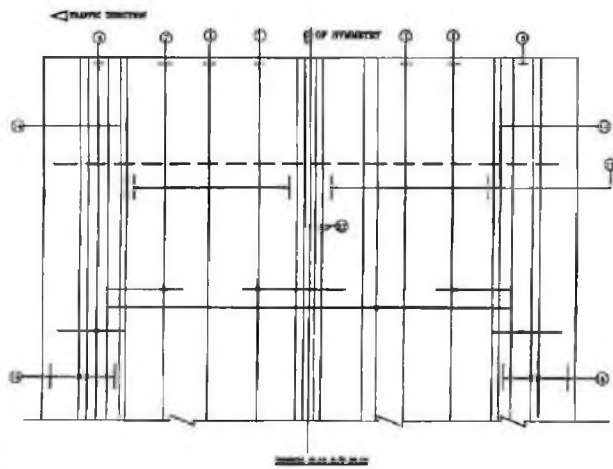
DATE: 21/08/23  
SCALE: 1:50  
SHEET NO: 03



REFERENCE DRAWING:-

1. OSRP/CEG/SH-9/BR/28+100/01

GRADE OF STEEL SHALL BE Fe500 AS PER IS-1786



REINFORCEMENT DETAIL  
DOUBLE CELL BOX

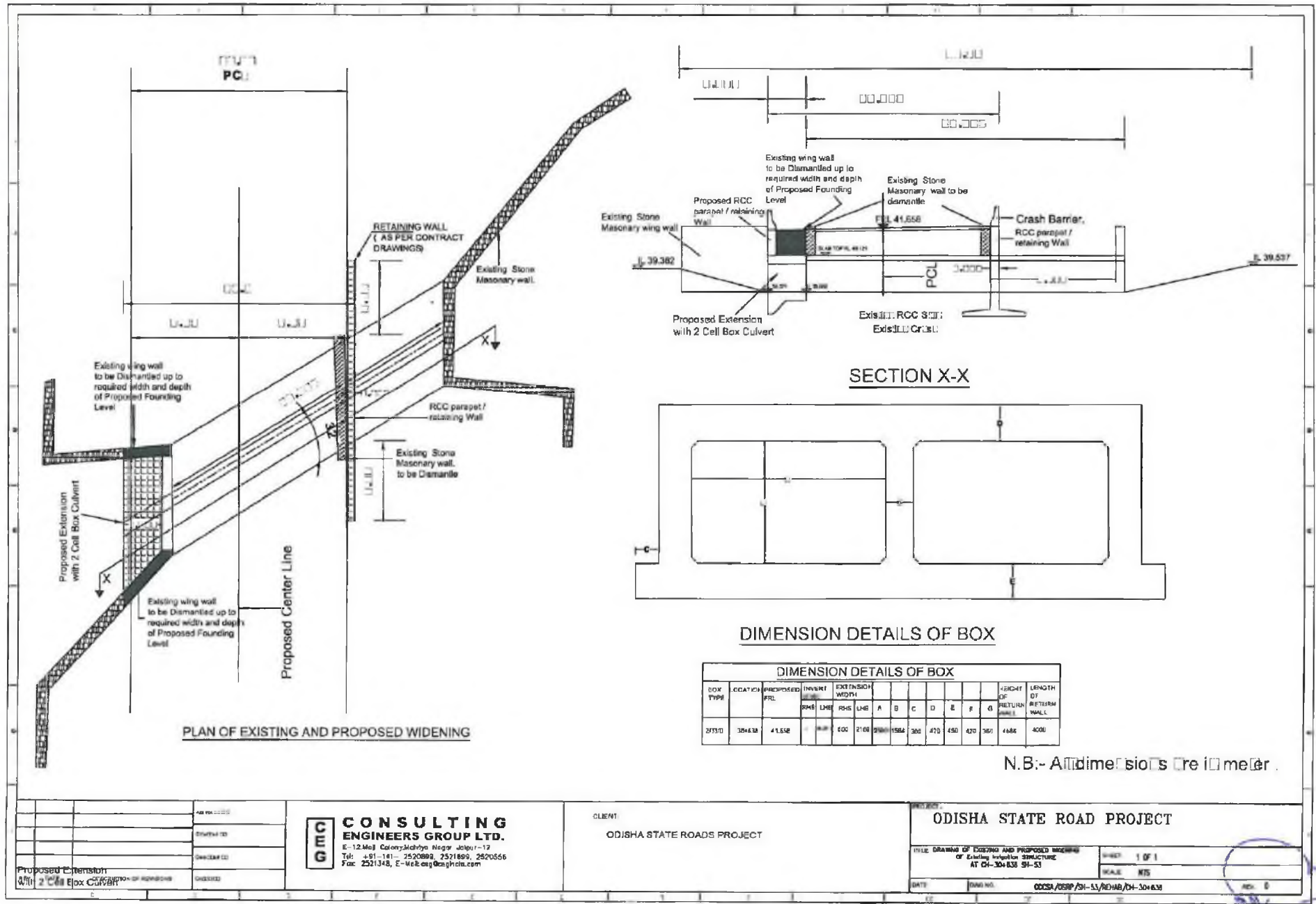
BAR MARK	BAR SHAPE	BAR DIA.	SPACING
1		16	200
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3		16	200
4		16	200
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7		16	200
8		16	200
9		16	200
10		16	200
11		16	200
12		16	200
13		16	200
14		16	200
15		16	200
16		16	200
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32		16	200
33		16	200
34		16	200
35		16	200
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37		16	200
38		16	200
39		16	200
40		16	200
41		16	200
42		16	200
43		16	200
44		16	200
45		16	200
46		16	200
47		16	200
48		16	200
49		16	200
50		16	200
51		16	200
52		16	200
53		16	200
54		16	200
55		16	200
56		16	200
57		16	200
58		16	200
59		16	200
60		16	200
61		16	200
62		16	200

*(Handwritten signature)*

**GMC CONSULTING ENGINEERS GROUP LTD.**  
 [12, M.J. Colony, Mahadev Nagar, Bhubaneswar-75]  
 Tel: +91-141-2570659, 2521865, 2526509  
 Fax: 2521248, E-Mail: eng@griffins.com

ODISHA STATE ROAD PROJECT

REINFORCEMENT DETAIL OF  
 DOUBLE CELL BOX  
 BRIDGE AT PROPOSED CH. 37+ Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar



PLAN OF EXISTING AND PROPOSED WIDENING

SECTION X-X

DIMENSION DETAILS OF BOX

DIMENSION DETAILS OF BOX														
BOX TYPE	LOCATION	PROPOSED PTL	INVERT	EXTENSION WIDTH		A	B	C	D	E	F	G	HEIGHT OF RETURN WALL	LENGTH OF RETURN WALL
			RMS	LMS	RMS	LMS								
21510	304633	41.558	4.00	6.00	21.00	28.00	15.84	300	470	450	470	300	4.00	400

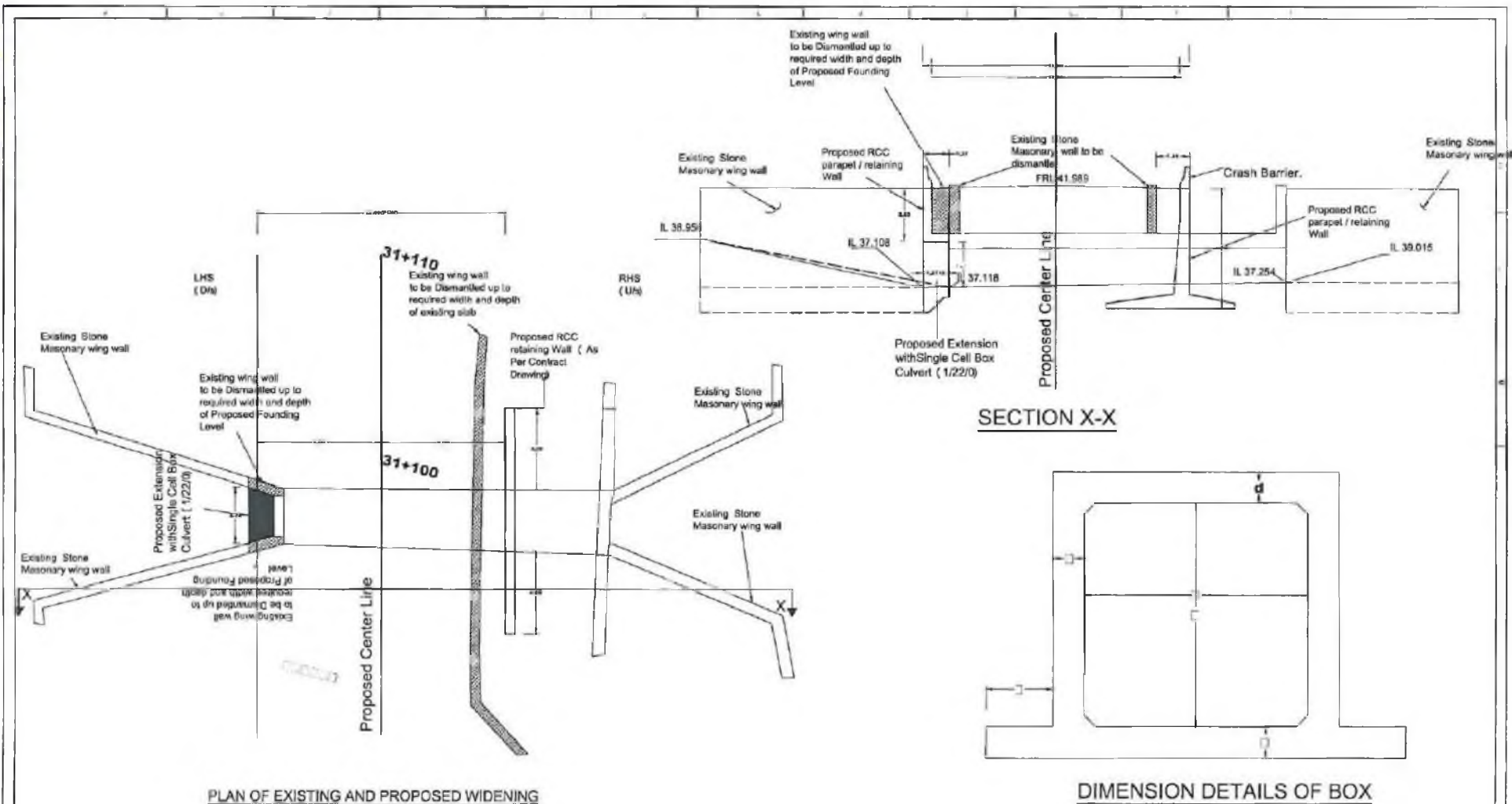
N.B:- All dimensions are in meter.

PROPOSED EXTENSION WITH 2 CELL BOX CULVERT	DATE: 15/08/2024
SCALE: AS SHOWN	PROJECT NO: OD/2023/SH-13/ROAD/DH-304633

**GMC CONSULTING ENGINEERS GROUP LTD.**  
 E-12 Mal Colony, Midway Nagar, Jaipur-12  
 Tel: +91-141-2520898, 2521899, 2520556  
 Fax: 2521343, E-Mail: eng@omgindia.com

CLIENT: ODISHA STATE ROADS PROJECT  
 PROJECT: ODISHA STATE ROAD PROJECT  
 TITLE: DRAWING OF EXISTING AND PROPOSED WIDENING OF EXISTING INFRASTRUCTURE AT CH-304633 SH-13  
 SHEET: 1 OF 1  
 SCALE: NTS  
 DATE: 15/08/2024  
 DRAWING NO: OD/2023/SH-13/ROAD/DH-304633

Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar



BOX TYPE	LOCATION	PROPOSED FRL	INVERT LEVEL	EXTENSION	WIDTH							HEIGHT OF RETURN WALL	LENGTH OF RETURN WALL
					RHS	LHS	A	B	C	D	E		
1030	31+100	41.98	- 11.86	190-1170	275	218	200	430	420	420	370	400	400


**GMC CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Maj Colony, Malviya Nagar, Jaipur-17  
 Tel: 91-141- 2520888, 2521889, 2520558  
 Fax: 2521348, E-Mail: ce@gmceindia.com

CLIENT:  
**ODISHA STATE ROADS PROJECT**

PROJECT:  
**ODISHA STATE ROAD PROJECT**

TITLE: **DRAWING OF EXISTING AND PROPOSED WIDENING OF EXISTING IMPROVED STRUCTURE AT CH-31+100 SH-53**

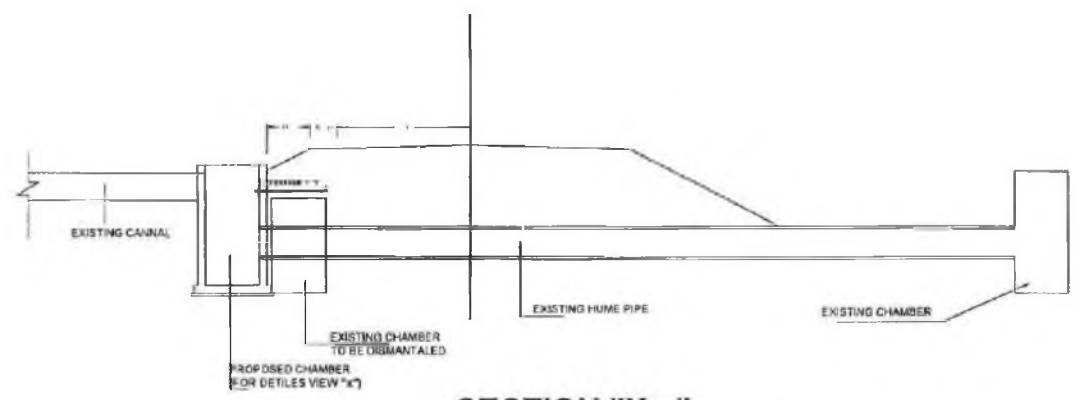
DATE: \_\_\_\_\_ CHECKED: \_\_\_\_\_ DESIGNED: **DSP/SH-53/REHA/CH-31+100** NO. 2

SCALE: **NTS**

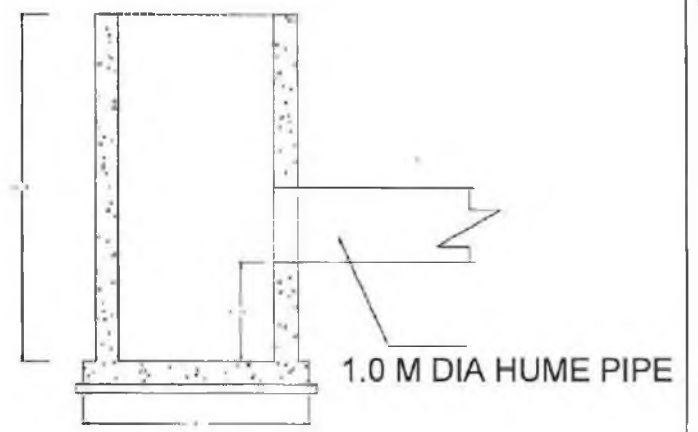
SHEET: **1 OF 1**

**Chief Engineer**  
**DPI & Roads**  
**Odisha, Bhubaneswar**

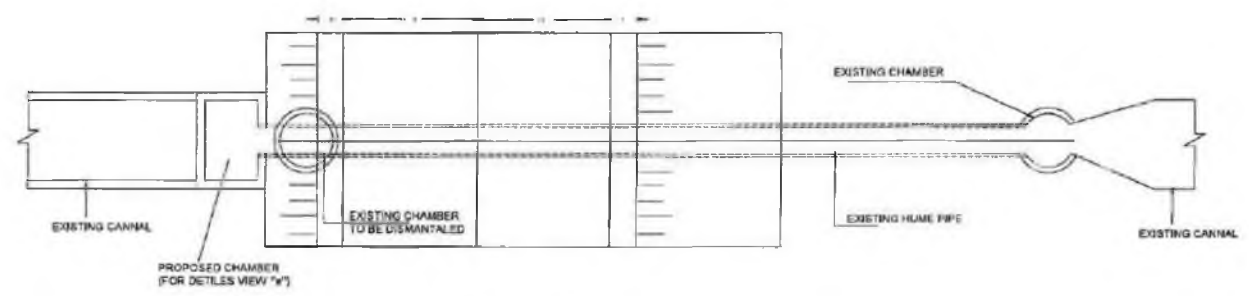
Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)



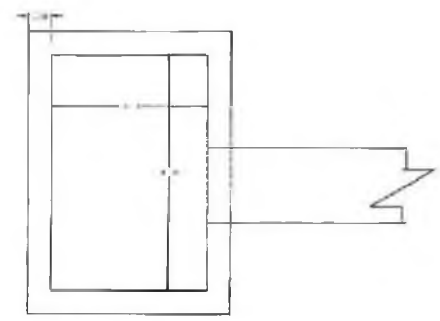
**SECTION "X-x"**



**SECTION Y-Y**



**PLAN**





**GMC CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Malviya Colony, Malviya Nagar, Jaipur-31  
 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521344, E-Mail: gmc@engineers.com

CLIENT:  
**ODISHA STATE ROADS PROJECT**

PROJECT:  
**ODISHA STATE ROAD PROJECT**

DRAWING OF EXISTING AND PROPOSED MEMBERS OF Existing Inspection STRUCTURE AT OH-32+900.51-53	SHEET 1 OF 1 SCALE: NTS
--	----------------------------

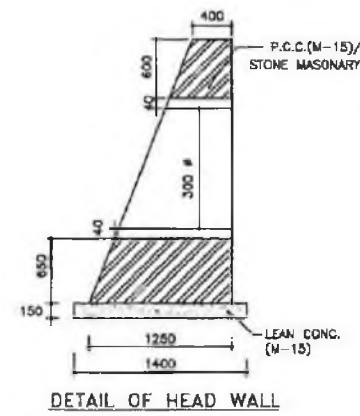
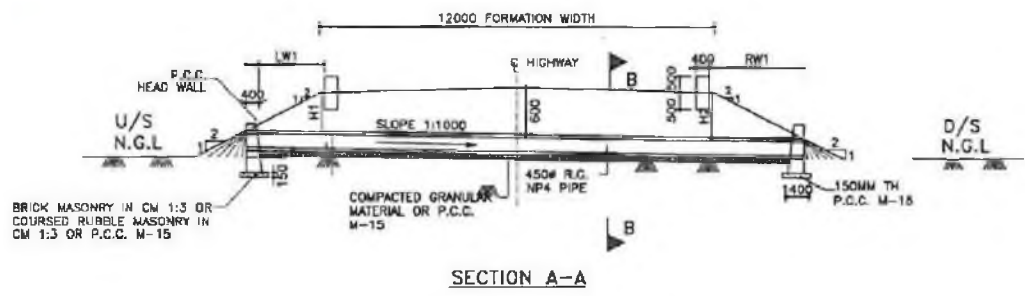
0589/54-53/ODIAB/OH-32-900

  
**Chief Engineer**  
**DPI & Roads**  
**Odisha, Bhubaneswar**

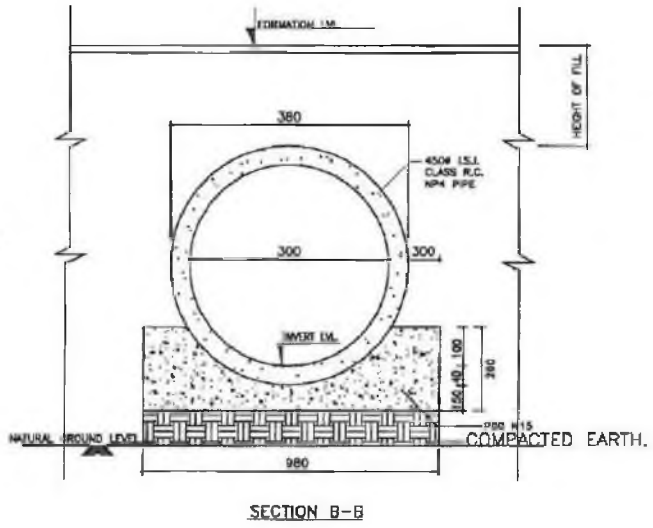
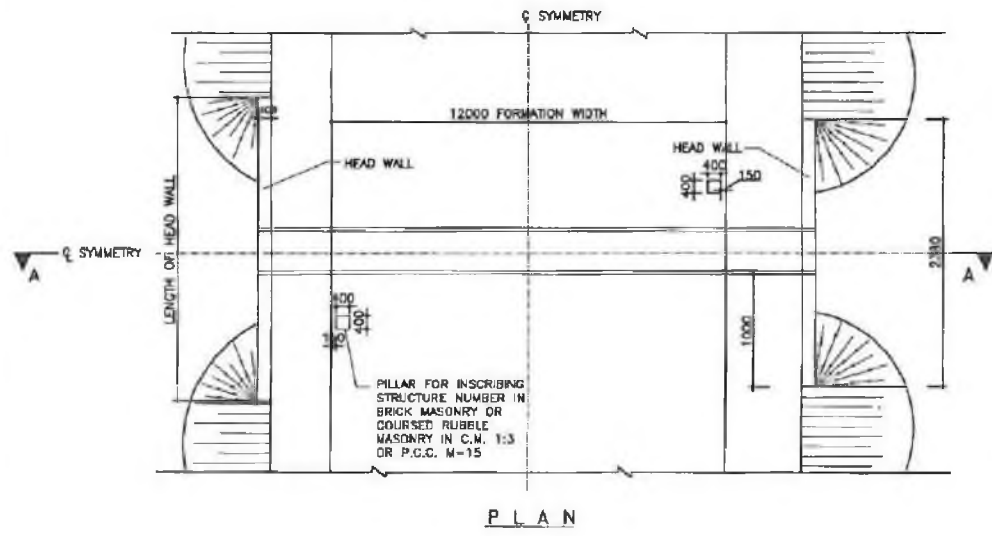


**NOTES:**

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
3. LOOSE / UNSUITABLE SOIL BELOW DUCT IS REPLACED WITH COMPACTED EARTH.
4. LONGITUDINAL SLOPE OF PIPE SHALL BE MIN. 1 IN 1000.
5. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.
6. HEIGHT OF FILL SHALL NOT BE LESS THAN 0.6M.



Sl.No.	Chainage
1	1740
2	11950
3	16600
4	20810
5	39820
6	40360




Chief Engineer,  
 DPI & Roads, Odisha  
 (Employer)

**CEG CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Maji Colony, Malviya Nagar Jaipur-17  
 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521348, e-mail: ceg@ceghdfo.com

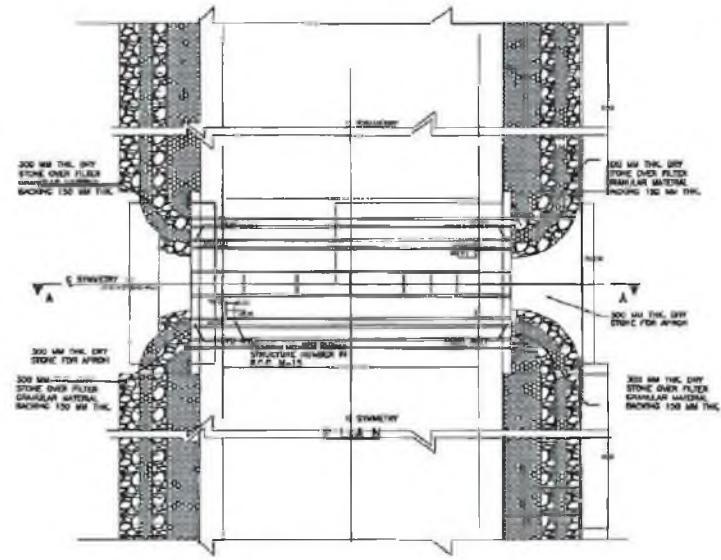
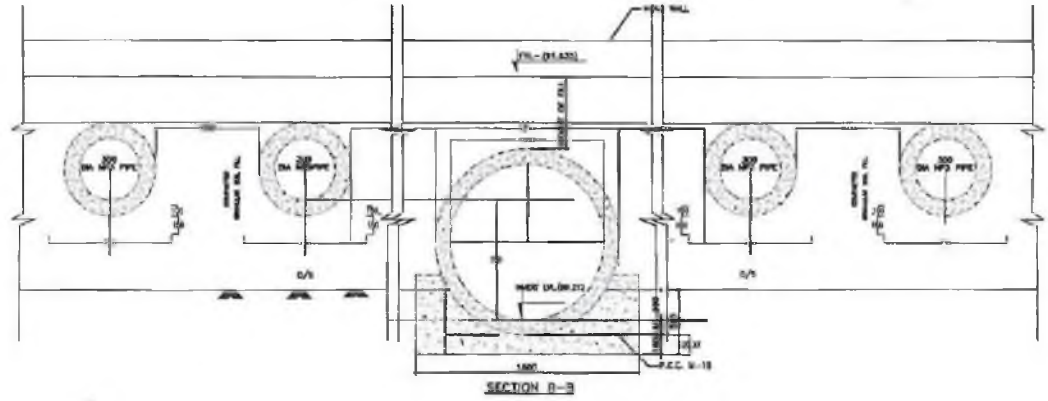
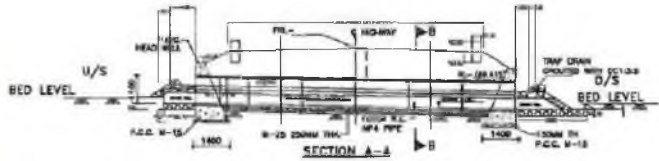
**PROJECT:-**  
 ODISHA STATE ROAD PROJECT

**TYPICAL ARRANGEMENT FOR UTILITY DUCT**

DRG NO.	OSRP/CEG/SH/UD/01	DESIGNED (A)	DRAWN (B)	CHECKED (C)	APPROVED (D)
SH. NO.	79	DATE	REV	RO	
SCALE	NTS	M	JYOTI	A.J.	S.G

  
**Chief Engineer**  
**DPI & Roads**  
**Odisha, Bhubaneswar**

# REPTILE UNDER PASS



### SCHEDULE

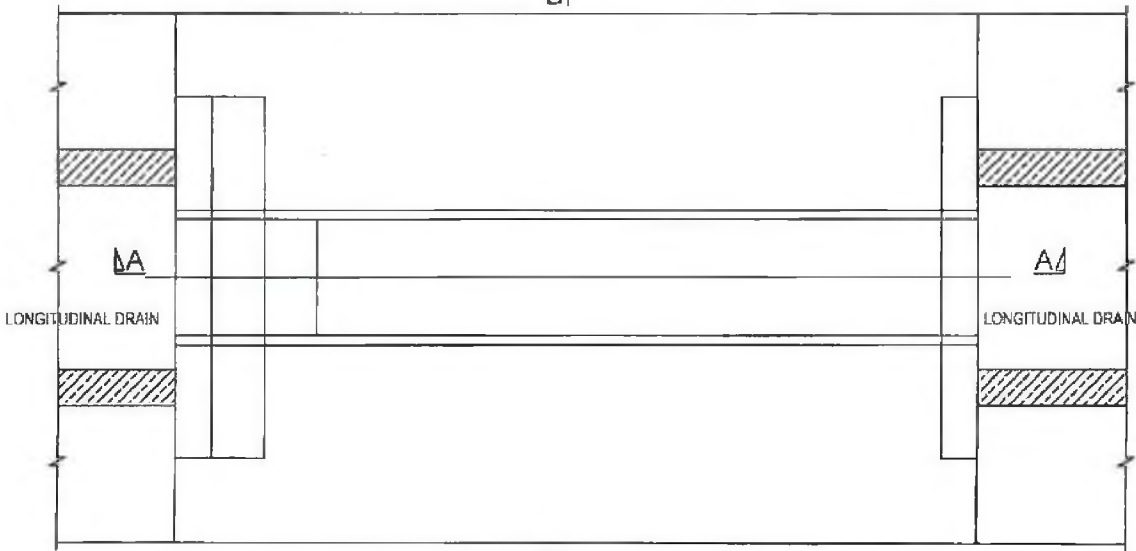
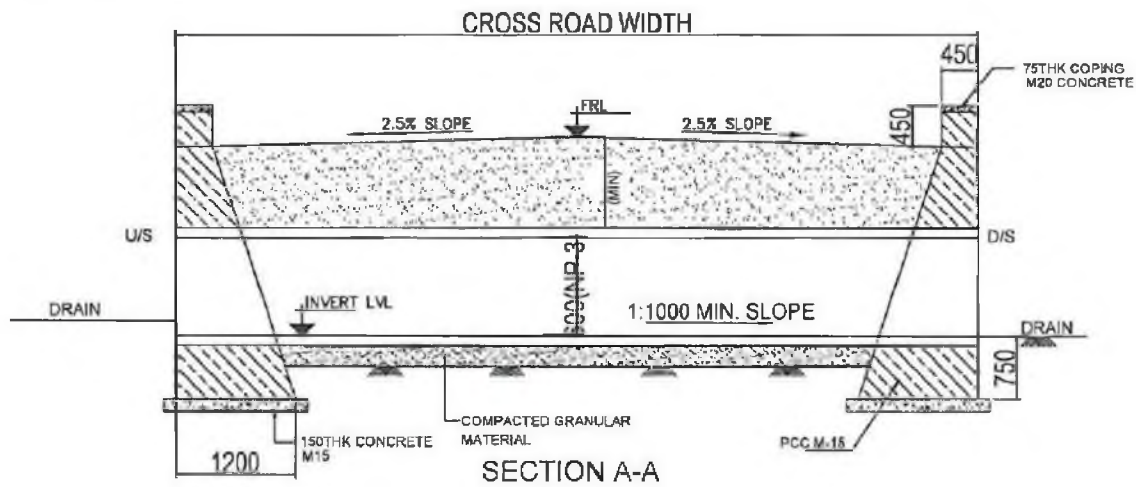
Sl. No	Proposed Chainage
1	11□869
2	17□200
3	41□100

**CEG CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Moji Colony, Malviya Nagar Jaipur-17  
 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521348, e-mail: ceg@cegindia.com

PROJECT:-  
 ODISHA STATE ROAD PROJECT

REPTILE UNDER PASS+GULVERT (GEN.) BHADRAX-ANANDPUR-BALANCE WORK			
DRG.NO.:	OSRP/ENV-14	REV. VI	APPROVED
SCALE -	NTS	EE/PMU	CE/WBP

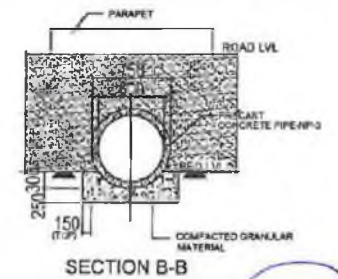
*Chief Engineer*  
**DPI & Roads**  
 Odisha, Bhubaneswar



TYPICAL PLAN FOR PIPE CULVERT ON CROSS ROAD

SCHEDULE OF CROSS DRAIN  
 SINGLE LANE BT ROAD/EARTHEN ROAD

Sl. No.	Channel Proposed	Site	Type	Type of Junction	Name of Village
1	1885	RHS	BT	T-Jn	Dharampur
2	1816	LHS	BT	T-Jn	Solan
3	1203	LHS	BT	T-Jn	Sarabali
4	1474	LHS	BT	T-Jn	Burman
5	1711	RHS	BT	T-Jn	Ud
6	1500	LHS	BT	T-Jn	Barkul
7	1633	LHS	BT	T-Jn	B.R.(P.S)
8	1472	LHS	BT	T-Jn	Maram
9	1618	LHS	BT	T-Jn	Semla
10	1154	RHS	BT	T-Jn	Hampali
11	3382	LHS	BT	T-Jn	Soda
12	3541	LHS	BT	T-Jn	Soda
13	2881	LHS	BT	T-Jn	Mukunda
14	3547	RHS	BT	T-Jn	Dharampur
15	4244	LHS	BT	T-Jn	Talpur
16	4057	LHS	BT	T-Jn	Falpur



SECTION B-B

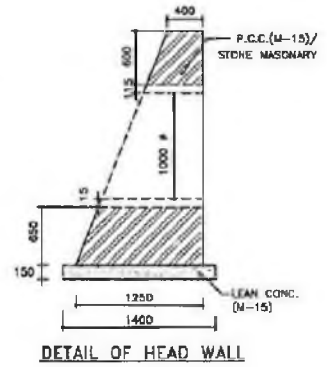
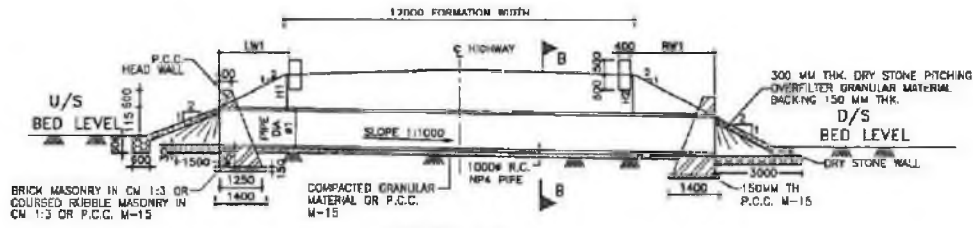
**CEG CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Malvi Colony, Malviya Nagar Jaipur-17  
 Tel: +91-141-2520899, 2521899, 2520556  
 Fax: 2521348, e-mail: ceg@cegindia.com

PROJECT:-  
 ODISHA STATE ROAD PROJECT

STANDARD DRAWINGS  
 TYPICAL - CROSS DRAIN  
 SINGLE LANE BT ROAD/EARTHEN ROAD  
 (BHADRAK-ANANDPUR-BALANCE WORK)

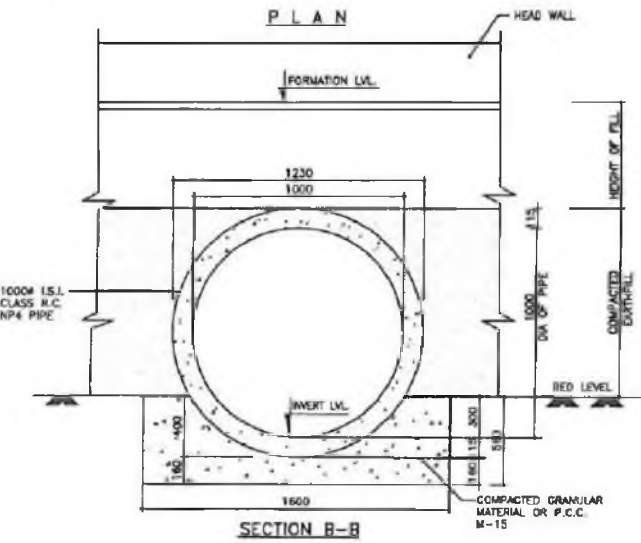
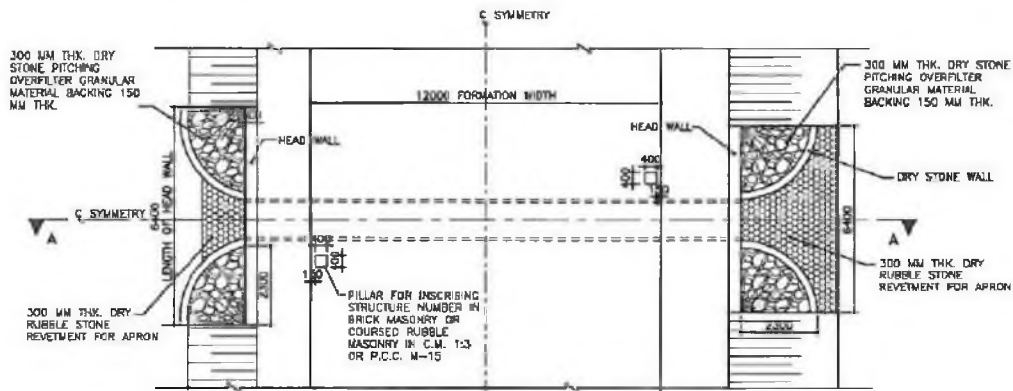
DRG NO.	DATE	REV	R-1	DESIGNED BY	DRAWN BY	REV BY	APPROVED
SH. NO. 21	18/01/13			CEG	CEG	EE/PMU	CE/WBP
SCALE	NTS						

Chief Engineer  
 Dpt & Roads  
 Odisha, Bhubaneswar



- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DO NOT SCALE THE DIMENSIONS.
  3. LOOSE / UNSUITABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  4. CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE.
  5. FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
  6. LONGITUDINAL SLOPE OF PIPE SHALL BE MIN. 1 IN 1000.
  7. FIRST CLASS BEDDING CAN BE USED FOR MAXIMUM HEIGHT OF FILL OF 6.0 M.
  8. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.

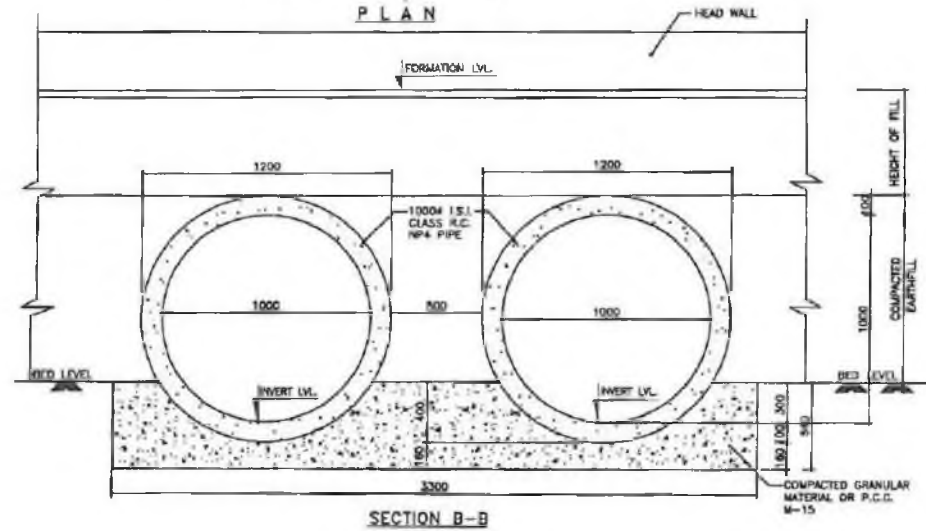
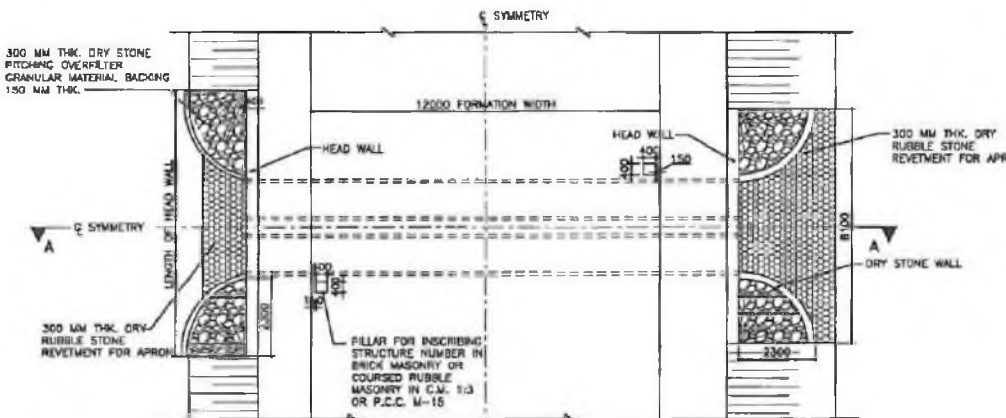
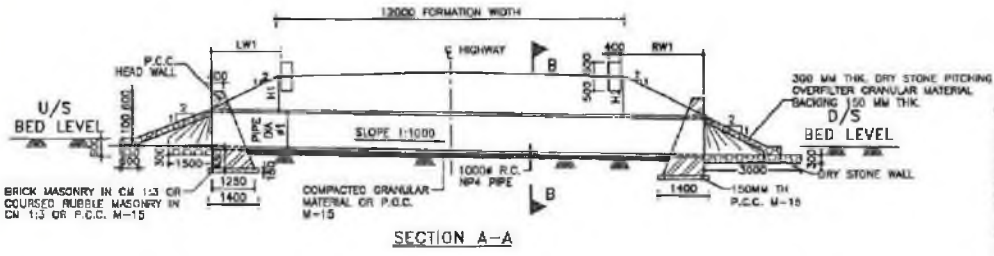
- REFERENCE DRAWING:**
- 1 FOR FLOOR PROTECTION WORK → CSR/P/CEG/SHS3/BR/FPW/01
  - 2 FOR TOE WALL → CSR/P/CEG/SHS3/EW/03



SINGLE PIPE CULVERTS LEVEL DETAIL

Sl. No.	Location	Proposed Chainage	Proposed Formation Level	Bed level		Camber/Super Elevation		Height of Fill		LWT	RWI	Direction of flow	Total Length	No. of Pipes
				LeR	Right	Left	Right	Left (H1)	Right (H2)					
1	8900	8956	25.884			2.50	2.50					R TO L	17.5	7
2	11000	11257	26.241	25.19	24.87	-2.50	-1.05	0.7	0.6	1.3	1.3	R TO L	14.6	6
3	11800	11855	26.740	26.10	24.87	-4.50	-4.80	0.7	0.6	1.3	1.3	R TO L	14.6	6
4	12500	12890	27.780	25.86	25.98	-4.31	-4.31	1.0	0.8	1.9	1.9	R TO L	15.8	7
5	12900	12980	27.878			-3.21	-3.21					R TO L	17.5	7
6	13500	13607	27.744	26.57	26.16	-2.50	-2.50	0.7	0.7	1.4	1.3	R TO L	14.7	6
7	16500	15610	30.784			-2.50	-2.50					R TO L	15.0	6
8	18400	18444	32.052	30.31	30.31	-1.74	-2.50	1.0	1.0	2.1	2.0	R TO L	16.1	7
9	18400	18446	32.046	30.10	30.30	-2.50	-2.50	0.8	0.8	1.6	1.6	R TO L	15.2	6
10	24700	24265	36.855			-2.50	-2.50					R TO L	17.5	7
11	26300	26351	38.836	36.54	36.54	-2.50	-2.50	0.7	0.6	1.3	1.3	R TO L	14.6	6
12	27700	27733	39.157	37.32	37.32	-2.50	-2.50	0.7	0.7	1.4	1.4	R TO L	14.8	6
13	28100	28159	40.832	39.20	39.33	-2.50	-2.50	0.6	0.6	1.2	1.2	R TO L	14.5	6
14	29200	29250	40.866	39.10	39.20	-2.50	-2.50	0.8	0.8	1.6	1.5	R TO L	15.1	6
15	29800	29955	41.186	38.54	38.28	-2.50	-2.50	0.6	0.6	1.2	1.2	R TO L	17.5	7
16	34000	34235	44.518			-2.50	-2.50					R TO L	15.0	6
17	41800	41800	42.140			-2.50	-2.50					R TO L		



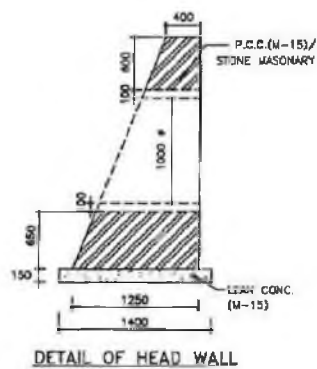


**DOUBLE PIPE CULVERTS LEVEL DETAIL**

Sl. No.	Location	Proposed Channel	Proposed Level	Existing Level	Height of Fill	Division of Bed	Total Length	Width of Pipes
1	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...
29	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	...	...
33	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...
37	...	...	...	...	...	...	...	...
38	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	...	...
41	...	...	...	...	...	...	...	...
42	...	...	...	...	...	...	...	...
43	...	...	...	...	...	...	...	...
44	...	...	...	...	...	...	...	...
45	...	...	...	...	...	...	...	...
46	...	...	...	...	...	...	...	...
47	...	...	...	...	...	...	...	...
48	...	...	...	...	...	...	...	...
49	...	...	...	...	...	...	...	...
50	...	...	...	...	...	...	...	...

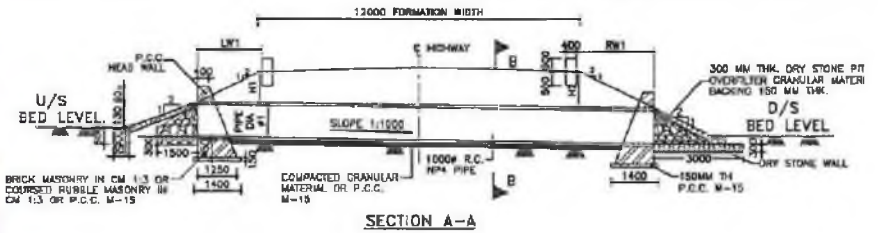
- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
  3. LOOSE / UNSUITABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  4. CHARGES / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE.
  5. FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
  6. LONGITUDINAL SLOPE OF PIPE SHALL BE MIN. 1 IN 1000.
  7. FIRST CLASS BEDDING CAN BE USED FOR MAXIMUM HEIGHT OF FILL OF 4.0 M.
  8. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.

- REFERENCE DRAWING:**
- 1 FOR FLOOR PROTECTION WORK ⇒ OSRP/CEG/SHS3/ER/FPW/01
  - 2 FOR THE WALL ⇒ OSRP/CEG/SHS3/EVN/03

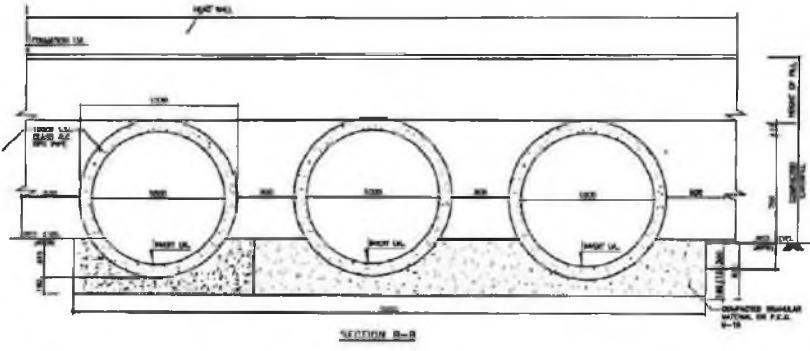
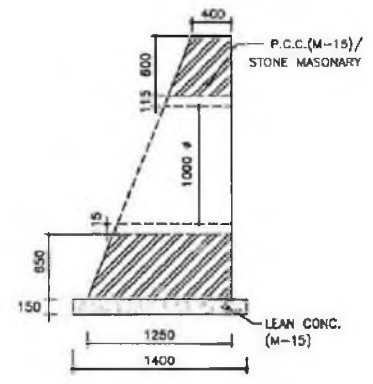
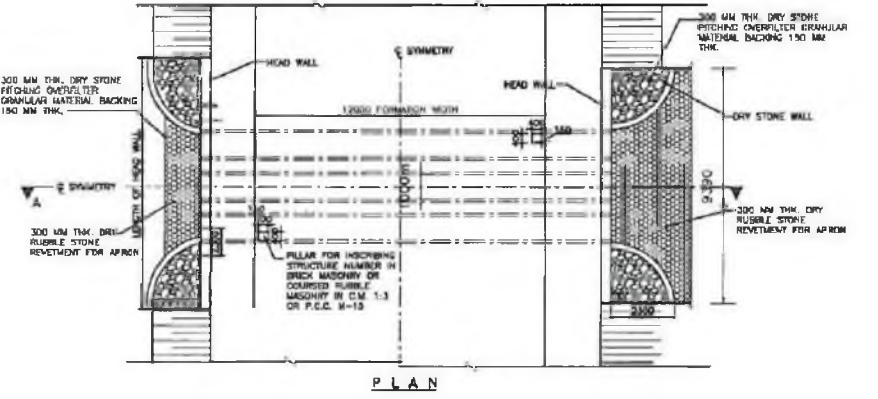


**Chief Engineer**  
DPI & Roads  
Dishu, Bhubaneswar

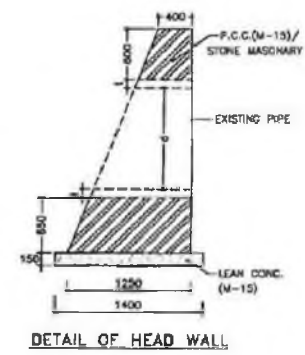
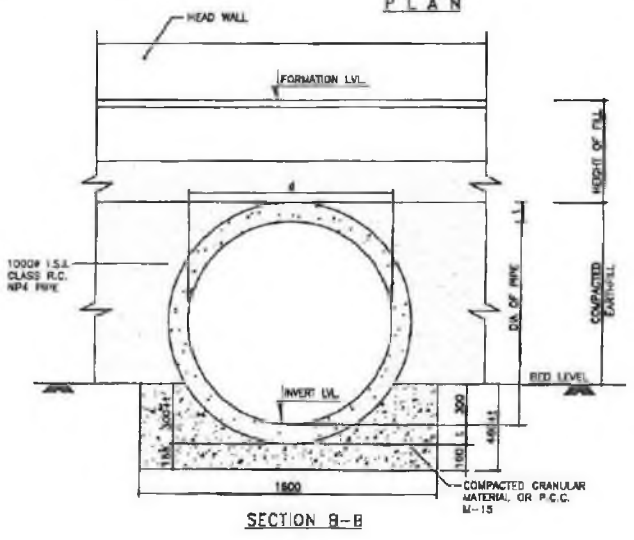
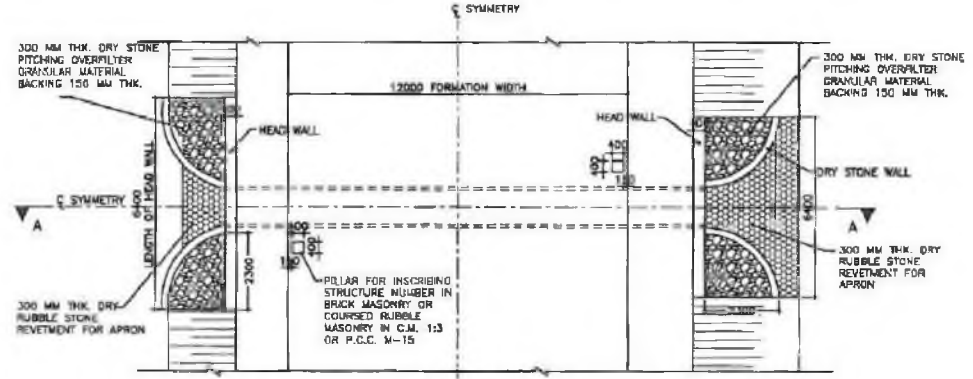
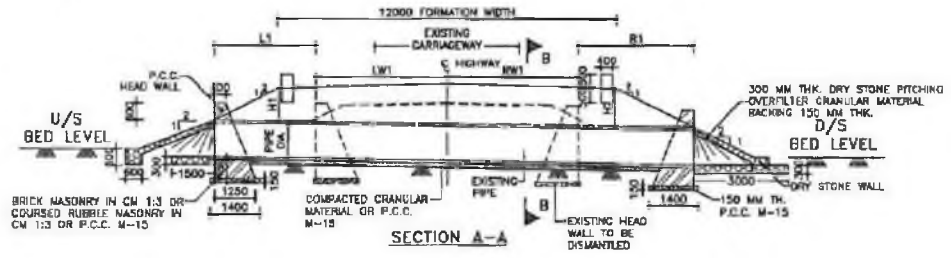
Fortune Grouping Partner  
 FORTUNE GROUP



Sl. No.	Location	Proposed Chainage	Proposed Formation Level	Bed Level		Invert	FIVE ROW PIPE CULVERT		Direction of flow
				Left	Right		Camber/Super Elevation		
							Left	Right	
1	277100	27120	34.521			-2.50	-2.50	L TO R	



SQ  
 Chief Engineer  
 DRI & Roads  
 Odisha, Bhubaneswar



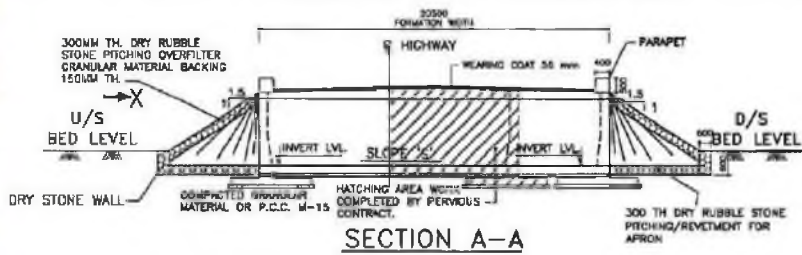
\*  $\phi$  - DIA OF EXISTING PIPE  
\* L - THICKNESS OF EXISTING FIVE

- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
  3. LOOSE / UNSUITABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  4. CHAIRAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE.
  5. FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
  6. FIRST CLASS BEDDING CAN BE USED FOR MAXIMUM HEIGHT OF FILL OF 4.0 M.
  7. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.

**PIPE CULVERTS LEVEL DETAIL (WIDENING CASES)**

SL. No.	Location	Proposed Change	Existing pipe dia	Proposed formation level	Bed level		Chamber/Elevations		LWS   RWS	Height of fill (MS   BS)		Direction of flow	Total widening (L   R)		No. of Pipes
					Left	Right	Left	Right		Left	Right		Left	Right	
1	1100	807	2.63	25.8	23.82	24.03	23.03	23.03	27	5.2	2.2	W/TOL	4.9	2.2	4
2	1100	1100	1.99	27.71	25.06	26.00	25.03	25.03	41	7.8	6.8	W/TOL	3.8	4.5	2
3	1100	1100	2.83	29.27	24.43	25.48	24.43	24.43	28	6.8	7.7	W/TOL	1.7	2.5	2
4	1100	1100	2.13	31.36	25.93	26.28	25.93	25.93	24	2.8	1.4	W/TOL	0.4	0.3	2
5	1100	1100	1.63	31.74	25.83	26.87	25.83	25.83	45	2.7	2.8	W/TOL	1.0	1.1	2
6	1100	1100	2.83	29.27	24.43	25.48	24.43	24.43	44	4.5	4.7	W/TOL	1.2	1.3	2
7	1100	1100	2.83	29.27	24.43	25.48	24.43	24.43	39	5.3	6.8	W/TOL	2.2	3.1	2
8	1100	1100	2.83	29.27	24.43	25.48	24.43	24.43	42	4.8	2.4	W/TOL	0.7	0.8	2
9	1100	1100	1.63	31.74	25.83	26.87	25.83	25.83	32	2.4	0.7	W/TOL	0.3	0.4	2

*(Handwritten signature)*



Sl. No	Location	Proposed Drainage	Proposed Formation Level		Bed Level		Invert Level	Camber/Superelevation		Direction of Flow	Clear Height	Thickness			Height of Return Wall	Length of Return Wall	
			Left	Right	Left	Right		Left	Right			b	a	d			
1	107K	-122	11.28	10.17	10.32	10.20	11.20	-1.50%	1:50	1:50	3.0	3.0	0.50	0.50	0.50	0.50	5.1

**NOTES:**

- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
- ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
- LOOSE / UNSUITABLE SOIL BELOW BOX CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
- IN CASE DEPTH OF EARTH FILLING BETWEEN THE TOP OF THE CULVERT AND THE BOTTOM OF THE PAVEMENT CRUST IS LESS THAN 500 MM, THIS LAYERS IS REPLACED WITH GRANULAR SUB BASE.
- CHAMBER / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
- FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
- FOR REINF. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
- IN CASES WHERE INVERT LEVEL IS HIGHER THAN GROUND LEVEL AT ENDS OF CULVERT OR WHERE UNSUITABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE ADEQUATE CUT OFF WALLS AT ENDS OF CULVERT TO PREVENT SCOUR/EROSION.
- IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

**REFERENCE DRAWING:**

- FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB, RCC RAILING, DRAINAGE SPOUT REFER MOST STANDARD DRAWINGS OF CULVERTS NO SD/101, SD/115, SD/111
- FOR REINFORCEMENT → OSRP/CEG/SH53/BOX CUL-02
- FOR RETURN WALL → OSRP/CEG/SH53/RW/MISC-01
- FOR FLOOR PROTECTION WAJRK → OSRP/CEG/SH53/BR/FPN/01
- IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

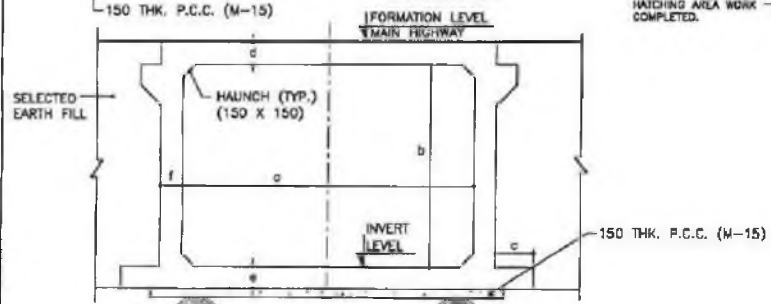
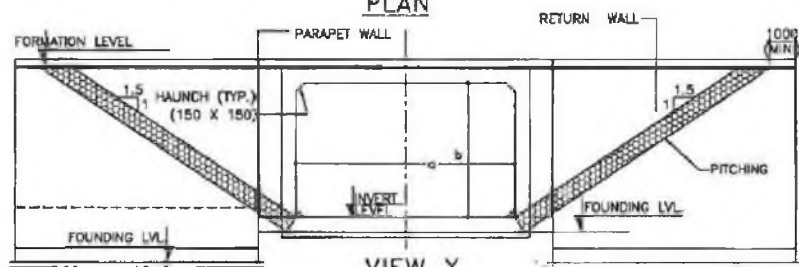
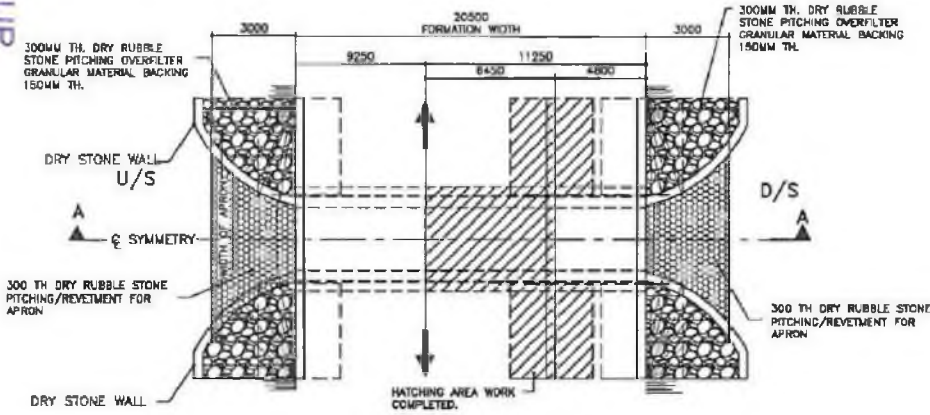


TABLE SHOWING SALIENT DIMENSIONS

BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	h (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	NET BEARING CAPACITY $\gamma/a^2$
1/23/0	3000	2000	500	350	350	300	10
1/23/0	3000	3000	1300	370	420	350	10
1/33/0	3000	3000	600	420	420	420	15
1/34/0	3000	4000	1700	450	480	480	15
1/43/0	4000	3000	400	450	500	500	15
1/44/0	4000	4000	1200	480	550	550	15
1/45/0	4000	3000	1800	520	620	630	15
1/63/0	6000	3000	300	650	730	720	10
1/64/0	6000	4000	300	650	720	750	15

**Chief Engineer**  
**DPI & Roads**  
**Bhubaneswar**



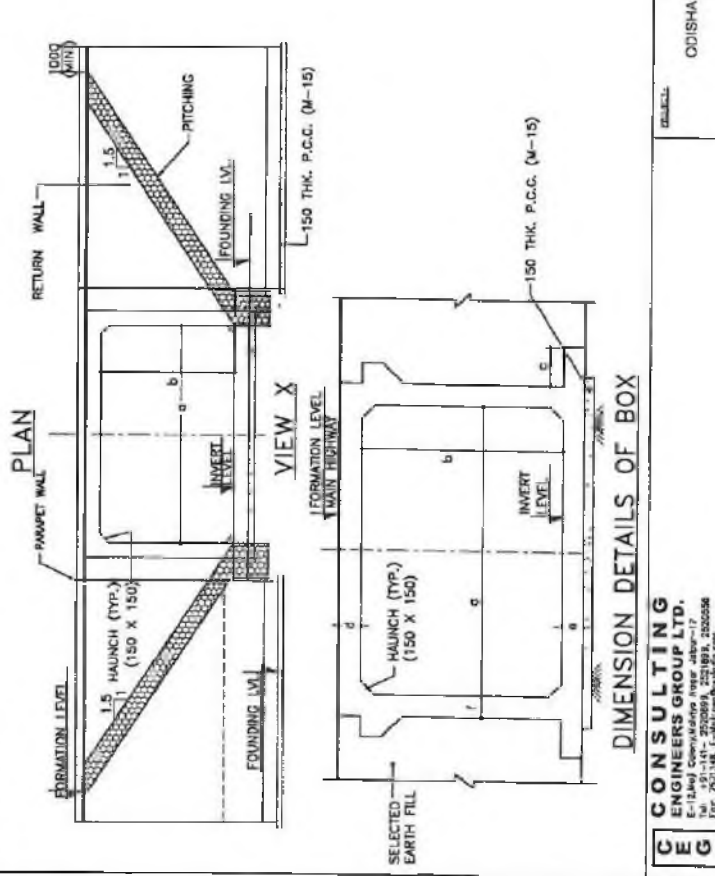
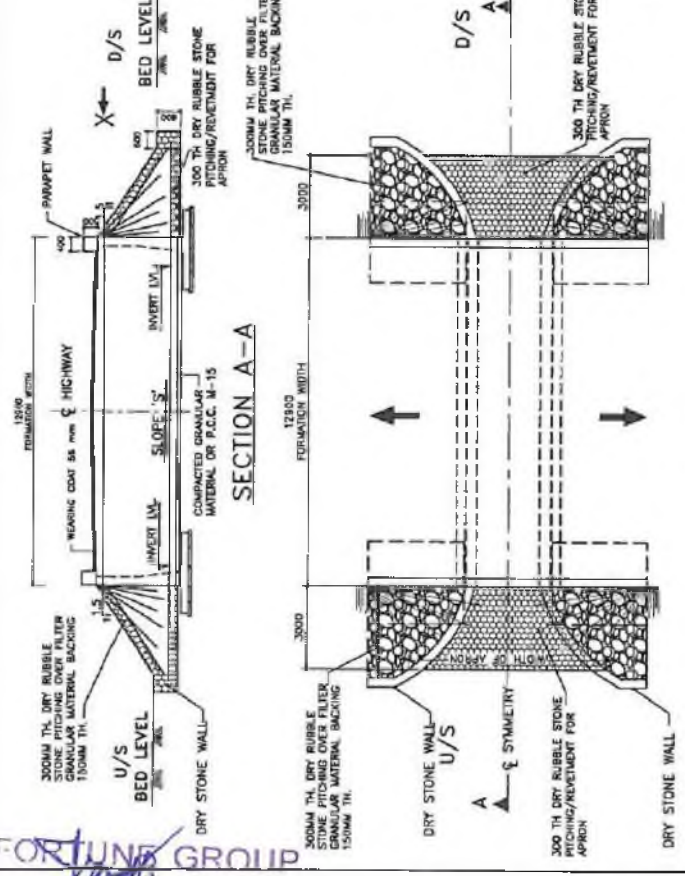
**NOTES:**

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DO NOT SCALE THE DIMENSIONS.
3. LOSSE / UNSUITABLE SOIL BELOW BOX CULVERTS IS REPLACED WITH SURSABLE GRANULAR MATERIAL.
4. IN CASE DEPTH OF EARTH FILLING BETWEEN THE TOP OF THE CULVERT AND THE BOTTOM OF THE PAVEMENT CRUST IS LESS THAN 500 MM, THIS LAYER IS REPLACED WITH GRANULAR SUB BASE.
5. CHANGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
6. FOR CULVERTS SKEN TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
7. FOR REM. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
8. IN CASES WHERE INVERT LEVEL IS HIGHER THAN GROUND LEVEL AT ENDS OF CULVERT OR WHERE UNSUITABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE ADEQUATE CUT OFF WALLS AT ENDS OF CULVERT TO PREVENT SCOUR/EROSION.
9. IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

**REFERENCE DRAWING:**

1. FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB RCC RAILING, DRAINAGE SLOUT REFER MOST STANDARD DRAWINGS OF CULVERTS NO 50/101, 50/115, 50/111
2. FOR REINFORCEMENT - OBRP/CEG/SHS/BOX CUI-02
3. FOR RETURN WALL - OBRP/CEG/SHS/WH/MISC-01
4. FOR FLOOR PROTECTION WORK - OBRP/CEG/SHS/BR/FPW/01
5. FOR TOE WALL - OBRP/CEG/SHS/WH/03

No.	Location	Proposed Formation Level				Invert Level				Clear Height of Road				Height of Return Wall	Length of Return Wall
		Left	Right	Left	Right	Left	Right	Left	Right	b	c	d	e		
1	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
2	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
3	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
4	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
5	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
6	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
7	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
8	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
9	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
10	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
11	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80
12	12550	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80



**Fortune Group**  
Managing Partner

**CEG CONSULTING ENGINEERS GROUP LTD.**  
E-12(A) Connaught Place, Jyoti-17  
New Delhi-110028, India. Tel: 2610141, 2610142, 2610143  
Fax: 2612146, E-mail: info@cegpl.com

Chief Engineer,  
DPI & Roads, Odisha  
(Employer)

**TABLE SHOWING SALIENT DIMENSIONS**

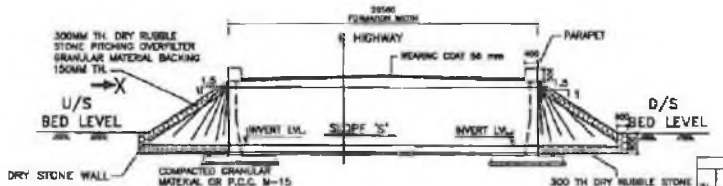
BOX TYPE	W (mm)	H (mm)	INCREASE (mm)	INCREASE (mm)	INCREASE (mm)	NET WALL CAPACITY T/A²
1/22/0	2000	2000	300	300	300	15
1/23/0	2000	2000	300	370	420	15
1/23/0	3000	3000	800	420	420	15
1/24/0	3000	3000	1200	450	480	15
1/43/0	4000	3000	160	450	500	15
1/43/0	4000	3000	300	450	500	15
1/43/0	4000	3000	450	500	500	15
1/43/0	4000	3000	600	500	500	15
1/43/0	4000	3000	750	500	500	15
1/43/0	4000	3000	900	500	500	15
1/43/0	4000	3000	1050	500	500	15

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GENERAL ARRANGEMENT DRAWING  
SINGLE CELL R.C.C. BOX CULVERT

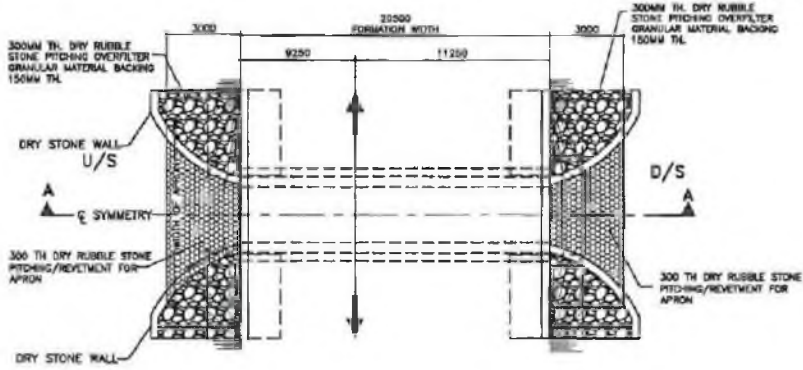
ODISHA STATE ROAD PROJECT

CEG CONSULTING ENGINEERS GROUP LTD.  
E-12(A) Connaught Place, Jyoti-17  
New Delhi-110028, India. Tel: 2610141, 2610142, 2610143  
Fax: 2612146, E-mail: info@cegpl.com

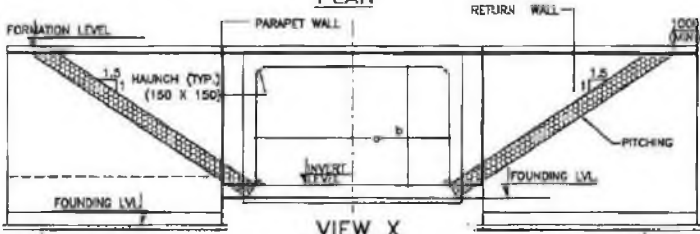


**SECTION A-A**

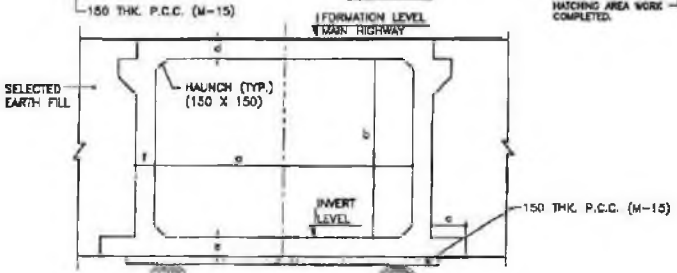
BOX CULVERT DATA											
Sl. No.	Location	Proposed Channel	Proposed Formation Level	Bed Level	Level	Description	Direction of flow	Clear (M)	Thick (mm)	Thick (mm)	Thick (mm)
1	2	3	4	5	6	7	8	9	10	11	12
1											



**PLAN**



**VIEW X**



**DIMENSION DETAILS OF BOX**

**NOTES:**

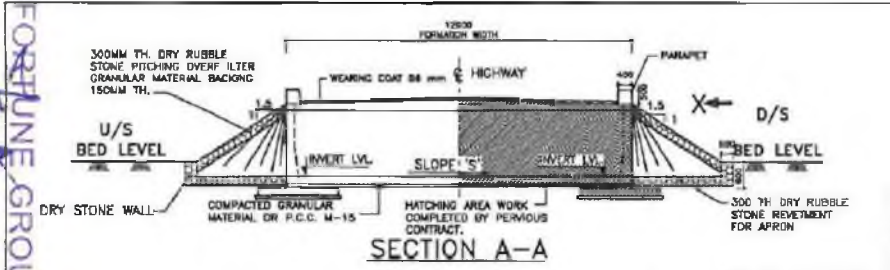
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- IN CASE DEPTH OF EARTH FILLING BETWEEN THE TOP OF THE CULVERT AND THE BOTTOM OF THE PAVEMENT CURST IS LESS THAN 500 MM, THIS LAYERS IS REPLACED WITH GRANULAR SUB BASE.
- CHANGNE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
- FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
- FOR REINF. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
- IN CASES WHERE INVERT LEVEL IS HIGHER THAN GROUND LEVEL AT ENDS OF CULVERT OR WHERE UNSUITABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE ADEQUATE CUT OFF WALLS AT ENDS OF CULVERT TO PREVENT SOODUR/EROSION.
- IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

**REFERENCE DRAWING:**

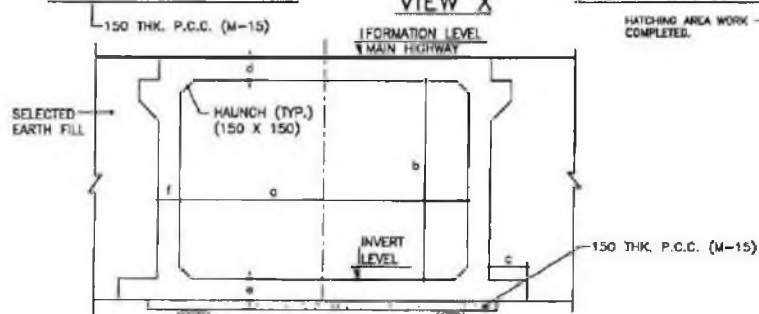
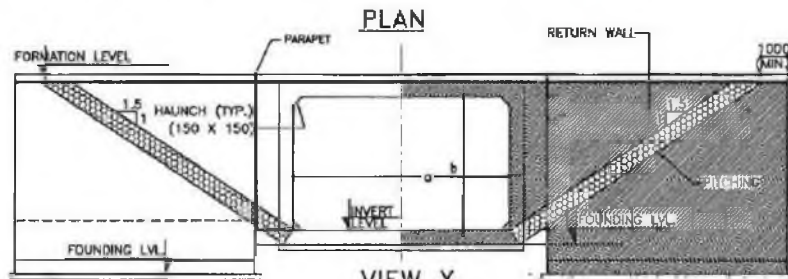
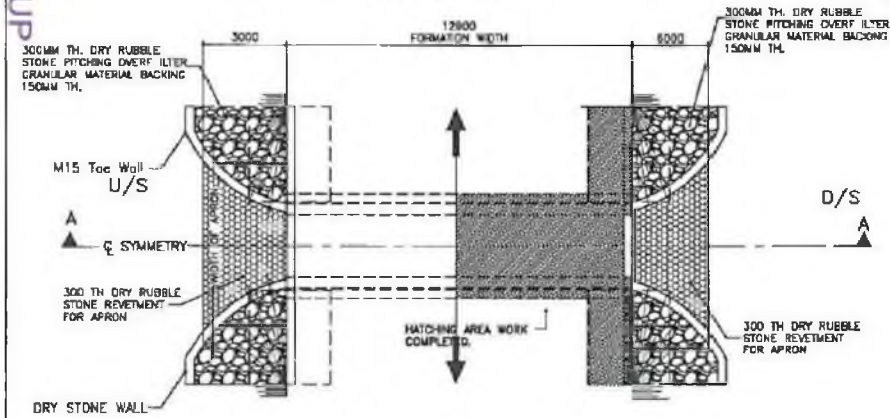
- FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB RCG RAILING, DRAINAGE SPOUT REFER STANDARD DRAWINGS OF CULVERTS NO SD/101, SD/115, SD/111
- FOR REINFORCEMENT -> OSRP/CEG/S/HS3/BOX CUL-02
- FOR RETURN WALL -> OSRP/CEG/S/HS3/BOX CUL-01
- FOR FLOOR PROTECTION MADAK -> OSRP/CEG/S/HS3/BR/PPH/01
- IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

TABLE SHOWING SALENT DIMENSIONS						
BOX TYPE	WIDTH (mm)	HEIGHT (mm)	THICKNESS A (mm)	THICKNESS E (mm)	THICKNESS F (mm)	NET CAPACITY (m³)
1/20/0	2000	2000	500	300	300	12
1/22/0	2200	2000	500	300	300	18
1/23/0	3000	2000	500	300	300	15
1/24/0	3000	4000	700	400	400	30
1/33/0	4000	3000	500	400	500	18
1/44/0	4000	4000	700	400	500	18
1/46/0	4000	5000	1000	500	500	15
1/63/0	4000	3000	500	600	700	10
1/64/0	4000	4000	500	600	700	18





Sl. No.	Location	Proposed Change	Proposed Formation Level	Bed Level		Invert Level	Camber/Super Elevation		Direction of Flow	Clear Height	Blank Area	Thickness	Thickness	Thickness	Height of Return Wall	Length of Return Wall
				Left	Right		Left	Right								
1	2.500	2.180	19.80	20.07	19.48	19.80	1.5%	0.0%	R.T.O.	2.40	1.00	0.32	0.42	0.70	4.7	8.5



**NOTES:**

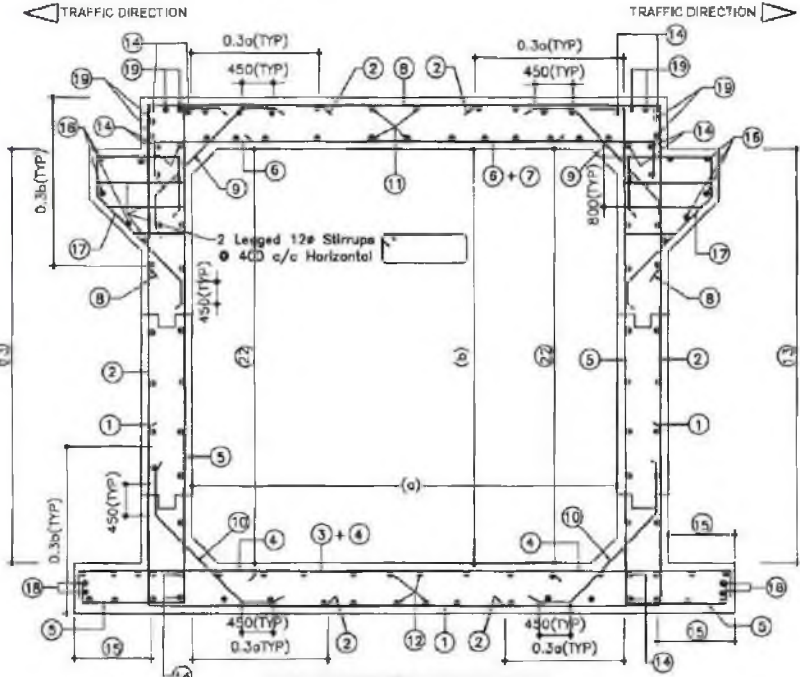
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- ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
- LOOSE / UNSUITABLE SOIL BELOW BOX CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
- IN CASE DEPTH OF EARTH FILLING BETWEEN THE TOP OF THE CULVERT AND THE BOTTOM OF THE PAVEMENT CRUST IS LESS THAN 500 MM, THIS LAYER IS REPLACED WITH GRANULAR SUB BASE.
- CHANGING / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
- FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
- FOR REIN. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
- IN CASES WHERE INVERT LEVEL IS HIGHER THAN GROUND LEVEL AT ENDS OF CULVERT OR WHERE UNSUITABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE ADEQUATE CUT OFF WALLS AT ENDS OF CULVERT TO PREVENT SOOD/EROSION.
- IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

**REFERENCE DRAWING:**

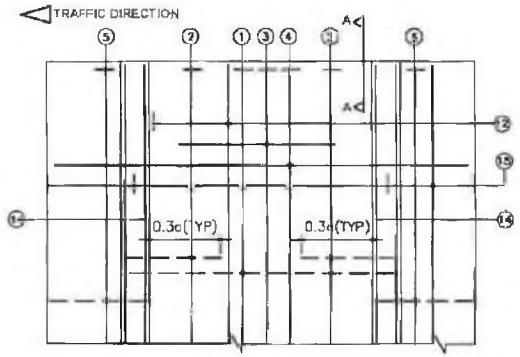
- FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB OR CURBINGS, REFER TO THE MOST STANDARD DRAWING OF CULVERTS NO. SO/101, SO/115 (SHEET 1 OF 4).
- FOR GENERAL NOTES, DETAILS OF APPROACH SLAB, REFER TO THE MOST STANDARD DRAWING OF CULVERTS NO. SO/101, SO/115 (SHEET 1 OF 4).
- FOR REIN. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
- IN CASE ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN ACTUAL BEARING PRESSURE THE SOIL SHOULD BE STABILIZED TO ACHIEVE SAME.

TABLE SHOWING SALIENT DIMENSIONS

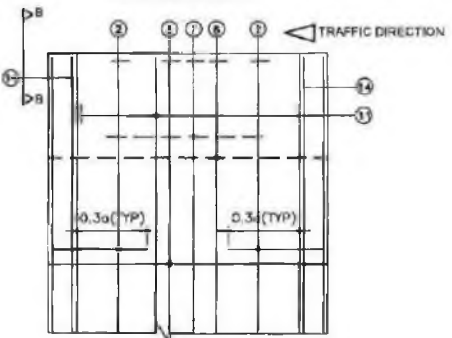
BOX/TYPE	WIDTH a (mm)	HEIGHT b (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	NET BEARING CAPACITY 1/10
1/22/0	2000	2000	500	350	300	1.5
1/23/0	2000	3000	1300	370	350	1.5
1/23/0	3000	3000	800	420	420	1.8
1/34/0	3000	4000	1700	450	480	1.5
1/43/0	4000	3000	400	450	500	1.8
1/44/0	4000	4000	1500	480	550	1.8
1/45/0	4000	5000	1800	520	630	1.8
1/83/0	8000	3000	300	880	720	10
1/84/0	8000	4000	300	880	750	15



REINFORCEMENT DETAIL OF SINGLE CELL BOX (NEAR FOOTPATH)



BOTTOM SLAB RF PLAN



TOP SLAB RF PLAN

**NOTES :-**

- 1 ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
- 2 THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG.NO.OSRP/CEG/SH-15/ BOX CUL-01
- 3 MINIMUM CLEAR COVER TO MAIN REINFORCEMENT SHALL BE 40mm.
- 4 MINIMUM LAP LENGTH OF REINFORCEMENT SHALL BE KEPT AS  $33D$  WHERE  $D$  IS THE DIAMETER THE BAR. NOT MORE THAN 500 SHALL BE LAPPED AT ANY ONE LOCATION.
- 5 LINK SHOULD GO ROUND MAIN BAR AND CONTINUE ALONG BARREL.
- 6 LINK SHALL BE STARTED AT DISTANCE OF HALF THEIR SPACING FROM THE FACE OF SUPPORT.
- 7 MAXIMUM SIZE OF AGGREGATE TO BE USED IN RCC IS 20mm.
- 8 GRADE OF CONCRETE M-25
- 9 ALL REINFORCEMENT BARS SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF GRADE Fe 500 CONFORMING TO IS:1786-1985 WITH A MINIMUM YIELD STRENGTH OF 500 N/mm<sup>2</sup>
- 10 JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGTERD AS PER CLAUSE 304.6 OF IRC:21-2013

**REFERENCE DRAWING:-**

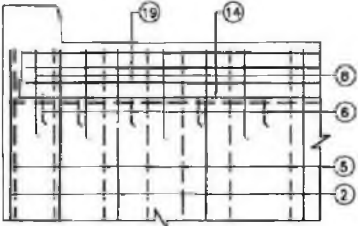
OSRP/CEG/SH-01 CUL-01

**LEGEND :-**

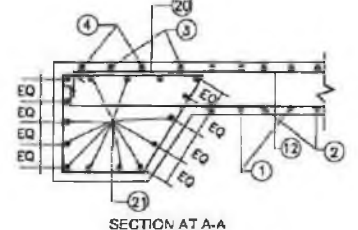
- TOP FACE BARS/OUTER FACE BARS.
- BOTTOM FACE BARS/INNER FACE BARS.

REINFORCEMENT DETAIL OF SINGLE CELL BOX

BAR MARK	BAR SHAPE	1/12/0		1/23/0		1/33/0		1/34/0		1/43/0		1/44/0		1/45/0		1/63/0		1/64/0	
		BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING	BAR DIA.	SPACING
10	L	10	250	16	225	10	200	12	225	10	200	12	200	10	200	16	200	20	200
11	L	16	250	18	225	16	200	12	225	20	200	20	200	12	200	20	200	20	200
12	L	16	250	12	200	12	200	12	225	12	200	12	200	12	200	20	200	20	200
13	L	16	250	18	250	16	200	16	225	16	200	16	200	18	200	12	200	16	200
14	L	16	250	16	175	12	150	18	175	12	175	12	150	12	150	12	150	12	150
15	L	16	250	16	250	16	200	16	225	16	200	16	200	20	200	16	200	20	200
16	L	16	250	18	250	16	200	18	225	16	200	16	200	20	200	16	200	20	200
17	L	16	250	16	250	16	200	16	225	16	200	16	200	16	200	16	200	16	200
18	L	10	250	16	225	10	200	18	225	18	200	18	200	10	200	18	200	18	200
19	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
20	L	12	250	12	250	10	225	10	225	10	200	10	200	10	200	12	200	10	200
21	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
22	L	10	250	12	150	12	225	12	225	12	200	12	200	12	175	10	125	12	125
23	L	10	250	10	250	12	225	12	225	12	200	12	200	12	200	10	125	10	125
24	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
25	L	10	250	12	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
26	L	10	250	12	250	12	225	12	225	12	200	12	200	12	175	10	125	12	125
27	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
28	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
29	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200
30	L	10	250	10	250	10	225	10	225	10	200	10	200	10	200	10	200	10	200

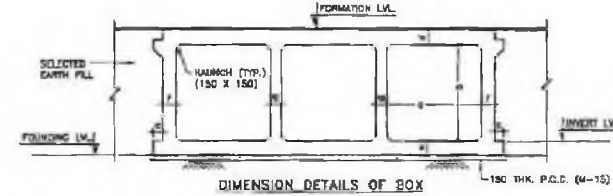
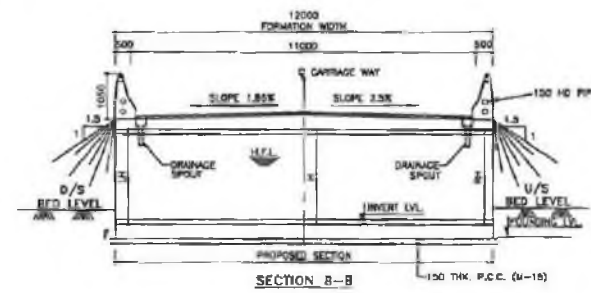
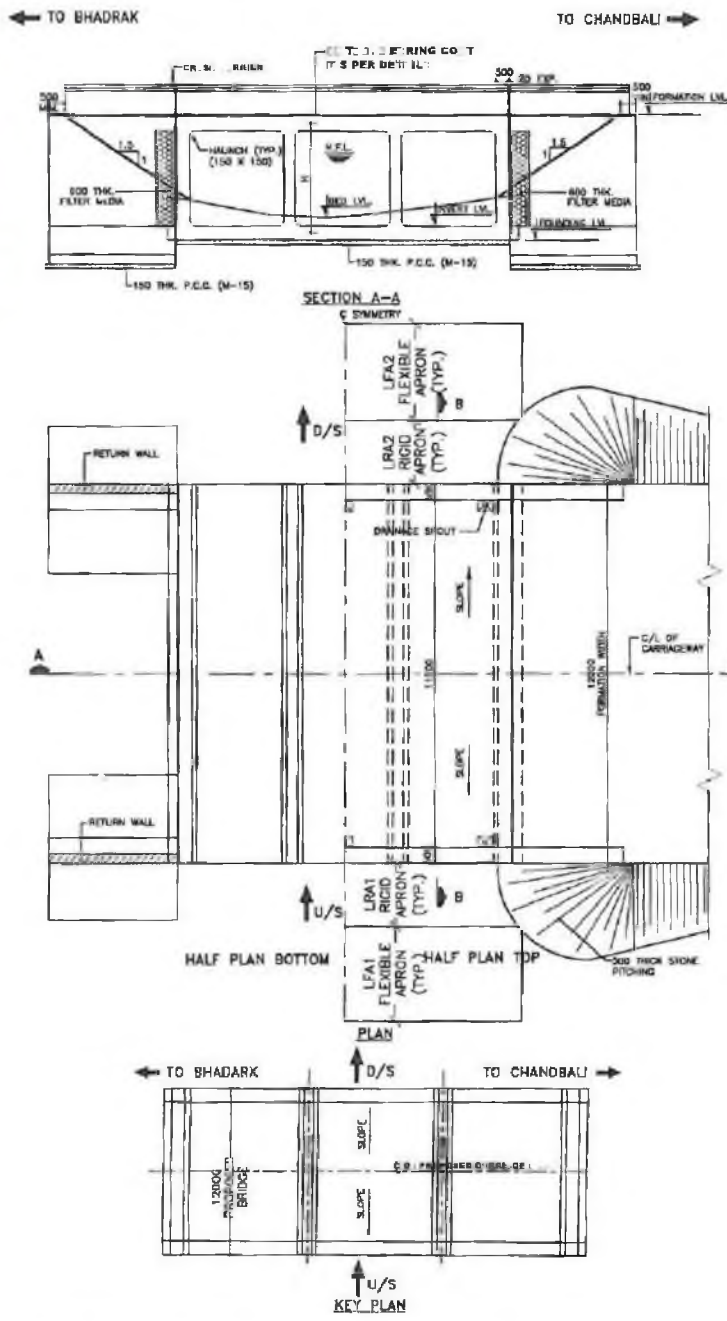


VIEW B-B



SECTION AT A-A





**DIMENSION DETAILS OF BOX**

BOX TYPE	WIDTH (mm)	HEIGHT (mm)	THICKNESS (mm)	THICKNESS (mm)	THICKNESS (mm)	BEARING CAPACITY
3/33/0	3000	3000	300	450	500	10 T/M <sup>2</sup>

**LIST OF PROPOSED RIDGES OF 3x3M BOX (WITHOUT CUSHION)**

SLNO	PROPOSED DRAINAGE (M)	FORMATION LEVEL (M)	BED LEVEL (M)	FOUNDING LEVEL (M)	SUPER ELEVATION/CAMBER		INVERT LEVEL
					LEFT	RIGHT	
1	3692	40.29	36.87	36.12	-1.50%	-2.50%	36.824
2	3688	40.52	36.24	36.35	-2.50%	-2.50%	36.864
3	37120	41.452	36.73	37.284	-1.50%	2.50%	37.280
4	32276	41.105	36.28	36.2	-1.50%	3.50%	36.090

**APRON DATA**

Length of Right Apron in (mts)		Length of Flexible Apron in (mts)	
u/s	d/s	u/s	d/s
LFA1	LFA2	LFA1	LFA2
3.0	2.0	3.0	3.0

- NOTES:**
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  - ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
  - LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
  - GRADE OF CONCRETE:-  
 BOX - M-25  
 RETURN WALL - M-25  
 P.C.C. LEAN CONC. - M-15
  - CHANNAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
  - ALL REINFORCEMENTS SHALL BE OF GRADE CRS Fe-500D AND CONFIRM TO IS-1786
  - IN CASES WHERE INVERT LEVEL IS HIGHER THAN GROUND LEVEL AT ENDS OF STRUCTURE OR WHERE UNSUITABLE SOIL IS TO BE REPLACED BY GRANULAR MATERIAL, PROVIDE ADEQUATE CUT OFF WALLS AT ENDS OF STRUCTURE TO PREVENT SOODUR/EROSION.
  - ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG.NO. OSRP/CEG/BR/MISC-02
  - FOR FLOOR PROTECTION DETAILS REFER SEPRATE DRAWING.
  - THE AREA IS UNDER SEVERE EXPOSURE CONDITION.

- REFERENCE DRAWING:-**
- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/108, SD/112 (SHEET 1 OF 2), SD/112 (SHEET 2 OF 2).
  - FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB, R/C RAILING, DRAINAGE SPOUT FLOOR PROTECTION WORKS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/101, SD/115(SHEET 1 OF 4), (SHEET 2 OF 4) (SHEET 3 OF 4) (SHEET 4 OF 4) & SD/111.
  - OSRP/CEG/SH-9/BR/PPW/01
  - OSRP/CEG/SH-9/BR/SCW
  - OSRP/CEG/RW/MISC-01
  - OSRP/CEG/BR/MISC-02

  
 Chief Engineer

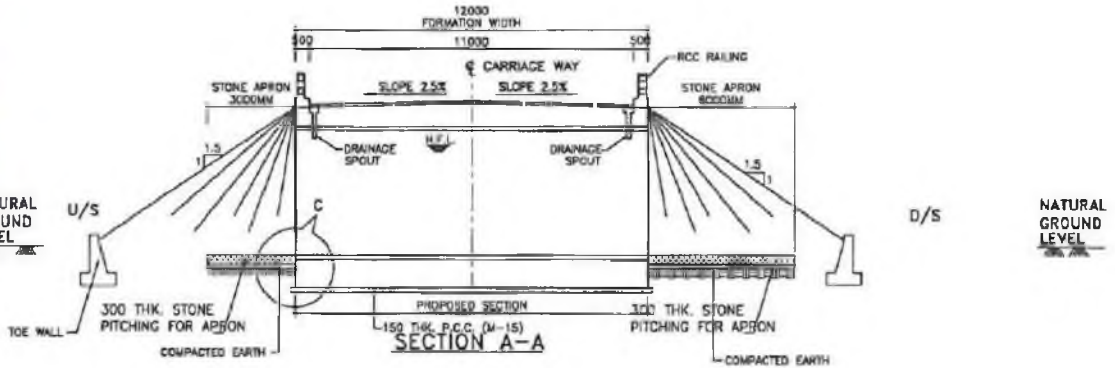
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
03	SEP-2018	SECOND REVISION	LASA	RAJAI MATYAN	M.R. MISHRA (EE)	G.P. PATEL (CE)	
02	JAN-2018	FIRST REVISION	ONE	VINAY	HEMISHRA (AC)	M.R. MISHRA (CE)	N.K. PRADHAN (CE)
-	JUNE 2008	ORIGINAL	ONE				


**CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Moji Colony, Navinagar Jaipur-17  
 Tel: +91-141- 2520899, 2521859, 2520556  
 Fax: 2521348, E-Mail: ceg@ceginia.com

PROJECT :  
**ODISHA STATE ROAD PROJECT**

DRAWING TITLE :  
**GENERAL ARRANGEMENT DRAWING**  
**TRIPLE CELL R.C.C. BOX CULVERT**  
**3m X3m (WITH OUT CUSHION)**

SHEET 1 OF 3  
 DWG. NUMBER : OSRP/CEG/SH9/PPW/01  
 REV. NO.

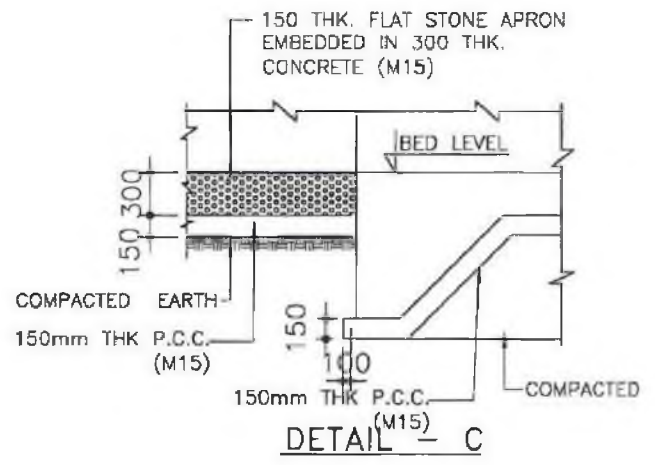
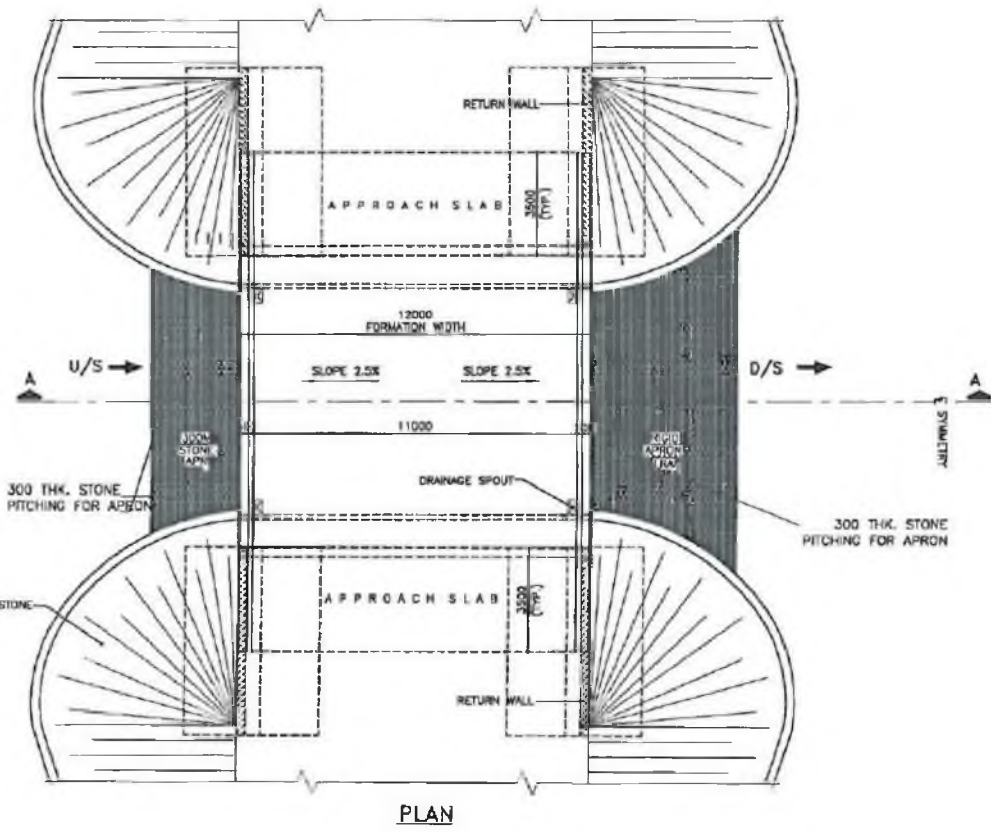


**NOTES:**

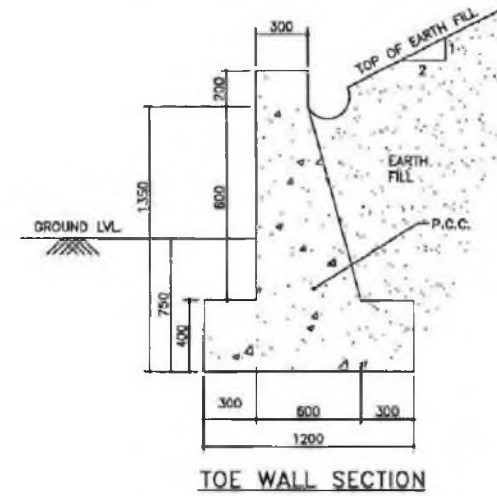
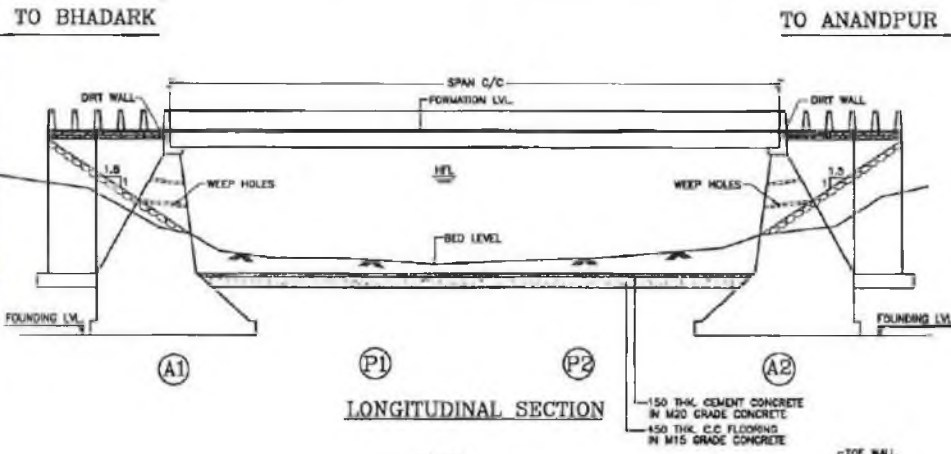
1. ALL DIMENSIONS ARE IN MM.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
3. LENGTHS OF ROAD AND FLEXIBLE APPROACHS SHALL BE AS PER AVAILABILITY OF LAND AND DECISION OF THE ENGINEER.

**REFERENCE DRAWING:-**

1. OSRP/CEG/SH-33/BR/11+589/2
2. OSRP/CEG/SH-33/BR/17+215/02
3. OSRP/CEG/SH-33/BR/17+4830/01
4. OSRP/CEG/SH-33/BR/17+513/02
5. OSRP/CEG/SH-33/TRIPLE BOX/1

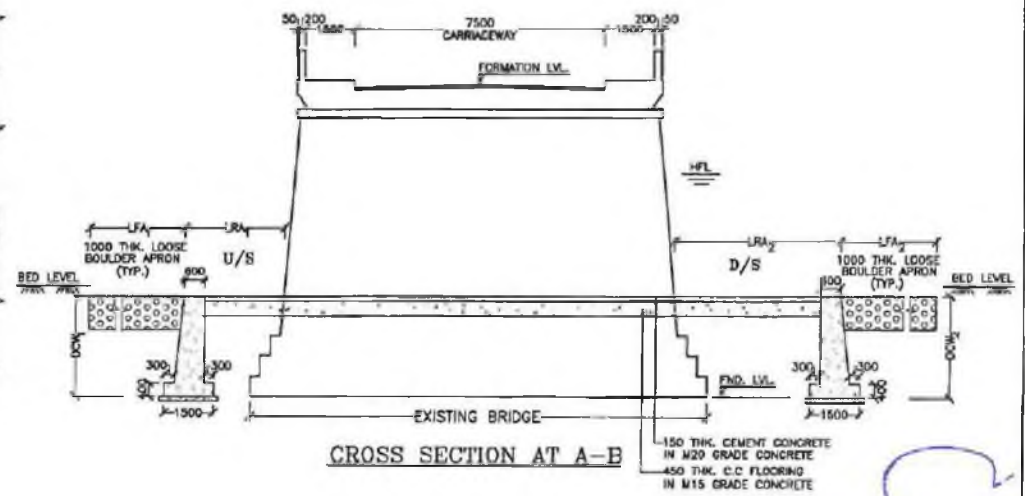
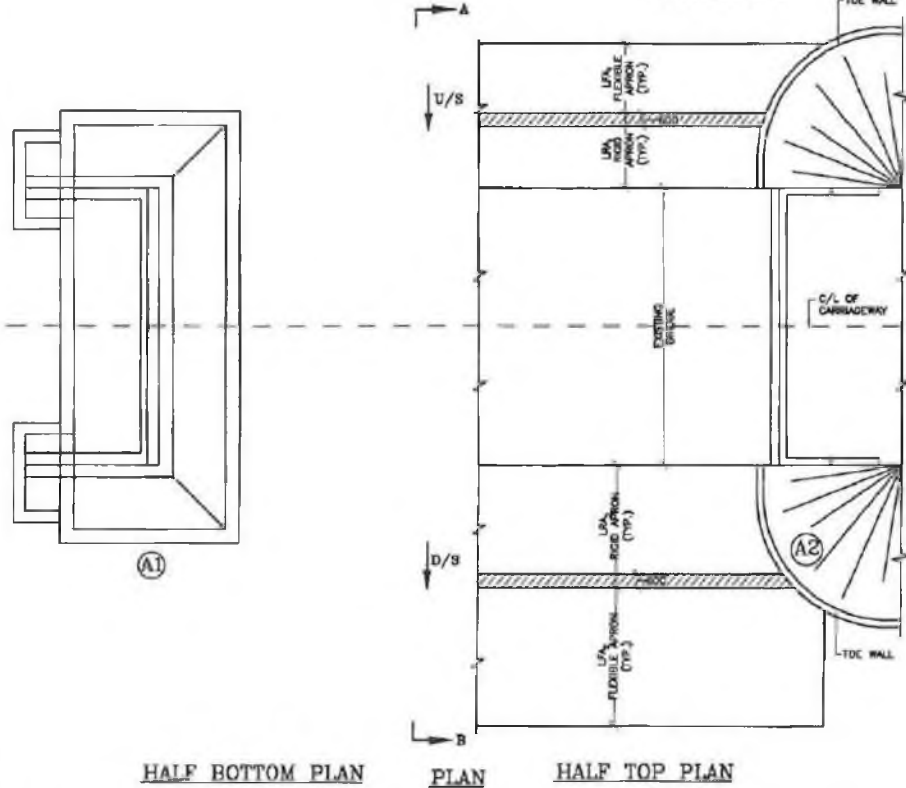


*(Signature)*  
**Chief Engineer**  
 Odisha State Road



**NOTES:**

1. ALL DIMENSIONS ARE IN MM .
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.



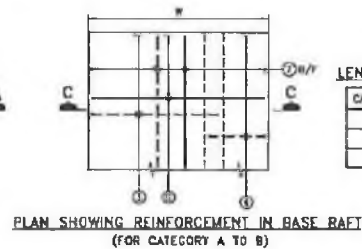
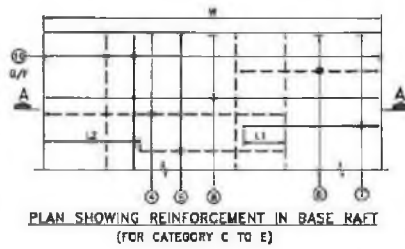
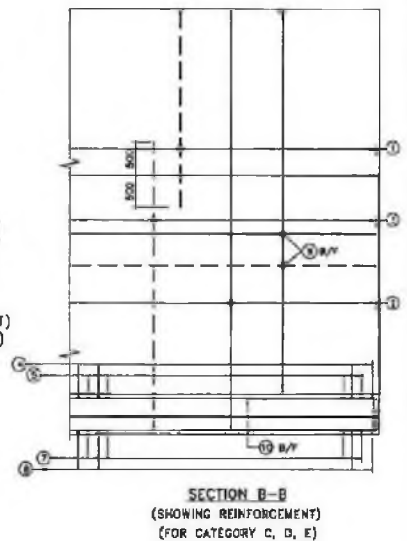
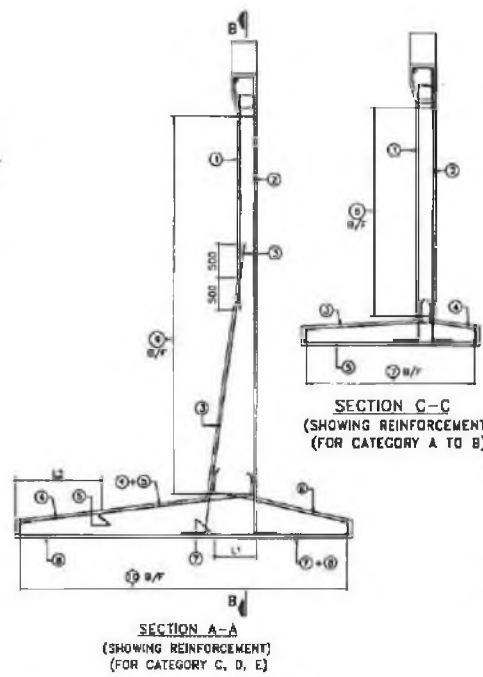
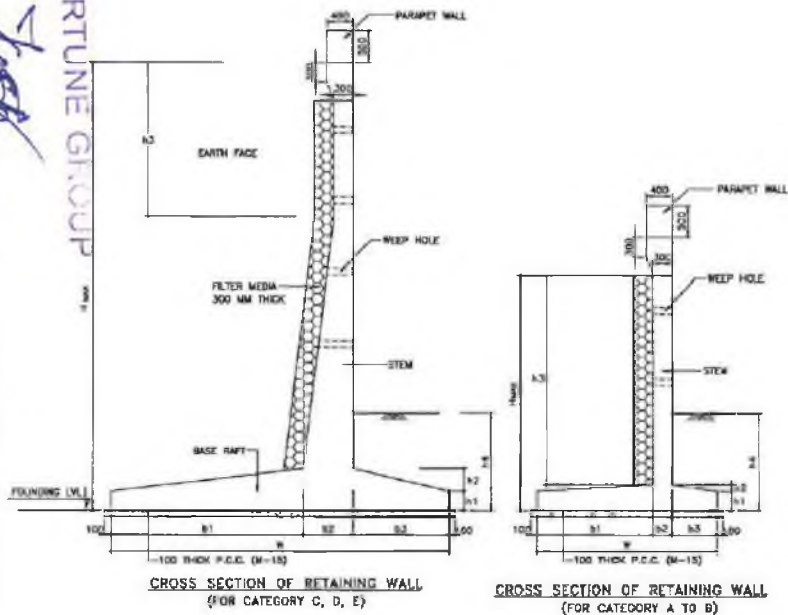
**CEG CONSULTING ENGINEERS GROUP LTD.**  
 E-12, 1st Floor, Ganga Mohan Nagar, Bhubaneswar-751017  
 Tel: +91-674-2520879, 2521896, 2520888  
 Fax: 2521346, E-Mail: info@cegindia.com

ODISHA STATE ROAD PROJECT

GENERAL ARRANGEMENT DRAWING  
 TYPICAL DETAILS OF FLOOR PROTECTION WORKS

DRAWING NO. ...  
 MADE BY ...  
 CHECKED BY ...  
 DATE ...

*(Handwritten signature and stamp)*  
 Odisha Bhutanswar

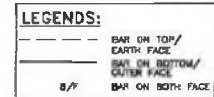


**LENGTH OF CURTAILMENT**

CATEGORY	L1	L2
C	-	-
D	-	800
E	800	1200

**DIMENSIONAL DETAILS**

CATEGORY	Hmax	W	h1	h2	h3	h4	b1	b2	b3
A	3500	3000	300	-	1700	1000	1300	300	400
B	3000	2850	300	-	2700	1200	1750	300	800
C	4000	3150	300	150	2400	1300	2040	410	700
D	5000	4200	300	300	2400	1500	2080	550	1600
E	6000	4825	300	300	2400	1500	3080	700	1175



**SHADRAK - ANANDPUR**

S	Proposed Chaining	Proposed Span	Height of Return		Maximum height of	Length of Return		Category
NO			Left	Right		Left	Right	for the
1	10018.0	1 x 3 m Single Bar	4.22	4.22	4.22	4.2	4.2	D
2	17030.0	3 x 3 m Double Bar	5.14	5.14	5.14	3.5	3.5	E

**REINFORCEMENT DETAILS**

BAR MKD.	1	2	3	4	5	6	7
BAR SHAPE							
A	8 # 130C/C	8 # 200C/C	8 # 150C/C	8 # 200C/C	8 # 200C/C	8 # 200C/C	8 # 200C/C
B	12 # 100C/C	8 # 200C/C	12 # 125C/C	8 # 200C/C	10 # 200C/C	8 # 200C/C	8 # 200C/C

**REINFORCEMENT DETAILS**

BAR MKD.	1	2	3	4	5	6	7	8	9	10
BAR SHAPE										
C	12 # 150C/C	10 # 200C/C	11 # 150C/C	11 # 150C/C	-	10 # 200C/C	-	12 # 160C/C	10 # 200C/C	10 # 200C/C
D	12 # 150C/C	10 # 200C/C	10 # 100C/C	11 # 200C/C	12 # 200C/C	10 # 100C/C	10 # 200C/C	12 # 200C/C	10 # 200C/C	10 # 200C/C
E	12 # 150C/C	10 # 200C/C	10 # 100C/C	11 # 200C/C	11 # 200C/C	10 # 200C/C	10 # 150C/C	12 # 150C/C	10 # 200C/C	10 # 200C/C

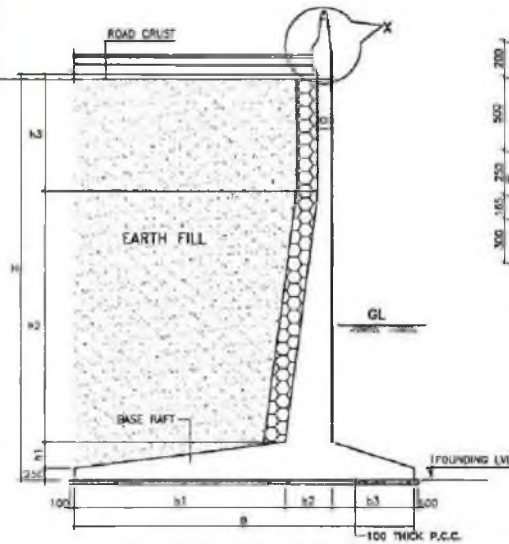
- NOTES**
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
  - DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
  - GRADE OF CONG. FOR R.C.C. WORKS -----M25.  
GRADE OF CONG. FOR P.C.C. WORKS -----M15.
  - ALL MYSO BARS IS CONFORMED TO IS 1786 GRADE Fe-500.
  - CLEAR COVER TO ANY REINF. IN BASE RAFT = 75 mm.  
ALL OTHER COMPONENTS = 40mm.
  - LAPPING IS STAGGERED AND NOT MORE THAN SIX OF BAR IS LAPPED AT A SECTION.
  - THE BEARING CAPACITY SHALL NOT BE LESS THAN THE FOLLOWING:  
CATEGORY - A = 7t/m<sup>2</sup>  
CATEGORY - B = 10t/m<sup>2</sup>  
CATEGORY - C = 12.5t/m<sup>2</sup>  
CATEGORY - D = 15t/m<sup>2</sup>  
CATEGORY - E = 15t/m<sup>2</sup>

**REFERENCE DRAWING:-**

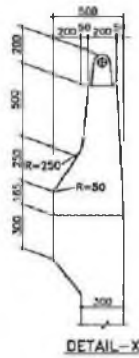
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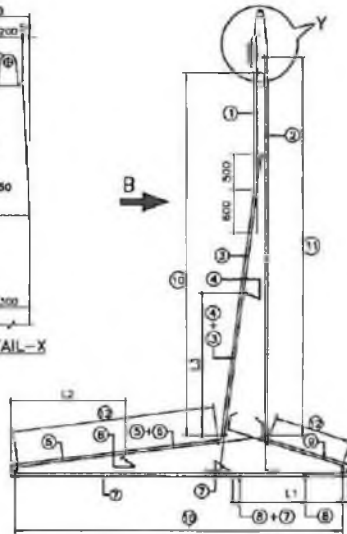




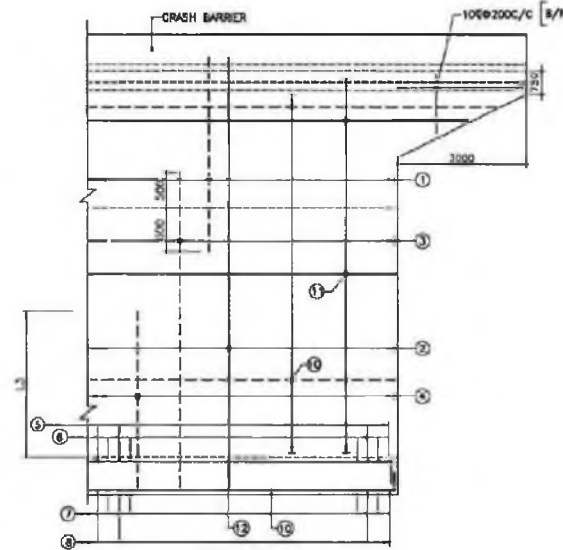
**CROSS SECTION OF RETURN WALL**  
(SHOWING DIMENSIONS)  
(FOR CATEGORY A, B, C, D)



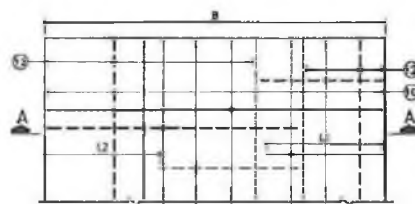
DETAIL-X



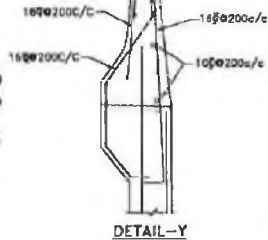
**SECTION A-A**  
(SHOWING REINFORCEMENT)  
(FOR CATEGORY A, B, C, D)



**VIEW -B**  
(SHOWING REINFORCEMENT)  
(FOR CATEGORY A, B, C, D)



**PLAN SHOWING REINFORCEMENT IN BASE RAFT**  
(FOR CATEGORY A, B, C, D)



DETAIL-Y

**LENGTH OF CURTAILMENT**

CATEGORY	L1	L2	L3
A	-	-	-
B	1000	1175	2950
C	1500	1800	4300
D	1000	1750	5200

**DIMENSIONAL DETAILS**

CATEGORY	H <sub>max</sub>	B	h1	h2	h3	b1	b2	b3
A	4500	3500	150	1600	2500	1500	500	1500
B	6000	3000	300	2950	2500	2300	650	2000
C	7500	6200	450	4300	2500	3200	800	2200
D	8500	7250	550	5200	2500	3500	1000	2750

**REINFORCEMENT DETAILS**

BAR MKD.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
BAR SHAPE												
A	16 # @ 200C/C	10 # @ 150C/C	25 # @ 200C/C	-	16 # @ 150C/C	-	20 # @ 200C/C	-	10 # @ 200C/C	10 # @ 200C/C	10 # @ 200C/C	10 # @ 200C/C
B	16 # @ 200C/C	10 # @ 150C/C	25 # @ 200C/C	16 # @ 200C/C	16 # @ 200C/C	16 # @ 200C/C	16 # @ 200C/C	16 # @ 200C/C	10 # @ 150C/C	10 # @ 150C/C	10 # @ 150C/C	10 # @ 150C/C
C	16 # @ 200C/C	12 # @ 200C/C	25 # @ 200C/C	25 # @ 200C/C	20 # @ 200C/C	16 # @ 200C/C	16 # @ 200C/C	25 # @ 200C/C	12 # @ 200C/C	12 # @ 200C/C	12 # @ 200C/C	12 # @ 200C/C
D	16 # @ 200C/C	12 # @ 150C/C	25 # @ 150C/C	25 # @ 150C/C	25 # @ 200C/C	20 # @ 200C/C	16 # @ 200C/C	25 # @ 200C/C	12 # @ 150C/C	12 # @ 150C/C	12 # @ 150C/C	12 # @ 150C/C

**LEGENDS:**

--- BAR ON TOP/ EARTH FACE  
 --- BAR ON BOTTOM/ OUTER FACE  
 --- BAR ON BOTH FACE  
 B/F

**NOTES**

- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
- DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- GRADE OF CONG. FOR R.C.C. WORKS ----- M25  
 GRADE OF CONG. FOR P.C.C. WORKS ----- M15  
 GRADE OF CONG. FOR CRASH BARRIER ----- M40
- ALL HYSD BARS IS CONFORMED TO IS 1786 GRADE Fe-415.
- CLEAR COVER TO ANY REINF:  
 IN BASE RAFT = 75 mm  
 ALL OTHER COMPONENTS = 40mm.
- NOT MORE THAN 50% OF BAR IS LAPPED AT A SECTION AND LAPPING IS STAGGERED. LAP LENGTH IS MINIMUM 72 x DIA OF BAR FOR MAIN BARS 30 TIMES DIA OF BAR FOR ALL OTHER BARS.
- THE BEARING CAPACITY SHALL NOT BE LESS THAN THE FOLLOWING:  
 CATEGORY - A = 111/m<sup>2</sup>  
 CATEGORY - B = 124/m<sup>2</sup>  
 CATEGORY - C = 141/m<sup>2</sup>  
 CATEGORY - D = 141/m<sup>2</sup>

**REFERENCE DRAWING:-**

- OSR/PC/03
- OSR/PC/04

**SHADRAK - ANANDPUR**

S. no	Proposed Chainage	Proposed Span	Height of Return wall		Maximum height of Return Wall	Length of Return wall		Category for the max. height
			Left	Right		Left	Right	
1	11497.0	2 x 8.0 m Box	6.27	6.55	6.55	0.0	0.0	C
2	12275.0	3 x 9.0 m Box	8.03	8.28	8.28	2.5	2.5	D

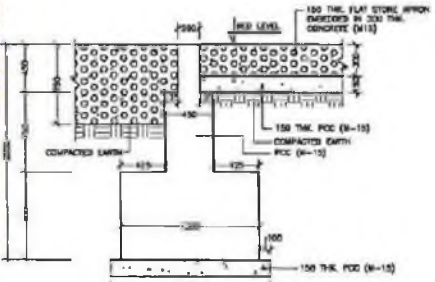
**Chief Engineer**  
**DPI & Roads**  
 Odisha, Bhubaneswar

**CONSULTING ENGINEERS GROUP LTD.**  
 C-10/30/3, Cuttack-Mekunda Nagar, Cuttack-75  
 Tel: 91-311-2520865, 2521809, 2520559  
 Fax: 2521246, E-mail: coneg@cgeltd.com

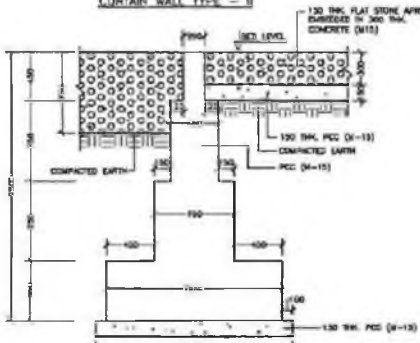
ODISHA STATE ROAD PROJECT

DIMENSION & REINFORCEMENT  
 DETAILS OF RETURN WALL

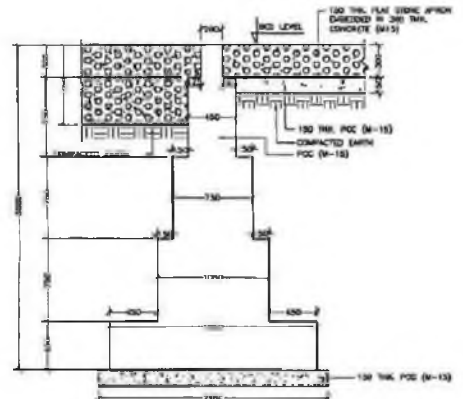
DRAWING NO. 1/2019/2019/11/1/1/1/1  
 DATE: 10/11/2019  
 CHECKED BY: [Signature]  
 APPROVED BY: [Signature]



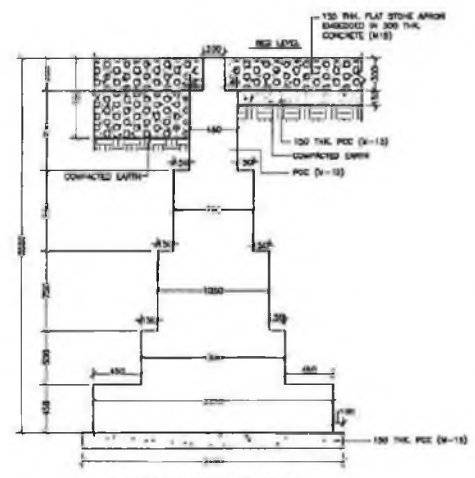
TYPICAL CROSS SECTION OF CURTAIN WALL TYPE - II



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE - I



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE - II



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE - I



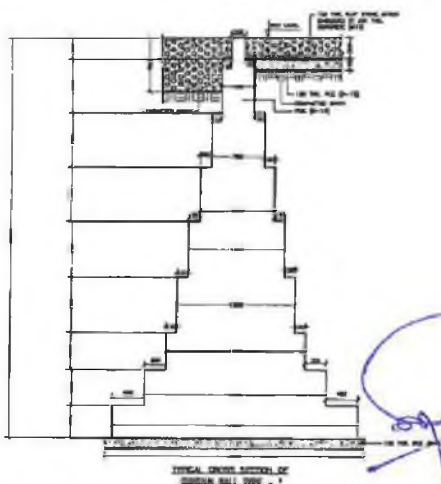
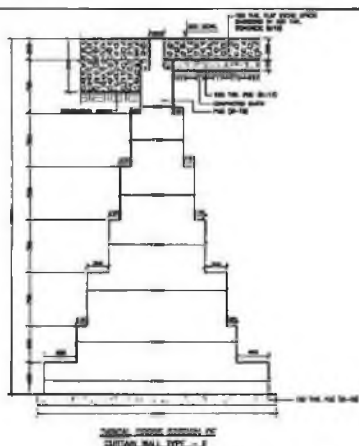
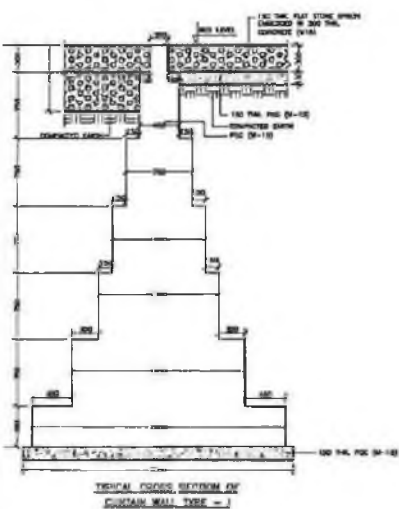
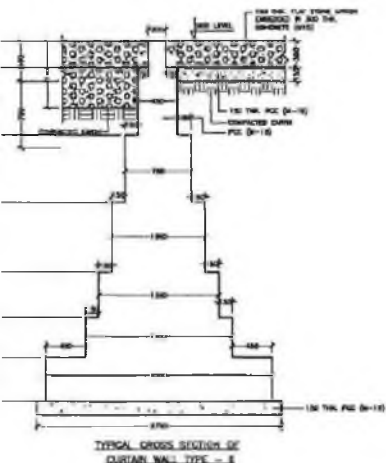
**NOTES:**

1. ALL DIMENSIONS ARE IN MM.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.

**REFERENCE DRAWING:-**

OSRP/CEG/SH-5/BR/PPK/01

1. OSRP/CEG/SH-53/BR/9+800/01
2. OSRP/CEG/SH-53/BR/11+800/01
3. OSRP/CEG/SH-53/BR/11+100/01
4. OSRP/CEG/SH-53/BR/13+400/01



GENERAL ARRANGEMENT DRAWING

TYPICAL SECTIONS OF CURTAIN WALL

DRAWING NO. OSRP/CEG/SH-5/BR/PPK/01

DATE: 10/10/2011

SCALE: 1/10

BY: DP & P. K. SINGH

CHECKED BY: P. K. SINGH

DATE: 10/10/2011

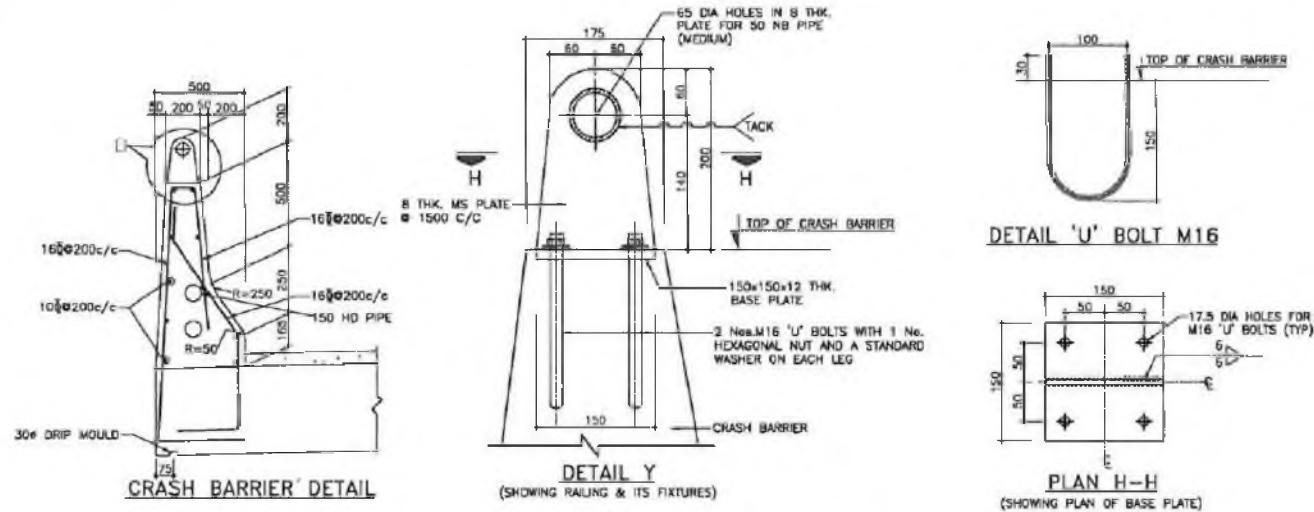
PROJECT: OSRP/CEG/SH-5/BR/PPK/01

*Handwritten signature in blue ink.*

*Handwritten signature in blue ink.*

*Handwritten signature in blue ink.*

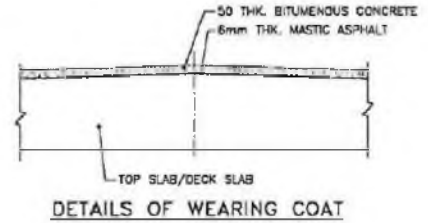
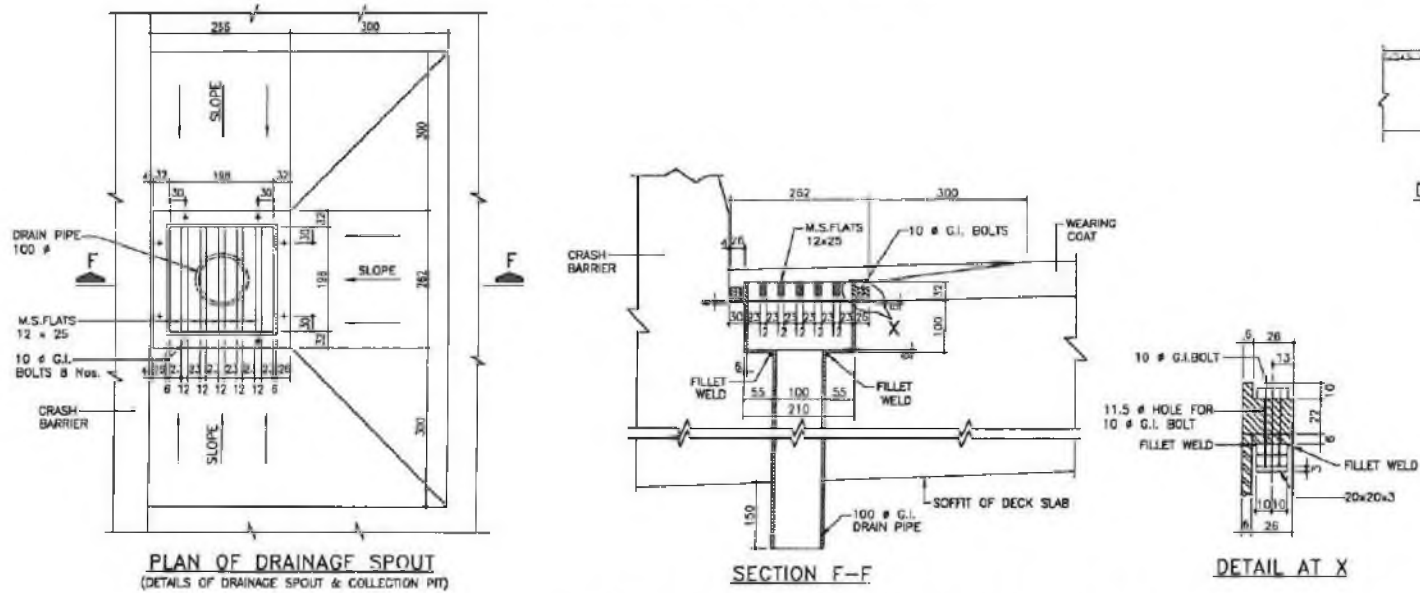
*Handwritten signature in blue ink.*



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED.
2. DO NOT SCALE THE DIMENSIONS, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY IS FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING IS GIVEN A HOT DIP GALVANISED COATING.
4. THE REINFORCEMENT OF THE DECK SLAB IS SUITABLY MODIFIED TO ACCOMMODATE THE DRAINAGE SPOUT.
5. GRADE OF CONCRETE :  
 PCC LEVELING COURSE = M-15  
 CRASH BARRIER = M-40
6. CLEAR COVER TO REINFORCEMENT = 40mm
7. R.Y.S.D. REINFORCEMENT IS CONFORMED TO IS:1788 GRADE Fe 415.

**CRASH BARRIER DETAILS**



**DRAINAGE SPOUT DETAILS**

DETAILS OF CRASH BARRIER/  
 DRAINAGE SPOUT & WEARING COAT

Chief Engineer  
 DPI & Roads  
 Odisha, Bhubaneswar

**GMC CONSULTING ENGINEERS GROUP LTD.**  
 E-12, Maj. Cattery, Midanda Nagar, Cuttack - 75  
 Tel. +91-11-2500993, 2501859, 2502586  
 Fax: 2501348, E-mail: mgkg@mgkg.com

PROJECT: ODISHA STATE ROAD PROJECT

DRAWING NO.: www.fortnegrp.com  
 SHEET NO.: 30