

AGREEMENT No. 05 of 2016-17



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P02B

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, DPI&Roads, Odisha
on behalf of

Odisha Works Department, Government of Odisha

and

M/s NKC Projects Pvt. Ltd.,

Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016

Tel : +91-124-4852828 Fax : +91-124-2340017

E-mail: rohit@nkcproject.com

[VOLUME-I: Agreement]

Agreement Value: Rs. 104,23,29,840

*Project Management Unit, Odisha State Roads Project
Office of the Engineer-in-Chief (Civil), Odisha,
Nirman Soudha, Keshari Nagar, Unit - V, Bhubaneswar - 751 001*

October 14, 2016

For NKC Projects Private Limited

Director

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

CONTENTS of CONTRACT

Volume – I	:	Letter of Acceptance, Letter of Bid and Addenda
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For NKC Projects Private Limited



Director



Chief Engineer
DPI & Roads
Odisha, Bhubaneswar



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F 851592

CIVIL WORKS CONTRACT

For

Construction for Widening & Strengthening of existing carriageway to 2-lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9)
(Balance Works)

THIS AGREEMENT made the 14th day of October, 2016, between the **Chief Engineer, DPI&Roads, Odisha**, office of the Engineer-in-Chief(Civil), Odisha, Nirman Soudh, Unit-V, Kesari Nagar, Bhubaneswar-751001, Odisha (India) on behalf of the Government of Odisha in Works Department, Odisha Secretariat, Bhubaneswar-751001 (hereinafter "the Employer"), of the one part, and **M/s NKC Projects Pvt. Ltd.**, Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016, Tel : +91-124-4852828 Fax : +91-124-2340017 , E-mail: rohit@nkcproject.com , (hereinafter "the Contractor"), of the other part for an amount of Rs. 104,23,29,840/- (Rupees One Hundred and Four Crore Twenty-three Lakh Twenty-nine Thousand Eight Hundred and Forty Only).

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 1 of 75

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

WHEREAS the Employer desires that the Works known as “**Construction for Widening & Strengthening of existing carriageway to 2-lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works)**” should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein.

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

Volume – I (75 Pages)

- (i) No objection of World Bank
- (ii) Approval of Govt. of Odisha
- (iii) Letter of Acceptance
- (iv) Bid Submission Sheet
- (v) Addenda

Volume – II (156 Pages)

- (vi) Particular Conditions
- (vii) General Conditions

Volume – III (64 Pages)

- (viii) Specification

Volume – IV(92 Pages)

- (ix) Drawings; and

Volume -- V (18 Pages)

- (x) Priced Schedules,

3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 2 of 75

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

- 4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of INDIA on the day, month and year indicated above.

For and on behalf of Employer, i.e. Works Department, Government of Odisha



Om Prakash Patel
Chief Engineer, DPI & Roads, Odisha


For and on behalf of M/s NKC Projects Pvt. Ltd.




Naresh Kumar
Managing Director

Witness :


- 1. Sandeep Dahiya, NKC Projects Pvt. Ltd.
- 2. K Karuppasamy, NKC Projects Pvt. Ltd.
- 3. Manoranjan Misra, PMU, OSRP
- 4. Sibasish Dhal, PMU, OSRP



For NKC Projects Private Limited



Director
M/s NKC Projects Pvt. Ltd.
(Contractor)



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

NO OBJECTION OF THE WORLD BANK

6/29/2016

Gmail - RE: Submission of BID Evaluation Report of Package No-OSRP-CW-ICB-P02B - No objection



Chief Engineer World Bank Projects Odisha <pmuosrp@gmail.com>

RE: Submission of BID Evaluation Report of Package No-OSRP-CW-ICB-P02B - No objection

Rajesh Rohatgi <rroh@worldbank.org> Mon, Jun 27, 2016 at 5:15 PM
To: "Chief Engineer, World Bank Projects, Orissa" <pmuosrp@gmail.com>
Cc: PMU Works Department <pmuworksodisha@gmail.com>, Secretary Works Department <workssec@ori.nic.in>, Genevieve Maria Dutta <gdutta@worldbank.org>, Swayamsiddha Mohanty <smohanty1@worldbank.org>

Dear Mr Patel,

We have reviewed the BER for Package P02B and based on the information provided, have no objection to your recommendation to award the contract to the lowest responsive bidder, M/s. NKC Projects Pvt. Ltd., Gurgaon at a total contract price of INR 1,042,329,840.00, subjected to complying to safeguard policies of the Bank during execution of the project, beyond the loan closing date. It is further informed that the expenditure incurred up to the closing date of the project (viz. June 30, 2016), if any, will only be reimbursed by the Bank.

Regards

Rajesh Rohatgi

Senior Transport Specialist

Transport & ICT Global Practice

The World Bank

Hindustan Times House Building, 18-20, Kasturba Gandhi Marg,

New Delhi - 110 001

India

Tel: 91-11-492 47773 (D); Cell: 91-9818457486

Email: rroh@worldbank.org

Website: www.worldbank.org



WORLD BANK GROUP

Transport & ICT

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd Director
(Contractor)

1/3
Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

APPROVAL OF THE GOVERNMENT OF ODISHA

GOVERNMENT OF ODISHA
WORKS DEPARTMENT
* * *

No. 10314 /W, Bhubaneswar, Dated, the 17th August, 2016
AC-I-0718040071-2016

From
Sri A. Khatao,
AFA-cum-Under Secretary to Government

To
The Chief Engineer, DPI & Roads, Odisha,
Nirman Soudho, Bhubaneswar

Sub: - "Widening & Strengthening of existing carriageway to 2-lane Road from Pirahat to Chandbali (Km. 27/ 500 to Km. 45/000 of SH-9) (Balance Works)-Package No.-OSRP-CW-ICB-P02B.

Sir,

I am directed to invite a reference to your Letter No.25502 dated 29.06.2016 on the above subject and convey the approval of State Cabinet for lowest substantially responsive evaluated bid of M/s NKC Projects Pvt. Ltd., Gurgaon, Haryana amounting ₹ 104,23,29,840.00 (Rupees One hundred four crore twenty-three lakh twenty-nine thousand eight hundred forty)only which is 8.26% excess over the estimated cost of ₹ 96,27,86,656.00.

A copy of the proceedings of the Tender Committee Meeting held on 04.07.2016 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,

Encl: As above

[Signature]
AFA-cum-Under Secretary to Govt.

Memo No. 10315 /W., Dated 17-8-16

Copy forwarded to S.E. PMU, Works Department for information and appropriate action.

[Signature]
AFA-cum-Under Secretary to Govt.

For NKC Projects Private Limited

[Signature]
M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

NOTIFICATION OF AWARD

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

Letter No. PMU-WB-149/2016- 37519 August 22, 2016

From

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

To

M/s NKC Projects Ltd.,
Plot No. 63, Udyog Vihar Phase-IV,
Gurgaon-122016,
email: nh@nkcproject.com

Subj: Civil Works ICB Package No- OSRP-CW-ICB-P02B under Odisha State Roads Project with World Bank Assistance

"Construction for Widening & Strengthening of existing carriageway to 2-lane Road from Pirhat to Chandbali (Km. 27500 to Km. 45000 of SH-9) (Balance Works)"

LETTER OF ACCEPTANCE

Ref: i. ICB No: PMU/WB/141/2015-15759 Dd: 05.04.2016
ii. Your BID submitted on June 10, 2016

Sr,

This is to notify you that, your Bid dated June 10, 2016 for execution of the Civil Works ICB Package No- OSRP-CW-ICB-P02B under Odisha State Roads Project with World Bank Assistance for the work "Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Pirhat to Chandbali (Km. 27500 to Km. 45000 of SH-9) (Balance Works)" amounting to Indian Rs. 104,23,29,840/- (Indian Rupees one hundred four crore twenty-three lakh twenty-nine thousand eight hundred forty) only, as corrected and modified in accordance with the Instructions to bidders, has been accepted by the Government of Odisha.

You are requested to furnish the Performance Security in shape of a unconditional Bank Guarantee in favour of the Chief Engineer, DPI & Roads, Odisha, Bhubaneswar on any Nationalized Bank located in India, valid till April 14, 2018 amounting not less than Indian Rs.6,77,96,000/- (Indian Rupees six crore seventy-seven lakh ninety-six thousand) only within 28 days of issuance of this letter, in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section IX, Annexed to the Particular Conditions - Contract Forms, of the Bidding Document.

Upon submission of a satisfactory Performance Security as stated above, the formal Contract agreement shall be signed.

Yours sincerely,



Chief Engineer
DPI & Roads, Odisha

For NKC Projects Private Limited


M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

BID SUBMISSION SHEET

CIN : U45202DL2003PTC121288

**NKC PROJECTS PVT. LTD.**

(An ISO 9001:2008 Certified Co.)

Bid Submission Sheet

Date: 06.06.2016

ICB No.: OSRP-CW-ICB-P02B

Invitation for Bid No.: PMU-WB-141/2015-15759 Dt. 05.04.2016

To
**The Chief Engineer,
 DPI & Roads, Odisha, O/o Engineer -in-Chief (Civil), Odisha,
 Nirman Soudha, Keshari Nagar, Unit-V Bhubaneswar – 751 001.**

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Document, including Addenda issued in accordance with Instructions to Bidders (ITB) 8: -
- (b) We offer to execute in conformity with the Bidding Document the following Works:
Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works).
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is:
 Rs 107,45,66,845.73 (Rupees One Hundred Seven Crore Forty Five Lakh Sixty Six Thousand Eight Hundred Forty Five point Seventy Three Paise Only)
- (d) The discounts offered and the methodology for their application are: Unconditional
 Discount of 3.00% (Three percent)
 offered on all items of Bill of Quantity i.e. Bill no. 1 to Bill No 10 and Daywork (Provisional Sum).
- (e) Our bid shall be valid for a period of 120 (one hundred twenty) days from the date fixed for the bid submission deadline in accordance with the Bidding Document, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
 Rohit Kumar Gupta
 Vice President (F&A)

Regd. Office : 207, Second Floor, Gupta Tower - I, Vikas Puri, New Delhi - 110018
 Corporate Office : Plot No. 63, Phase - IV, Udyog Vihar, Gurgaon - 122016 (Haryana)
 Phone : +91-124-4852828, Fax : +91-124-2340017, E-mail : info@nkcproject.com, Website : www.nkcproject.com

For NKC Projects Private Limited

M/S NKC Projects Pvt. Ltd.
 M/s NKC Projects Pvt. Ltd. Director
 (Contractor)

Page 7 of 75

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

*Chief Engineer
 DPI & Roads
 Odisha, Bhubaneswar*

- (f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
- (g) We, including any subcontractors or suppliers for any part of the contract, have or will have nationalities from eligible countries, in accordance with ITB4.2;
- (h) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB4.3;
- (i) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.3, other than alternative offers submitted in accordance with ITB13;
- (j) We, including any of our subcontractors or suppliers for any part of the contract, have not been declared ineligible by the Bank, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;
- (k) We are not a government owned entity;
- (l) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:

Name of Recipient	Address	Reason	Amount
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..... "NONE"

- (m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (n) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- (o) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Name: ROHIT KUMAR GUPTA In the capacity of Vice President (F &A)

Signed _____

Duly authorized to sign the bid for and on behalf of M/s NKC PROJECTS PVT.LTD.

Dated on 6th day of June 2016

For NKC Projects Pvt. Ltd.

[Signature]
Rohit Kumar Gupta
Vice President (F&A)

[Signature]
10/6/16

For NKC Projects Private Limited
[Signature]
M/s NKC Projects Pvt. Ltd.
(Contractor) **Director**

[Signature]
10/6/16
**Chief Engineer,
DPI & Roads, Odisha
(Employer)**
[Signature]
Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Schedule of Adjustment Data

[In Tables A, B, and C, below, the Bidder shall (a) indicate its amount of local currency payment, (b) indicate its proposed source and base values of indices for the different foreign currency elements of cost, (c) derive its proposed weightings for local and foreign currency payment, and (d) list the exchange rates used in the currency conversion. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved.]

Table A. Local Currency

Index code	Index description	Source of index	Base value and date	Bidder's related currency amount	Bidder's proposed weighting
a	Nonadjustable	—	—	100% INR	a: 0.15
b	Steel Rebars	Whole sale price index for Steel (rebars) as published by the office of the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.	As applicable in May-16	-do-	b: 0.05
c	Cement	Whole sale price index for Grey Cement as published by the office the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.	As applicable in May-16	-do-	c: 0.08
d	Bitumen	Official retail price of bulk bitumen at IOC depot at Haldia	As applicable on 1 st May-16	-do-	d: 0.10
e	Labour	Minimum Wage notified by the Labour and Employee's State Insurance Department of Government of Odisha, India	As applicable in May-16	-do-	e: 0.05
f	POL	Official retail price of HSD at IOCL/ HPCL/ BPCL Consumer pump depot at Bhadrak, Odisha.	As applicable in May-16	-do-	f: 0.20
g	Other Materials	All India Whole sale price index (all commodities) as published by the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.	As applicable in May-16	-do-	g: 0.37
Total					1.00

For NKC Projects Private Limited

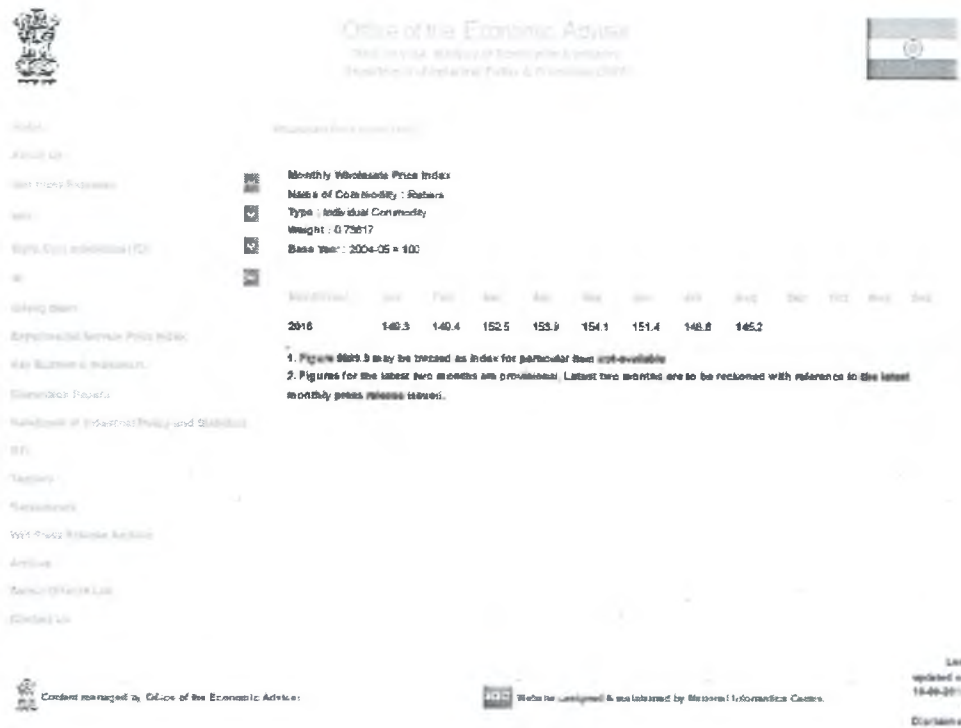
M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Shubansuwar

Reference for Base Index of Steel



For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Reference for Base Index of Cement

Office of the Economic Adviser
Ministry of Planning, Government of Odisha
Department of Economic Planning & Statistics

Monthly Wholesale Price Index
Name of Commodity : Grey Cement
Type : Individual Commodity
Weight : 1.28347
Base Year : 2004-05 = 100

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Index Value	178.9	172.1	175.8	175.3	173	174.0	175.9	178.8	

1. Figure 9999.9 may be treated as zero for particular item not available
2. Figures for the latest two months are provisional. Latest two months are to be finalized with reference to the latest monthly press release issued.

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For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Reference for Base Index of Bitumen

Indian Oil Corporation Limited

A/2, Chandasekharapur, Bhubaneswar-751024
E Mail: sweekrutim@indianoil.in



IndianOil

Ref: BBSR/CS/ PRICING

Date: 16.09.2016

SUB: PRICE OF BITUMEN

Dear Sir

We are giving below the Price of Bitumen for the following periods Ex- Haldia: The below mentioned price is inclusive of state specific cost.

Basic Price in Rs./MT Ex- Haldia w.e.f.	BULK 80/100 (VG-10)	BULK 80/70 (VG-30)	BULK 30/40 (VG-40)	PACKE D 90/100 (VG-10)	PACKE D 60/70 (VG-30)	PACKE D 30/40 (VG-40)	EMULSION RS	CRMB-50	CRMB-55	CRMB-60
01.01.16	23873.00	24673.00	25073.00	27773.00	28573.00	28873.00	20983.00	26533.00	27093.00	27443.00
16.01.16	21733.00	22533.00	22733.00	25633.00	26433.00	26833.00	19313.00	24573.00	25163.00	25563.00
01.02.16	21403.00	22203.00	22403.00	25303.00	26103.00	26503.00	18893.00	24263.00	24863.00	25273.00
16.02.16	20073.00	20873.00	21173.00	23973.00	24773.00	25273.00	17893.00	23043.00	23673.00	24103.00
01.03.16	20813.00	21613.00	21913.00	24713.00	25513.00	26013.00	18563.00	23723.00	24333.00	24753.00
16.03.16	21546.00	22346.00	22646.00	25446.00	26246.00	26746.00	18906.00	24356.00	24946.00	25336.00
01.04.16	22846.00	23646.00	23946.00	26746.00	27546.00	28046.00	19906.00	25556.00	26116.00	26486.00
16.04.16	23166.00	23966.00	24266.00	27066.00	27866.00	28366.00	20126.00	25846.00	26406.00	26766.00
01.05.16	23146.00	23946.00	24246.00	27046.00	27846.00	28346.00	20136.00	25836.00	26386.00	26746.00
01.06.16	22856.00	23656.00	23956.00	26756.00	27556.00	28056.00	20066.00	25566.00	26126.00	26496.00
16.06.16	22346.00	23146.00	23446.00	26246.00	27046.00	27546.00	19716.00	25266.00	25876.00	26296.00
01.07.16	22546.00	23346.00	23646.00	26446.00	27246.00	27746.00	19936.00	25446.00	26056.00	26466.00
16.07.16	22016.00	22816.00	23116.00	25916.00	26716.00	27216.00	19576.00	24956.00	25586.00	26006.00
01.08.16	21646.00	22446.00	22746.00	25546.00	26346.00	26846.00	19256.00	24616.00	25246.00	25676.00
16.08.16	21876.00	22676.00	22976.00	25776.00	26576.00	27076.00	19406.00	24826.00	25456.00	25876.00
01.09.16	22026.00	22826.00	23126.00	25926.00	26726.00	27226.00	19456.00	24866.00	25496.00	26016.00
16.09.16	22146.00	22946.00	23246.00	26046.00	26846.00	27346.00	19536.00	25076.00	25696.00	26116.00
INCREA SE	120.00	120.00	120.00	120.00	120.00	120.00	90.00	110.00	110.00	100.00

Thanking you,
Yours faithfully,
For Indian Oil Corpn Ltd.

Sweekruti Mishra
Asst. Manager (Consumer Sales),
Bhubaneswar Sales Area

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

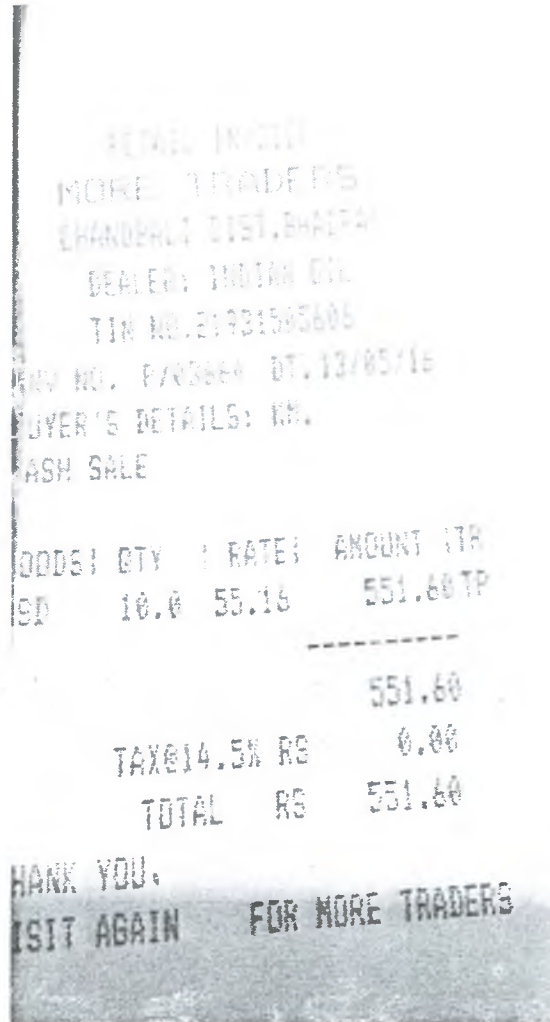
Director

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Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Reference for Base Index of POL



For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. **Director**
(Contractor)


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

Reference for Base Index of All Commodities

Central Statistical Office
 Government of India, Ministry of Statistics & Programme Implementation

Monthly Wholesale Price Index
 Name of Commodity : ALL COMMODITIES
 Type : Group Item
 Weight : 100
 Base Year : 2004-05 = 100

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	175.4	174.1	175.3	177.8	180.2	182.0	183.9	183.1				

1. Figure 183.1 may be treated as index for particular item not available
 2. Figures for the latest two months are provisional. Latest two months are to be reckoned with reference to the latest monthly press release issued

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For NKC Projects Private Limited

 M/s NKC Projects Pvt. Ltd.
 (Contractor) **Director**

Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

Chief Engineer
 DPI & Roads
 Odisha, India

The Odisha Gazette

EXTRAORDINARY
PUBLISHED BY AUTHORITY

No. 1112. CUTTACK, FRIDAY, JULY 24, 2015/SRAVAN 02, 1937

LABOUR & E.S.I. DEPARTMENT

NOTIFICATION

The 24th July, 2015

S.R.O. No. 323/2015— Whereas certain proposals to revise the minimum rates of wages payable to certain categories of employees employed in 88 employments were published as required under clause (b) of sub-section (1) of Section 5 of the Minimum Wages Act, 1948 (11 of 1948) in the Extraordinary issue No. 636 of the *Odisha Gazette* dated the 30th April, 2015 under the notification of the Government of Odisha in the Labour & Employees State Insurance Department No.3716-LL-I-(AR)1/15/LESI dated the 30th April, 2015 inviting objections and suggestions from all persons likely to be affected thereby within a period of two months from the date of publication of the said notification in the *Odisha Gazette*;

And, whereas, the representations containing objections and suggestions received within the specified period of two months in respect of the said draft have been duly considered by the State Government and the Advisory Board appointed under section 7 of the said Act, has also been consulted;

Now, therefore, in exercise of the powers conferred by clause(b) of sub-section (1) of Section 3 readwith Section 4 and sub-section (2) of Section 5 of the said Act and in supersession of all previous notifications issued in this regard, the State Government do hereby revise the minimum rates of wages payable to the Unskilled, Semi Skilled, Skilled, Highly Skilled categories of employees employed in 88 employments as mentioned in the Schedule to this notification in the whole State to Rs. 200.00, Rs.220.00, Rs.240.00 and Rs. 260.00 per day respectively with effect from the date of publication of this notification in the *Odisha Gazette*.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. Director
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

SCHEDULE

Sl. No.	Name of the Employment	Categories of Employees	Revised minimum rates of wages per day
(1)	(2)	(3)	(4)
1.	Agriculture		
2.	Agarbati and Candle making Worker's Establishments.		
3.	Automobile servicing, repairing garages and workshops.		
4.	Ayurvedic and Unani Pharmacy		
5.	Bakeries and Confectionaries including Biscuit making.		
6.	Bamboo Forest Establishment		
7.	Brass and Bell Metal Industry		
8.	Carpet Weaving Industry		
9.	Cashew processing establishments	Unskilled	Rs. 200.00
10.	Cement pipe making and allied products industry.	Semi-skilled	Rs. 220.00
11.	Ceramic and Pottery Industry	Skilled	Rs. 240.00
12.	Chemical Industry	Highly skilled	Rs. 260.00
13.	Cinema Industry and Film Production		
14.	Clay Pottery		
15.	Coir Industry		
16.	Collection of Sal Seeds		
17.	Construction or maintenance of Dams, Embankments, Irrigation Projects and sinking of wells and tanks.		
18.	Construction or maintenance of roads or in building operations.		
19.	Contingent and Casual Employees in Govt. and other establishments, Courier and Cargo Services		
20.	Cotton Ginning and Pressing Industry		
21.	Dispensary of Medical Practitioner in any Establishment of Medical Consultant or in any Chemical or Pathological Laboratory, Private Nursing Homes, Private Medical College Hospitals, Super Specialty Hospitals, Clinic, Laboratory etc..		

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. **Director**
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

(1)	(2)	(3)	(4)
22.	Distilleries		
23.	Domestic Workers (shall be calculated as per hours of work).		
24.	Electricity transmission, generation and distribution.		
25.	Employment in Non Government Organisation and Voluntary Social Organization.		
26.	Employment in laying of underground Cables, Electric lines, Water supply lines and under Cable Operators.		
27.	Finishing Dying of yarn and fabrics, painting, knitting and embroidery.		
28.	Fisheries and Sea food Industry		
29.	Forest produce such as Genduli gum, Mahua making of coal and resin.		
30.	Foundry Industry with or without attached machine shop.	Unskilled	Rs. 200.00
31.	Glass Industries	Semi-skilled	Rs. 220.00
32.	Gold and Silver Ornaments and articles of artistic design.	Skilled	Rs. 240.00
33.	Graphite industry including beneficiation	Highly skilled	Rs. 260.00
34.	Handloom and Hosiery		
35.	Hotels, Eating Houses and Restaurants		
36.	Ice Factory and Cold Storage		
37.	Jute Industry and Jute Twine industry		
38.	Kendu Leaf Collection		
39.	Khadi Village Industries including manufacture of Khandasari and other products.		
40.	Laundry including dry-washing		
41.	Leather Industry		
42.	Liquefied Petroleum Gas manufacture and distribution.		

For NKC/Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

(1)	(2)	(3)	(4)
43.	Local Authority		
44.	Manufacture of brush and brooms		
45.	Manufacture of Coke and Burning Coals		
46.	Manufacture of Cold drinks, Soda and other allied products.		
47.	Manufacture of Electrical Bulbs and all allied electrical equipments.		
48.	Manufacture of matches, fireworks and explosives.		
49.	Manufacture of nails and pines		
50.	Manufacture of paints and varnishes		
51.	Manufacture of plastic products including toys		
52.	Manufacture of Radio by assembling with parts		
53.	Manufacture of ropes		
54.	Manufacture of Utensils including Aluminum and Hindalium products.	Unskilled	Rs. 200.00
55.	Metal Industry (except the cottage and village scale units).	Semi-skilled	Rs. 220.00
		Skilled	Rs. 240.00
56.	Major or Minor Engineering Industry including Sponge, Secondary Steel, Rolling Mills, Ferro Alloys, Metal Industries (employment less than 50 persons).	Highly skilled	Rs. 260.00
57.	Motor body building		
58.	Non-teaching staff of all private Educational Institutions including Industrial Training Institute and Training Institute Coaching Centre.		
59.	Oil Mill		
60.	Paper and Cardboard Industry		
61.	Petrol and Diesel Oil pumps		
62.	Pharmaceutical Industry		
63.	Power loom Industry		
64.	Printing Press, Desktop Publication Centre and Offset Printing Press		
65.	Private Road Transport		
66.	Private Security Agencies and Private Security Services.		

(1)	(2)	(3)	(4)
67.	Public Health Engineering		
68.	Public Motor Transport		
69.	Readymade Garments Industries including Mechanized Trade of Readymade Garment Industry.		
70.	Refractory Industry		
71.	Regulated markets, Marketing Societies, Co-operative Societies and Banks.		
72.	Rice Mill, Flour Mill or Dal Mill, Chuda Mill and Masala Mill.		
73.	Rubber and Rubber Products Industry		
74.	Salt Pans		
75.	Saw Mills		
76.	Shops, Commercial Establishments, Saloon, Beauty Parlour, Spa, Massaging Centre, Xerox Shop, Subscriber Trunk Dialing Booth, Tent House, Newspaper Hawkers and Newspaper Establishments.	Unskilled	Rs. 200.00
		Semi-skilled	Rs. 220.00
		Skilled	Rs. 240.00
77.	Siali leaf pluckers and Sa! leaf pluckers	Highly skilled	Rs. 260.00
78.	Soap and Detergent Manufactory		
79.	Social Forestry		
80.	Spinning Mills		
81.	Stone breaking or Stone crushing		
82.	Tamarind collection		
83.	Tile and Brick Making		
84.	Timber Trading (excluding felling and sawing)		
85.	Timber Trading (including felling and sawing)		
86.	Tobacco (including Bidi making) Manufactory		
87.	Trunks, Suitcase and Bucket Manufactory		
88.	Wood works and Furniture Making Industries		

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Explanation:— for the purpose of this notification—

1. The minimum rates of wages are all inclusive rates including the basic rates, the cost of living allowances and the cash value of the concessional supply if any of essential commodities.
2. The daily minimum rates of wages shall be inclusive of wages payable for the weekly day of rest.
3. The minimum rates of wages are applicable to employees employed by contractors also.
4. The minimum rates of wages for disabled persons shall be same as payable to the workers of the appropriate category.
5. There shall not be any discrimination between male and female workers in the matters of payment of minimum wages in any category of employment.
6. (a) "Unskilled" work means work which involves simple operation requiring little or no skill or experience on the job.
 (b) "Semi-skilled" work means work which involves some degree of skill or competence acquired through experience on the job and which is capable of being performed under the supervision or guidance of a skilled employee and includes un-skilled supervisory work.
 (c) "Skilled" work means work which involves skill or competence acquired through experience on the job or through training as an apprentice or in a technical or vocational institute and the performance of which calls for initiative and judgment; and
 (d) "Highly Skilled" work means work which calls for a high degree of performance and full competence in the performance of certain tasks, acquired through intensive technical or professional training or practices, work experience for long years and also required for workers to assure full responsibility for the judgment or decisions involved in the execution of these tasks.
7. An adult employee shall work for 08 (eight) hours per day excluding half an hour of rest.

[No.6502-LL-I(AR)-1/15(LES)]

By Order of the Governor

G. SRINIVAS

Principal Secretary to Government

Printed and published by the Director, Printing, Stationery and Publication, Odisha, Cuttack-10
 Ex. Gaz. 606-173+200

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
 (Contractor)

Director

Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

Chief Engineer
 DPI & Roads
 Odisha Bhubaneswar

Table C. Summary of Payment Currencies

Table: Alternative A

For "Construction for Widening & Strengthening of existing carriageway to 2-lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works)"

Name of payment currency	A Amount of currency	B Rate of exchange (local currency per unit of foreign)	C Local currency equivalent $C = A \times B$	D Percentage of Net Bid Price (NBP) $\frac{100 \times C}{NBP}$
Local currency INR	Rs. 107.46 Crore	1.00	Rs. 107.46 Crore	100.00
Foreign currency #1		-	-	-
Foreign currency #2		-	-	-
Foreign currency #3		-	-	-
Net Bid Price	Rs. 107.46 Crore	-	-	100.00
Provisional sums expressed in local currency	NIL	-	-	-
BID PRICE	Rs. 107.46 Crore	-	-	-

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. Director
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Form ELI – 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	M/s NKC Projects Pvt. Ltd.
Bidder's country of constitution	INDIA
Bidder's year of constitution	2003 (14 th July 2003)
Bidder's legal address in country of constitution	Corporate Office : Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016 Registered Office: 207, Second Floor, Gupta Tower-1, Vikas Puri, New Delhi-110018
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	Name: Rohit Kumar Gupta, Vice President (F&A) Address: NKC Projects Pvt. Ltd. Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016 Tel : +91-124-4852828 Fax : +91-124 2572 E-mail: rohit@nkcproject.com
Attached are copies of the following original document..	
1) In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2.: MEMORANDUM & ARTICLES OF ASSOCIATION ENCLOSED.	
2) In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5.: -- NOT APPLICABLE	

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Excise Exemption Certificate

CIN : U45202DL2003PTC121288

**NKC PROJECTS PVT. LTD.**

(An ISO 9001:2008 Certified Co.)

ODISHA STATE ROADS PROJECT**(Declaration regarding customs/excise duty exemption for materials to be purchased consumption on works)**

M/s NKC Projects Pvt. Ltd.
Plot No. 63 , Phase-IV, Udyog Vihar,
Gurgaon-122016 (Haryana)

To:

The Chief Engineer,
World Bank Projects, Odisha
Of the F.I.C (Civil), Odisha,
Nirman Soudha. Unit-V,
Keshari Nagar, Bhubaneswar. Odisha
India.
Tel No: 91-674-239 6783
Fax No: 91-674-239 0080.
E-mail:pmuosrp@gmail.com

Ref: Construction for Widening & Strengthening of existing carriageway to 2-lane road from
Pirhat to Chandbali (Km. 27/500 to Km 45/000 of SH-09 (Balance Works)
-Certificate for Import/Procurement of Goods/Construction Equipment.

1. We confirm that we are solely responsible for obtaining customs/excise duty waivers which we have considered in our bid and in case of failure to receive such waivers for reasons whatsoever, the Employer will not compensate us.
2. We are furnishing below the information required by the Employer for issue of the necessary certificates in terms of the Government of India Central Excise Notification No. 108/95 read along with all subsequent amendments including the amendment dt.01-03-2008 and Customs Notification No. 85/99.

For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
Rohit Kumar Gupta
Vice President (F&A)

Regd. Office : 207 Second Floor, Gupta Tower - I, Vikas Puri, New Delhi - 110018
Corporate Office : Plot No. 63, Phase - IV, Udyog Vihar, Gurgaon - 122016 (Haryana)
PH : +91-124-4852828, Fax : +91-124-2340017 E-mail : info@nkcproject.com. Website : www.nkcproject.com

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 23 of 75

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

Chief Engineer
DPI & Roads
Odisha Bhubaneswar

3. The materials for which certificates are required are as under:

Items	Make/ Name	Brand	Capacity (where applicable)	Quantity	Value	State whether it will be procured locally or imported (if so from which country)	Remarks regarding justification for the Quantity and their usage in works
Goods:							
a) Bitumen (Grade) V G-30	From approved source			1804MT	Rs. 5.77 Cr	India	For Bituminous works as per Contract
ii) CRMB-35 from approved source	From approved source			1093 MT	Rs. 3.82 Cr	India	For Bituminous works as per Contract
b) Emulsion	From approved source			244 MT	Rs. 0.78 Cr	India	For Bituminous works as per Contract
c) HSD	From approved source			6000 KL	Rs. 30.0 Cr	India	For Project Work
d) LDO	From approved source			1000 KL	Rs. 4.0 Cr	India	For Project Work
e) Cement	From approved source			2,51,520 Bags	Rs. 7.54 Cr	India	For Project Work
f) Steel	From approved source			1300 MT	Rs. 5.2 Cr.	India	For Project Work
g) Others							
Admixture	Suitable make/brand			157200 kg	Rs. 0.55 Cr.	India	For Project Work
HMP	Suitable make/brand	100 TPH		1 No	Rs.2.30 cr.	India	For Project Work
WMM Plant	Suitable make/brand	175 TPH		1 No	Rs. 0.22 cr.	India	For Project Work
Concrete Batching Plant	Suitable make/brand	22 cum/hr		1 Nos.	Rs.1.26 cr.	India	For Project Work

For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
Vice President (F&A)

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Crusher Plant	Suitable make/brand	200 TPH	1 No.	Rs.5.600 cr.	India	For Work	Project
Motor Grader	Suitable make/brand	200 cum/hr	2 Nos.	Rs.1.64 cr.	India	For Work	Project
Excavator	Suitable make/brand	60 Cum / hr	3 Nos	Rs.1.44 cr.	India	For Work	Project
Compactor	Suitable make/brand	8-10 Ton	3 Nos	Rs.0.75 cr.	India	For Work	Project
Hand Roller	Suitable make / Brand	6-8 Ton weight	2 No.	Rs. 0.56 Cr.	India	For Work	Project
Pneumatic Tyre Roller	Suitable make / Brand		1 No.	Rs. 0.49 Cr.	India	For Work	Project
Bitumen Browser	Suitable make / Brand	1750 sqm /hr	1 No.	Rs. 0.30 Cr.	India	For Work	Project
Mechanical Sensor Paver	Suitable make / Brand	100 TPH	1 No.	Rs. 1.75 Cr.	India	For Work	Project
Mechanical Paver	Suitable make / Brand	100 TPH	1 No.	Rs. 1.75 Cr.	India	For Work	Project
Concrete Paver	Suitable make / Brand	6 Mtr	1 No.	Rs. 5.70 Cr.	India	For Work	Project
Tipper	Suitable make / Brand		30 Nos.	Rs. 7.8 Cr.	India	For Work	Project
Water Tanker	Suitable make / Brand	6 KL	5 Nos.	Rs. 1.0 Cr.	India	For Work	Project
Transit mixer/Tipper rigid axle	Suitable make / Brand	6 Cum	5 Nos.	Rs. 1.35 Cr.	India	For Work	Project
Concrete Pump	Suitable make / Brand	20 Cum/hr	1 Nos	Rs.0.1	India	For Work	Project
DG SET	Suitable make / Brand	600KVA	1 No.	Rs. 0.40 Cr.	India	For Work	Project
DG SET	Suitable make / Brand	250 KVA	2 No.	Rs. 0.64 Cr.	India	For Work	Project
DG SET	Suitable make / Brand	125 KVA	3 No.	Rs. 0.18 Cr.	India	For Work	Project
DG SET	Suitable make / Brand	82.5 KVA	2 No.	Rs. 0.10 Cr.	India	For Work	Project
DG SET	Suitable make / Brand	62.5 KVA	1 No.	Rs. 0.04 Cr.	India	For Work	Project
DG SET	Suitable make / Brand	30 KVA	2 No.	Rs. 0.06	India	For Work	Project

For NKC Projects Pvt. Ltd.



Rohit Kumar Gupta
Vice President (F&A)

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For NKC Projects Private Limited




M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 25 of 75



Chief Engineer,
DPI & Roads, Odisha
(Employer)



Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

	Brand			Cr.			Work
DG SET	Suitable make / Brand	15 KVA	1 No.	Rs. 0.02 Cr.	India		For Project Work
DLC Paver	Suitable make / Brand	9 Mtr	1 Nos.	Rs. 1.75 Cr.	India		For Project Work
Pay LOADER	Suitable make / Brand		3 Nos.	Rs. 0.04 Cr.	India		For Project Work
Hydra mobile Crane	Suitable make / Brand	6 Mtr boom	5 Nos.	Rs. 0.05 Cr.	India		For Project Work
Lighting Mast	Suitable make / Brand	6 Nos	6 Nos.	Rs. 0.02 Cr.	India		For Project Work
Loader cum excavator mini type JCB	Suitable make / Brand	1 cum bucket size	2 Nos	Rs.0.4 cr.	India		For Project Work
Earth vibratory roller (for narrow stretches)	Suitable make / Brand	1.5 Ton	1 No	Rs.0.4 cr.	India		For Project Work
Earth roller (for narrow stretches)	Suitable make / Brand		1 No.	Rs.0.05 cr.	India		For Project Work
Bull Dozer	Suitable make / Brand	150 Cum/hr	1 No	Rs.0.5 cr.	India		For Project Work
Dewatering Pump Set	Suitable make / Brand	10HP	1 No	Rs.0.01 cr	India		For Project Work
Air compressor	Suitable make / Brand	250 cfm	2 No	Rs.0.4 cr.	India		For Project Work
Mechanical Broom	Suitable make / Brand	1250 sqm/hr	1 No.	Rs.0.15 cr.	India		For Project Work
Road Marking machine	Suitable make / Brand		1 No.	Rs.0.05 cr.	India		For Project Work
Total Station	Suitable make / Brand		2 No.	Rs. 0.02 Cr.	India		For Project Work
Electronic leveling instrument	Suitable make / Brand		3 No.	Rs.0.018 Cr.	India		For Project Work

4. We agree that no modification to the above list is permitted after bids are opened.
5. We agree that the certificate will be issued only to the extent considered reasonably by the Employer for the work, based on the Bill of Quantities and the construction programme and methodology as furnished by us along with Bid.

[Handwritten Signature]

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For NKC Projects Pvt. Ltd.

[Handwritten Signature]
Rohit Kumar Gupta
Vice President (F&A)

For NKC Projects Private Limited

[Handwritten Signature]
M/s NKC Projects Pvt. Ltd.
(Contractor)


Director

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

6. We confirm that the above goods will be exclusively used for the construction of the above work. We are aware that exemption will be issued to only goods/material/equipment which form part of the work on permanent basis but not for the goods/material/equipment which are used by the contractors for execution of project and after completion of the project, the goods remain with the contractors being owners of such goods for further deployment in other projects..

Date: 06.06.2016
Place: GURGAON



Signature: 
Rohit Kumar Gupta
Vice President (F & A)
For NKC Projects Pvt Ltd.

(Common Seal)



.. 207

For NKC Projects Private Limited


M/s NKC Projects Pvt. Ltd.
(Contractor)

Director


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha Bhubaneswar

CERTIFICATE OF INCORPORATION

5

GOVERNMENT OF INDIA

MINISTRY OF COMPANY AFFAIRS

National Capital Territory of Delhi and
Haryana

B-block Paryavaran Bhawan, CGO Complex, Lodhi Road, , New Delhi - 110003, Delhi, INDIA

Corporate Identity Number : U45202DL2003PTC121288

**Fresh Certificate of Incorporation Consequent upon
Change of Name**

IN THE MATTER OF M/s N K C HIGHWAY DEVELOPERS PRIVATE LIMITED

I hereby certify that N K C HIGHWAY DEVELOPERS PRIVATE LIMITED which was originally incorporated on FOURTEENTH day of JULY TWO THOUSAND THREE under the Companies Act, 1956 (No. 1 of 1956) as N K C HIGHWAY DEVELOPERS PRIVATE LIMITED having duly passed the necessary resolution in terms of Section 21 of the Companies Act, 1956 and the approval of the Central Government signified in writing having been accorded thereto under Section 21 of the Companies Act, 1956, read with Government of India, Department of Company Affairs, New Delhi, Notification No. G.S.R 507 (E) dated 24/06/1985 vide SRN A01054907 dated 18/07/2006 the name of the said company is this day changed to NKC PROJECTS PRIVATE LIMITED and this Certificate is issued pursuant to Section 23(1) of the said Act.

Given under my hand at Delhi this EIGHTEENTH day of JULY TWO THOUSAND SIX.



Navrang Saini

(NAVRANG SAINI)
Registrar of Companies

National Capital Territory of Delhi and
Haryana

For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta

Rohit Kumar Gupta
Vice President (F&A)

For NKC Projects Private Limited

[Signature]
M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Chief Engineer
DPI & Roads
Odisha Bhubaneswar

MEMORANDUM & ARTICLE OF ASSOCIATION

GOVERNMENT OF INDIA
MINISTRY OF COMPANY AFFAIRS
National Capital Territory of Delhi and
Haryana
B-block Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003 Delhi,
INDIA


Corporate Identity Number : U45202DL2003PTC121288

**Fresh Certificate of Incorporation Consequent upon
Change of Name**

IN THE MATTER OF **M/s N K C HIGHWAY DEVELOPERS PRIVATE LIMITED**

I hereby certify that **N K C HIGHWAY DEVELOPERS PRIVATE LIMITED** which was originally incorporated on **FOURTEENTH** day of **JULY TWO THOUSAND THREE** under the Companies Act, 1956 (No.1 of 1956). **N K C HIGHWAY DEVELOPERS PRIVATE LIMITED** having duly passed the necessary resolution in terms Section 21 of the Companies Act, 1956 and the approval of the Central Government signified in writing having been accorded thereto under Section 21 of the Companies Act, 1956 read with Government of India Department of Company Affairs, New Delhi, Notification No. G.S.R. 507 (E) dated 24/06/1985 vide SRN A01054907 dated 18/07/2006 the name of the said company is this day changed to **NKC PROJECTS PRIVATE LIMITED** and this Certificate is issued pursuant to Section 23(1) of the said Act.

Given under my hand at Delhi this **EIGHTEENTH** day of **JULY TWO THOUSAND SIX**.



Sd/-
(NAVRANG SAINI)
Registrar of Companies,
For NKC Projects Private Limited, National Capital Territory of Delhi
Haryana

Rohit Kumar Gupta
Vice President (P&A)

003

For NKC Projects Private Limited

[Signature]
M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

[Signature]
Chief Engineer
DPI & Roads
Odisha



प्रारूप एक
FORM 1
निगमन का प्रमाण-पत्र

Certificate of Incorporation

सं० U45202DL2003PTC121288..... 1924-1925.....
No. U45202DL2003PTC121288..... 2003 - 2004.....

मैं एतद् द्वारा प्रमाणित करता हूँ कि आजएन. के. सी. हाइवे डेवलपर्स प्राइवेट लिमिटेड
कम्पनी अधिनियम 1956 (1956 का 1) के अधीन निगमित की गई है और यह कम्पनी परिसीमित है।

I hereby certify that **N.K.C. HIGHWAY DEVELOPERS PRIVATE LIMITED**
is this day incorporated under the Companies Act, 1956 (No. 1 of 1956) and that the Company is Limited.

मेरे हस्ताक्षर से आज ता० 23 आषाढ़, 1925..... को दिया गया।

Given under my hand at **NEW DELHI** this **FOURTEENTH**.....
day of**JULY**..... **TWO THOUSAND**and.....**THREE**.



Sd/-
(विष्णु काटकर)
सहायक कम्पनी रजिस्ट्रार
For NKC Projects Pvt Ltd
Asst. Registrar of Companies
रा. क्षेत्र दिल्ली एवं हरियाणा
N.C.T. OF DELHI & HARYANA

Rohit Kumar Gupta
Vice President (F&A)


003-A

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. **Director**
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

<p>भारत सरकार-कम्पनी कार्य मंत्रालय कम्पनी रजिस्ट्रार कार्यालय, राष्ट्रीय राजधानी क्षेत्र दिल्ली एवं हरियाणा कम्पनी अधिनियम, 1956 की धारा 18(1) (क) उद्देश्य-खंडों में परिवर्तन की पुष्टि हेतु विशेष विनिश्चय के पंजीकरण का प्रमाण-पत्र</p> <p>कार्पोरेट पहचान संख्या : U45202DL2003PTC121288</p> <p>मेम्बर NKC PROJECTS PRIVATE LIMITED</p> <p>कं अंशधारकों ने दिनांक 30/03/2007 को आयोजित की गई वार्षिक/असाधारण बैठक में एक विशेष विनिश्चय पारित करके कम्पनी अधिनियम, 1956 (1956 का 1) की धारा 18 (1) का अनुपालन करते हुए अपने संगम-ज्ञापन के प्रावधानों में परिवर्तन कर दिया है।</p> <p>मैं, एतद्वारा सत्यापित करता हूँ कि उक्त विशेष विनिश्चय की प्रतिलिपि, यथा परिचालित संगम-ज्ञापन के साथ, आज पंजीकृत कर ली गई है।</p> <p>मेरे हस्ताक्षर द्वारा दिल्ली में यह प्रमाण-पत्र, आज दिनांक एक मई दो हजार सात को जारी किया जाता है।</p>
<p>GOVERNMENT OF INDIA - MINISTRY OF COMPANY AFFAIRS Registrar of Companies, National Capital Territory of Delhi and Haryana SECTION 18(1) (A) OF THE COMPANIES ACT, 1956 Certificate of Registration of the Special Resolution Confirming Alteration of Object Clause (s)</p> <p>Corporate Identity Number : U45202DL2003PTC121288</p> <p>The share holders of M/s NKC PROJECTS PRIVATE LIMITED having passed Special Resolution in the Annual/Extra Ordinary General Meeting held on 30/03/2007 altered the provisions of its Memorandum of Association with respect to its objects and complied with the Section (18) (1) of the Companies Act, 1956 (No. 1 of 1956).</p> <p>I hereby certify that the said Special Resolution together with the copy of the Memorandum of Association as altered has this day been registered.</p> <p>Given under my hand at Delhi this First day of May Two Thousand Seven.</p>
 <p>Sd/- (KLAIR ANITA) सहायक कम्पनी रजिस्ट्रार / Assistant Registrar of Companies राष्ट्रीय राजधानी क्षेत्र दिल्ली एवं हरियाणा National Capital Territory of Delhi and Haryana</p>

Heml Kumar Gupta
Vice President (F&M)

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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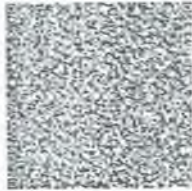
Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

POWER OF ATTORNEY**INDIA NON JUDICIAL****Government of National Capital Territory of Delhi****e-Stamp**

सत्यमेव जयते

Certificate No.	: IN-DL449382138172650
Certificate Issued Date	: 03-May-2016 05:04 PM
Account Reference	: IMPACC (IV)/ dl827903/ DELHI/ DL-DLH
Unique Doc. Reference	: SUBIN-DL827903889465120829180
Purchased by	: NKC PROJECTS PVT LTD
Description of Document	: Article Others
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: NKC PROJECTS PVT LTD
Second Party	: Not Applicable
Stamp Duty Paid By	: NKC PROJECTS PVT LTD
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)



Please write or type below this line.....

THIS IS AN INTEGRAL PART OF
POWER OF ATTORNEY FOR SIGNING OF BID

NOTARY Register No. 429 For NKC Projects Private Limited
 Date 19-05-2016
 For NKC Projects Pvt. Ltd. *03* Managing Director

Statutory Alert:

1. The authenticity of this Stamp Certificate should be verified at "www.echestsamp.com". Any discrepancy in the details on this Certificate and as available on the website renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

POWER OF ATTORNEY FOR SIGNING OF BID

Know all men by these presents, We **NKC Projects Pvt. Ltd.**, having its registered office at 207, Second Floor, Gupta Tower- 1, Vikas Puri, New Delhi-110018 and corporate office at Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana) do hereby irrevocably constitute, nominate, appoint and authorise **Mr. Rohit Kumar Gupta** son of Sh. Bachchan Gupta and presently residing at Flat No. 105, Aravali Hills, Sector-56, Gurgaon- 122011(Haryana), who is presently employed with us and holding the position of “**Vice President – F & A**”, as our true and lawful attorney (hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our BID for “**Construction for Widening & Strengthening of Existing Carriageway to 2- lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works) under Invitation for Bids No. OSRP-CW-ICB-P02B**”. Project proposed or being developed by the “The Chief Engineer, DPI & Roads, Odisha, O/o Engineer-in-Chief (Civil), Odisha, Nirman Soudha, Keshari Nagar, Unit-V Bhubaneswar – 751 001” (the “Authority”) including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our BID for the said Project and/ or upon award thereof to us and/or till the entering into of the Agreement with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.



 For NKC Projects Private Limited

 NKC Projects Pvt. Ltd.

 Managing Director

 032

 Rohit Kumar Gupta

 Vice President (F&A)

Cont/-

For NKC Projects Private Limited


 M/s NKC Projects Pvt. Ltd. **Director**
 (Contractor)


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

IN WITNESS WHEREOF WE, NKC PROJECTS PVT. LTD. THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS 19th DAY OF MAY 2016.



For NKC Projects Pvt. Ltd

Naresh Kumar
Naresh Kumar
Managing Director

Plot No. 63, Udyog Vihar Phase – IV,
Gurgaon – 122016 (Haryana)

Witnesses:

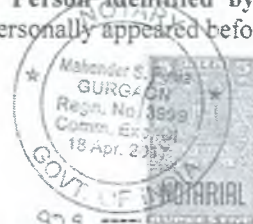
Sanjay Barthwal
H/O-37B/22A FLAT PK7-9,
DWARKA DELHI-75
1. (SANJAY BARTH WAL)

Manish Barthwal
2. Manish Barthwal
BZ-45, Palam Village New Delhi

Accepted

Rohit Kumar Gupta
Rohit Kumar Gupta
Vice President (F&A)
Flat No. 105, Aravali Hills, Sector-56,
Gurgaon- 122011(Haryana)

Person identified by me /
Personally appeared before me



For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
Rohit Kumar Gupta
Vice President (F&A)

NOTARY Register No. 929
Date 19-05-2016

Seal of the Notary

Registration No. of the Notary: 929

Date: 19-05-2016

ATTESTED

Mahender S. Punia
MAHENDER S. PUNIA
ADVOCATE & NOTARY
DISTT. GURGAON (Haryana) India

033

19 MAY 2016

For NKC Projects Private Limited

Naresh Kumar
M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

BOARD RESOLUTION

CIN : U45202DL2003PTC121288

**NKC PROJECTS PVT. LTD.**

(An ISO 9001:2008 Certified Co.)

ABSTRACTS OF THE MINUTES OF MEETING OF BOARD OF DIRECTORS OF M/s NKC PROJECTS PVT. LTD. HELD AT 11.30 A.M. ON 2nd DAY OF MAY 2016 AT CORPORATE OFFICE PLOT NO. 63, UDYOG VIHAR PHASE - IV, GURGAON - 122016, HARYANA

RESOLVED

That the Company do hereby nominate, constitute, appoint and authorize Mr. Naresh Kumar, Managing Director as Company's attorney for and on behalf of the Company to do all such acts, deeds & things as are necessary or required in connection with or incidental to submission of our BID for "Construction for Widening & Strengthening of Existing Carriageway to 2- lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works) under Invitation for Bids No. OSRP-CW-ICB-P02B". Project proposed or being developed by the "The Chief Engineer, DPI & Roads, Odisha, O/o Engineer-in-Chief (Civil), Odisha, Nirman Soudha, Keshari Nagar, Unit-V Bhubaneswar - 751 001", herein after referred to as the Employer, including signing and submission of all documents, providing information / responses representing us in all matters in connection with our BID for the said Project including but not limited to signing and submission of all applications, bids and other documents and writings, participate in Applications and other conferences and providing information/ responses to the Employer, representing us in all matters before the Employer, signing and execution of all contracts including the Contract Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the Employer in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/or till the entering into of the Contract Agreement with the Employer.

RESOLVED FURTHER

That a power of attorney for signing of application and other documents on behalf of the company be issued and executed in favor of Mr. Rohit Kumar Gupta, Vice President (F&A) of NKC Projects Pvt. Ltd. under the hand of Mr. Naresh Kumar, Managing Director of the company.

RESOLVED FURTHER

The Company hereby agrees to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

CERTIFIED TO BE TRUE

For NKC PROJECTS PVT. LTD.

Dharmbir Singh
DHARMBIR SINGH
DIRECTOR



For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
Rohit Kumar Gupta
Vice President (F&A)

034

Regd. Office : 207, Second Floor, Gupta Tower - I, Vikas Puri, New Delhi - 110018
Corporate Office : Plot No. 63, Phase - IV, Udyog Vihar, Gurgaon - 122016 (Haryana)
Ph.: +91-124-4852828. Fax : +91-124-2340017. E-mail : info@nkcproject.com, Website : www.nkcproject.com

For NKC Projects Private Limited

[Signature]
M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 35 of 75

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

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

PAN



For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar


Technical Proposal

- Site Organization
- Method Statement
- Mobilization Schedule
- Construction Schedule
- Equipment
- Others

For NKC Projects Private Limited


M/s NKC Projects Pvt. Ltd.
(Contractor)

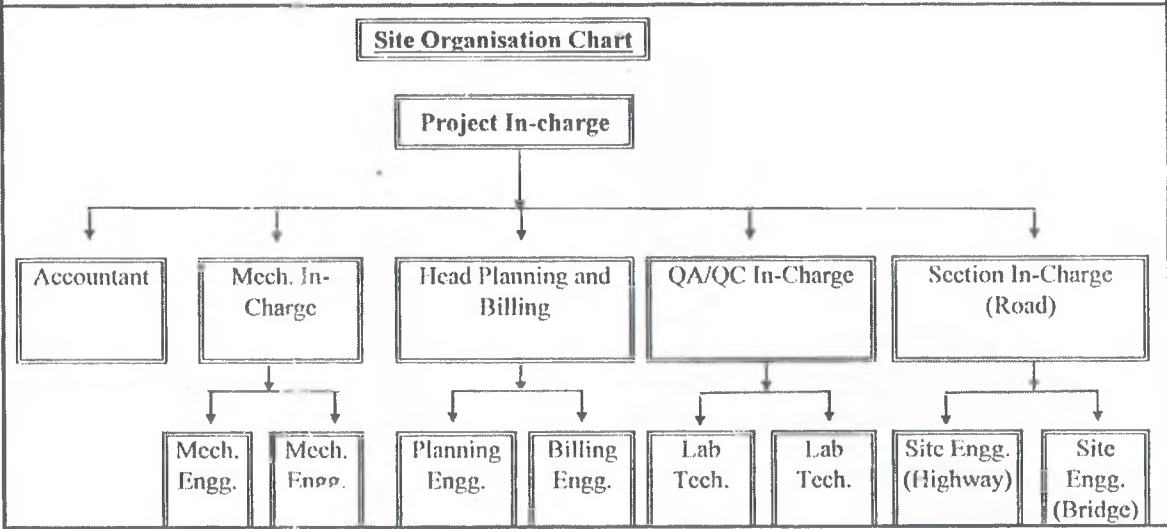
Director


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
ଓଡ଼ିଶା ପ୍ରଦେଶ

Site Organization

Construction for Widening & Strengthening of Existing Carriageway to 2-lane Road from Pirhat to Chandbali (Km. 27/500 to Km. 45/500 of SH-09 (Balance Works) Under ICB No. :OSRP-CW-ICB-P02B:



For NKC Projects Pvt. Ltd.

208

Rohit Kumar Gupta
Vice President (F&A)

230

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. Director
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

Method Statement

All the items of work shall be executed as per the Conditions, Technical Specifications & drawings provided in Volume II , III & IV of the Contract.

Environment Management Plan

The EMP guidelines provided in the Technical Specification shall be followed. The detail EMP shall be rolled out as the work progresses, keeping all the activities as per schedule.

For NKC Projects Private Limited


M/s NKC Projects Pvt. Ltd. **Director**
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha Shubanshu

Mobilization Schedule

Project: Details Sagar Road Project
 Construction for Widening & Strengthening of existing carriageway to 2 lane road from Pichot to Chaudhatalin (21150) to Km. 42/500 of SRI (Distance Works)
 Bidder: NKC Projects Pvt. Ltd.

Sl. No.	Machine Type	Minimum Capacity	Required Qty/ Machines	01-15	01-16	01-17	01-18	01-19	01-20	01-21	01-22	01-23	01-24	01-25	01-26	01-27	01-28	01-29	01-30	
1	Mechanical Sinter Paver	100TPH	1																	
2	Motor Grader	200 Cum/hr	2																	
3	Hydraulic Excavator	60 Cum/hr	3																	
4	Vibratory Roller (tandem)	6.8 ton	2																	
5	Proportional Tye Boiler		1																	
6	Hot Mix Plant (Batch Mix Dry)	150 TPH	1																	
7	Concrete Batch Mix Plant	27 Cum/hr	1																	
8	Tractor Mixer	6 cum	5																	
9	Front end Loader		3																	
10	Dozer	150 Cum/hr	1																	
11	Tipper		20																	
12	Lower Crushing Unit	200TPH	1																	
13	Intermix Screener	125Cum/hr	1																	
14	Earth Compactor	4-10 Tons	3																	
15	Water Tanker	10 KL	5																	
16	Mechanical Paver	100TPH	1																	
17	Water Machine Paver	100TPH	1																	
18	Concrete Pump	70 Cum/hr																		
			61																	

For NKC Projects Pvt. Ltd.
 Mohan Kumar Gupta
 Vice President (C&E)

258

For NKC Projects Private Limited

[Signature]
 M/s NKC Projects Pvt. Ltd. Director
 (Contractor)

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

Construction Schedule

Project: Odisha State Roads Project
Construction for Widening & Strengthening of existing carriageway sections from source to Choudharpur, 27/00 to Km. 48/500 of SH 69 (Distance Works)

M/s. NKC Projects Pvt. Ltd.

Description of Item	Unit	Qty	Start month	Planned Month	Completion Month
Mobilisation work			May-16	5	05-16
Modification work					
1. Bit/Gravel	Mts	30	05-16	5	05-17
2. Gravel & Cracking	Cum	658.80	05-16	4	05-17
3. Excavation Road	Cum	1000.00	05-16	4	05-17
4. Subgrade & Subgrade	Cum	400.00	05-16	4	05-17
5. Gravel Subgrade	Cum	400.00	05-16	4	05-17
6. Wet Mix Macadam	Cum	1500.00	05-17	6	05-17
7. Stone Bituminous Macadam	Cum	800.00	05-17	6	05-17
8. Bituminous Concrete	Cum	1000.00	05-17	6	05-17
9. Dry Layer Concrete	Cum	1000.00	05-17	6	05-17
10. Formwork Quality Concrete	Cum	1000.00	05-17	6	05-17
C. Slab/curb works					
1. Formwork Slab/curb	M ²	900	05-16	6	05-17
2. Reinforcement	Cum	2000.00	05-16	6	05-17
3. Concrete	Cum	1000.00	05-16	6	05-17
D. Miscellaneous work					
1. As per PWD			05-16	6	05-16

Location: (to be submitted in G-3)

Contractor: M/s. NKC Projects Pvt. Ltd.

For NKC Projects Pvt. Ltd.
 Date: 05/05/16
 683

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
 (Contractor)

Director

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


Schedule of Key Equipments as per requirement of Bidding Document

No.	Equipment Type and Characteristics	Minimum Number required
1	Mechanical Bitumen Sensor Paver - 100 TPH	01
2	Motor Grader - 200 cum/Hr	02
3	Hydraulic Excavator - 60 cum/Hr	03
4	Vibratory Roller (Tandem)	02
5	Pneumatic Tyred Roller	01
6	Hot Mix Plant (Batch Mix only) - 100 TPH	01
7	Concrete Batch Mix Plant - 22 Cum/Hr	01
8	Transit Mixer - 6 cum	05
9	Front End Loader	03
10	Dozer - 150 cum/Hr	01
11	Tipper of Different capacity	30
12	Cone Crushing Unit - 200 TPH	01
13	Bitumen Sprayer - 1750 sqm/hour	01
14	Earth Compactor -(8-10 T)	03
15	Water Tanker - 10 KL	05
16	Mechanical Paver - 100 TPH	01
17	WMM Plant - 175 TPH	1
18	Concrete Pump - 20 cum/hour	01

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director



Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

List of Equipments owned by the bidder (NKC Projects Pvt. Ltd.)

No.	Equipment Type and Characteristics	Minimum Number required
1	Mechanical Bitumen Sensor Paver - 100 TPH	01
2	Motor Grader - 200 cum/Hr	02
3	Hydraulic Excavator - 60 cum/Hr	03
4	Vibratory Roller (Tandem) - (6-8 T)	02
5	Pneumatic Tyred Roller - (12-15 T Weight)	01
6	Hot Mix Plant (Batch Mix only) - 160 TPH	01
7	Concrete Batch Mix Plant - 30 Cum/Hr	01
8	Transit Mixer - 6 cum	05
9	Front End Loader - 4 cum	03
10	Dozer - 150 cum/Hr	01
11	Tipper - 10 Tons	30
12	Cone Crushing Unit - 200 TPH	01
13	Bitumen Sprayer - 1750 sqm/hour	01
14	Earth Compactor -(8-10 T)	03
15	Water Tanker - 10 KL	05
16	Mechanical Paver - 100 TPH	01
17	WMM Plant - 175 TPH	1
18	Concrete Pump - 20 cum/hour	01

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. Director
(Contractor)Chief Engineer,
DPI & Roads, Odisha
(Employer)Chief Engineer,
DPI & Roads
Odisha, Bhubaneswar

PLANTS AND EQUIPMENTS OWNED AND PROPOSED FOR THE PROJECT

BY M/s NKC PROJECTS PVT. LTD.

1.

Item of equipment:- MECHANICAL BITUMEN SENSOR PAVER - 1 Nos.		
Equipment information	Name of manufacturer: Vogele	Model and power rating : Super-2100-13 mtr with sb 250tv screed
	Capacity 100 TPH	Year of manufacture: 2010-11
Current status	Current location : Assam	
	<u>Details of current commitments</u> : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

2.

Item of equipment: MOTOR GRADER – 2 Nos.		
Equipment information	Name of manufacturer Caterpillar	Model and power rating : 120K
	Capacity: 200 Cum/Hr	Year of manufacture: 2011
Current status	Current location : Assam	
	<u>Details of current commitments</u> : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For NKC Projects Private LimitedM/s NKC Projects Pvt. Ltd.
(Contractor)**Director**Chief Engineer,
DPI & Roads, Odisha
(Employer)Chief Engineer
DPI & Roads
Odisha

3.

Item of equipment: HYDRAULIC EXCAVATORS : 3 Nos		
Equipment information	Name of manufacturer: Kobelco	Model and power rating: SK-210 LC
	Capacity 60 cum/Hr	Year of manufacture 2011
Current status	Current location Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

4.

Item of equipment: VIBRATORY ROLLER (TANDEM) – 2 Nos		
Equipment information	Name of manufacturer: Escorts	Model and power rating: HD-85 STD
	Capacity (6-8 T)	Year of manufacture 2012
Current status	Current location Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

5.

Item of equipment: PNEUMATIC TYRED ROLLER – 1 Nos		
Equipment information	Name of manufacturer: HAMM	Model and power rating:
	Capacity (12-15 T Weight)	Year of manufacture 2012
Current status	Current location Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd. Director
(Contractor)Chief Engineer,
DPI & Roads, Odisha
(Employer)Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

6.

Item of equipment: HOT MIX PLANT (Batch Mix Only) : 1 No		
Equipment information	Name of manufacturer: Speco	Model and power rating: 2000 FFW
	Capacity: 160 TPH	Year of manufacture: 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

7.

Item of equipment: CONCRETE BATCH MIX PLANT : 1 NO		
Equipment information	Name of manufacturer:- Schwing Stetter	Model and power rating: CP-30
	Capacity: 30 Cum/Hr	Year of manufacture: 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For NKC Projects Private Limited



M/s NKC Projects Pvt. Ltd.
(Contractor)

Page 46 of 75



Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

8.

Item of equipment: TRANSIT MIXERS – 5 Nos (Own 2 Nos & Leased 3 Nos)		
Equipment information	Name of manufacturer Tata Motors	Model and power rating LPT-2516
	Capacity 6 Cum	Year of manufacture 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	
Owner	Name of owner : Equipment Planet	
	Address of owner :- 204, C-127 Naraina Ind. Area, Ph-1, New Delhi-110028	
	Telephone:- 9818612009	Contact name and title:- Ms. Pooja (Manager)
	Fax:-	Telax
Agreements	Details of rental/lease/manufacture agreements specific to the	
	Lease deed Enclosed at Page No. 341	

9.

Item of equipment: FRONT END LOADER – 3 Nos (1 No Own and 2 Nos Leased)		
Equipment information	Name of manufacturer Liugong	Model and power rating CLG-856
	Capacity 4 Cum	Year of manufacture 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	
Owner	Name of owner : Equipment Planet	
	Address of owner :- 204, C-127 Naraina Ind. Area, Ph-1, New Delhi-110028	
	Telephone:- 9818612009	Contact name and title:- Ms. Pooja (Manager)
	Fax:-	Telax
Agreements	Details of rental/lease/manufacture agreements specific to the	
	Lease deed Enclosed at Page No. 341	

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director



Chief Engineer,
DPI & Roads, Odisha
(Employer)



Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

10.

Item of equipment: DOZER – 1 NOS		
Equipment information	Name of manufacturer: Caterpillar	Model and power rating: D5K
	Capacity 150 cum/Hr	Year of manufacture 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
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: TIPPER – 30 Nos.		
Equipment information	Name of manufacturer Man Force Truck Pvt Ltd	Model and power rating CLA-25.16
	Capacity 10 Tons	Year of manufacture 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director



Chief Engineer,
DPI & Roads, Odisha
(Employer)

12.

Item of equipment: CONE CRUSHING UNIT - 1 NO.		
Equipment information	Name of manufacturer Mesto	Model and power rating C-106
	Capacity 200 TPH	Year of manufacture 2011
Current status	Current location: Assam	
	<u>Details of current commitments</u> : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

13.

Item of equipment: BITUMEN SPRAYER – 1 NOS		
Equipment information	Name of manufacturer APOLLO/TATA	Model and power rating Lpt-1616 & ATM 8000
	Capacity 1750 sqm per hour	Year of manufacture 2011
Current status	Current location: Assam	
	<u>Details of current commitments</u> : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For NKC Projects Private Limited


 M/s NKC Projects Pvt. Ltd. Director
 (Contractor)


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


14.

Item of equipment: EARTH COMPACTOR- 3 NOS.		
Equipment information	Name of manufacturer Dynapac	Model and power rating Dynapac
	Capacity (8-10 T)	Year of manufacture 2011
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

15.

Item of equipment: WATER TANKER- 5 Nos. (04 Nos Own and 1 Leased)		
Equipment information	Name of manufacturer Tata Motors	Model and power rating LPT-1616
	Capacity 10 KL	Year of manufacture 2011-12
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	
Owner	Name of owner : Equipment Planet	
	Address of owner :- 204, C-127 Naraina Ind. Area, Ph-1, New Delhi-110028	
	Telephone:- 9818612009	Contact name and title:- Ms. Pooja (Manager)
	Fax:-	Telax
Agreements	Details of rental/lease/manufacture agreements specific to the Project	
	Lease deed Enclosed at Page No. 341	

For NKC Projects Private Limited


 M/s NKC Projects Pvt. Ltd.
 (Contractor)

Director


 Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

 Chief Engineer
 DPI & Roads
 NKC Projects Private Limited

16.

Item of equipment: MECHANICAL PAVER - 1 Nos		
Equipment information	Name of manufacturer	Model and power rating
	Capacity 100 TPH	Year of manufacture 2013
Current status	Current location	
	Details of current commitments :	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	
Owner	Name of owner : Equipment Planet	
	Address of owner :- 204, C-127 Naraina Ind. Area, Ph-1, New Delhi-110028	
	Telephone:- 9818612009	Contact name and title:- Ms. Pooja (Manager)
	Fax:-	Telax
Agreements	Details of rental/lease/manufacture agreements specific to the Project Lease deed Enclosed at Page No. 341	

17.

Item of equipment: WMM PLANT – 175 NOS		
Equipment information	Name of manufacturer Macon	Model and power rating MACON-200
	Capacity 200 TPH	Year of manufacture 2011-12
Current status	Current location: Assam	
	Details of current commitments : 1) Contract Package No. EW-II (AS-24) ASSAM, 2) Contract Package No. EW-II (AS-21) ASSAM, 3) Contract Package No. EW-II (AS-22) ASSAM, 4) Contract Package No. OSRP-CW-ICB-P04B (World Bank Funded) Odisha 5) NHAI, Drain Work NH-8, Gurgaon.	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Proof of Ownership enclosed at Page No. 337

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

18.

Item of equipment: CONCRETE PUMP - 1 No		
Equipment information	Name of manufacturer	Model and power rating
	Capacity 20 Cum/Hr	Year of manufacture
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input checked="" type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	
Owner	Name of owner : Equipment Planet	
	Address of owner :- 204, C-127 Naraina Ind. Area, Ph-1, New Delhi-110028	
	Telephone:- 9818612009	Contact name and title:- Ms. Pooja (Manager)
	Fax:-	Telax
Agreements	Details of rental/lease/manufacture agreements specific to the Project Lease deed Enclosed at Page No. 341	

For NKC Projects Private Limited



M/s NKC Projects Pvt. Ltd.
(Contractor)



Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer,
DPI & Roads
Odisha, Bhubaneswar

Man-Power Schedule as per requirement of Biding Document

No.	Position	Total Work Experience (years)	In Similar Works Experience (years)	Educational Qualification
1	Project Manager – 1 No	10	5	Degree/Diploma in Civil Engg.
2	Highway Engineer – 1 No	5	3	Degree/ Diploma in Civil Engg.
3	Bridge Engineer – 1 No	5	3	Degree/ Diploma in Civil Engg.
4	Material Engineer – 1 No	5	3	Degree/ Diploma in Civil Engg.
5	Quantity Surveyor – 1 No	5	3	Degree/ Diploma in Civil Engg.
6	Equipment Maintenance Engineer – 1 No	5	3	Diploma in Mech. Engg.
7	Environment and Safety Manager – 1 No	3	1	Graduate with skill and experience in handling the Health, Environment, Safety issues

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

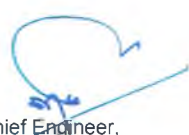
Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Form PER – 1: PROPOSED PERSONNELBY M/S NKC PROJECTS PVT. LTD.

1.	Title of position* PROJECT MANAGER	Name – Mr. Sunil Kumar Rathore
2.	Title of position* HIGHWAY ENGINEER	Name –Mr. Virendra Kumar Khandelwal
3.	Title of position* BRIDGE ENGINEER	Name-Mr. K.M.Mishra
4.	Title of position* MATERIAL ENGINEER	Name-Mr. Kumar Purnendu Shekhar
5.	Title of position* QUANTITY SURVEYOR	Name-Mr. Rakesh Singh
6.	Title of position* EQUIPMENT MAINTENANCE ENGINEER	Name-Mr. Ravi Prakash
7.	Title of position* Environment and Safety Manager	Name-Mr. Pradeep Kumar Agrawal

For NKC Projects Private Limited


M/s NKC Projects Pvt. Ltd. **Director**
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

DPI & Roads
Odisha, Bhubaneswar

Resume of Proposed Personnel-1

Position-PROJECT MANAGER		
Personnel information	Name- Mr. SUNIL KUMAR RATHORE	Date of birth-28.04.1973
	Professional qualifications- B.E. (Civil)- 1994	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.	
	Address of employer – Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)	
	Telephone: 0124-4852828	Contact (manager / personnel officer) Mr. Pankaj Julka
	Fax No:0124-2340017	E-mail:- pankaj.j@nkcproject.com
	Job title:-Project Manager	Years with present employer: 4 Years

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
May- 2012	Till Date	Company: NKC Projects Pvt. Ltd. Project: Contract Package No. EW-II (AS-24) in the State of Assam Designation: Project Manager
Oct-09	May-12	Company: DSC Limited. Project Name: KMP BOT Project Gurgaon. Designation: Project Manager
Jan-09	Sep-09	Company: JMC Projects India Ltd. Project Name: Construction of State Highway Mandleshwar to Khargone and Banher to Maharastra Border. Designation: Sr.Manager
Jan-07	Dec-08	Company: Punj Lloyd. Project Name: Construction of Baran to Jhalawar Mega Highway Road Project. Designation: Sr.Manager
Jan-05	Jun-07	Company: Ramky Infra Consulting Pvt. Ltd. Project Name: Lukwasa-Isagarh-Chanderi Road up to U.P Border (SH-10). Designation: Sr. Engineer
Oct-99	Dec-05	Company: Runway Developers. Project Name: Construction and renewal of various MDR,SH,NH,PMGSY. Designation: Site Engineer
Oct-94	Sep-99	Company: Girija Colonizer Bhopal. Project Name: Group Housing Project around 800 residential Flats. Designation: Site Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Resume of Proposed Personnel-2

Position- HIGHWAY ENGINEER		
Personnel information	Name –Mr. Virendra Kumar Khandelwal	Date of birth-17/10/1972
	Professional qualifications:- B.Tech (Civil) – 2007 & Diploma (Civil)-1992	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.	
	Address of employer- Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)	
	Telephone: 0124-4852828	Contact (manager / personnel officer) Mr. Pankaj Julka
	Fax No:0124-2340017	E-mail:- pankaj.i@nkcproiect.com
	Job title:- Asst. General Manager (Highway)	Years with present employer: 9 Years

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
Apr-07	Till Date	Company: NKC Projects Pvt. Ltd. Project: Contract Package No. EW-II (AS-24) in the State of Assam Designation: Asst. General Manager
Jan-05	Mar-07	Company: Back Bone Projects Ltd. Project Name: Kondhali-Karanja Road Project NH-6. Designation: Sr. Engineer
Sep-03	May-05	Company: JAYPP DSC (JV). Project Name: Delhi-Gurgaon Road Project NH-8. Designation: Sr. Engineer
Feb-02	Aug-03	Company: Punj Lloyed Ltd. Project Name: Belgaon-Maharashtra Boarder Road Project Designation: Sr. Engineer
Feb-01	Jan-02	Company: VRM Constructions Ltd. Project Name: Lucknow-Kanpur Highway NH-25 Designation: Sr. Engineer
May-00	Jan-01	Company: MBL Project Name: Construction of Agra-Dhulepur Road Project NH-3 Designation: Sr. Engineer
Apr-99	Apr-00	Company: Kamal Builders. Project Name: Jaipur Bypass Road Project ast Zone-C Designation: Engineer
Nov-95	Apr-99	Company: Ram Dayal Dhariwal Contractor Project Name: SH Project in Alwar Designation: Engineer
Nov-93	Apr-95	Company: RSBCCCL Project Name: Alwar-Bandikui Section Designation: Jr. Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer,
DPI & Roads,
Odisha

Resume of Proposed Personnel-3

Position- : BRIDGE ENGINEER	
Personnel information	Name- Mr. K.M.Mishra
	Date of birth-20/06/1968
Professional qualifications - : Diploma in (Civil)-1991	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.
	Address of employer- Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)
	Telephone: 0124-4852828
	Contact (manager / personnel officer)
	Fax No:0124-2340017
E-mail:- pankaj.i@nkcproject.com	
Job title:- Sr. Manager - Structure	
Years with present employer: 2 years 5 months	

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
Jan-14	Till Date	Company: NKC Projects Pvt. Ltd. Project: Contract Package No. EW-II (AS-24) in the State of Assam Designation: Sr. Manager Structure
Dec-12	Dec-13	Company: Essel India Limited. Project Name: Four Laning Ludhiana-Talwandi Section NH-95 to be executed as BOT (Toll) Project on DBFO Pattern under NHDP Phase III in the state of punjab. Designation: Manager-Sr. Manager Structure
Feb-08	Nov-12	Company: Ssag Yong Engineering & Construction Co. Ltd. Project Name: North South Corridor Project C-5, C-6 NH-26 Saguor Bypass. Designation: Sr. Engineer
Mai-02	Nov-06	Company: PCL- SUNCON (JV) Project Name: Four Laning and Strengthening of existing Two lane between KM.317.00 to KM.065 on NH-2 in Uttar Pradesh and Bihar (Mohansarai to Mohania) Designation: Sr. Engineer
Feb-00	Feb-02	Company: International Infrastructure Consultancy Service Project Name: NH-7 Madurai to Kanyakumari . Designation: Sr. Engineer
Apr-96	Jan-00	Company: UP Rajkiya Nirman Nigam. Project Name: Modernisation of Mint (Gov of India) Kolkata (W.B) Designation: Site Engineer
May-94	Mar-96	Company: Kamal Builders, Ghaziabad. Project Name: Varanasi To Shakti Road Project, State Highway. Designation: Site Engineer
Oct-92	Apr-94	Company: Nagar Nigam (Kanpur) World Bank Project Project Name: Indo Dutch Project. Designation: Jr.Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Resume of Proposed Personnel-4

Position- : MATERIAL ENGINEER	
Personnel information	Name – Mr. Kumar Purnendu Shekhar
	Date of birth:-19/06/1959
Professional qualifications- B.E. (Civil) - 1987	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.
	Address of employer- Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)
	Telephone: 0124-4852828
	Contact (manager / personnel officer)
	Fax No:0124-2340017
E-mail:- pankaj.i@nkcproject.com	
Job title:- Manager QA/QC	
Years with present employer: 3 years 7 months	

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
Oct-12	Till Date	Company: NKC Projects Pvt. Ltd. Designation: Manager QA/QC
Dec-10	Oct-12	Company: ARSS Infrastructure Project Ltd. Project Name: Metro Transport Southern Railways and Ennore Port Ltd. at Chennai, T.N., Highway with structures. Designation: Manager- Manager QA/QC
Jul-07	Dec-10	Company: Harish Chandra (India) Ltd. Project Name: Construction of High Level Bridge, Nayapura, Kota & approach highway on both sides of bridge; construction of bridge, vehicular underpasses & interchanges for Uamuna Expressway project; doubling of Railway line between Barang-Rajatgarh (25Km), Cuttack-Barang (12Km) & 3 rd line Between Barang-Khurda Road (35Km) in the state of Orissa. Designation: Manager QA/QC
May-06	Jun-07	Company: Meihardt (Singapore) Pte. Ltd. Project Name: Quality Control & Construction supervision of Chhattishgarh Rural Road Development District (MP) 95 Km of road length new construction. Designation: Resident Engineer
Sep-05	May-06	Company: High Point Rendel (I) Pvt. Ltd. Project Name: Quality control & Construction supervision of Chhattishgarh Rural Road Development Authority under PMGSY (ADB) project phase-IV at Kawardha District (CG) 85 Km of road length. Designation: Resident Engineer
Nov-03	Aug-05	Company: TRG Industries (Pvt. Ltd.) Project Name: 4 lanning and strengthening of 44 to 59.190 Kms of NH-25 from Lucknow to Kanpur (EW-9) in the state of UP. Designation: Sr. Engineer
Aug-01	Oct-03	Company: Progressive Construction Ltd. Project Name: Project for 4 Laning & Strengthening of NH-2 in the state of UP & Bihar. Designation: Project Engineer
Jan-99	Jul-01	Company: Patil Construction. Project Name: Rehla, Ranka, Godermana Bhandaria Road (62Kms) Designation: Project Engineer
Jul-96	Dec-98	Company: Shapoorji & Pallanji Co Ltd. Project Name: Mumbai Pune Express highway from Km 12 to 25 Km in the state of Maharashtra. Designation: Sr. Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 58 of 75

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

From	To	Company / Project / Position / Relevant technical and management experience
Apr-94	Jun-96	Company: Ramjidas & Darshan Kumar Pvt. Ltd. Project Name: 4 lanning and strengthening of 0.0 Km to 15.00 Km of NH-1, by pass Panipath to Baholi in the state of Haryana. Designation: Site in-charge
Sep-92	Mar-94	Company: Panchwati Builders Co. Project Name Multistoried Building Construction. Designation: Project Manager
Oct-90	Sep-92	Company: Choudhary Construction Co. Pvt. Ltd. Project Name: Surveying and PCC Road in Ranchi Town. Designation: Sr. Surveyor
Sep-88	Aug-90	Company: Solanki Construction Co. Project Name: Aurangabad to Patna Road From Ch. 0 to 55 kms widening & strengthening of earthwork in embankments including granular sub base, water bound macadam, bituminous macadam semi dense bituminous coarse suprvision & construction of box culverts. Designation: Site Engineer.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Orissa - Bhubaneswar

Resume of Proposed Personnel-5

Position- : QUANTITY SURVEYOR	
Personnel information	Name – Mr. Mr. Rakesh Singh
	Date of birth:-28/12/1975
Professional qualifications – Diploma (Civil) - 1999	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.
	Address of employer- Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)
	Telephone: 0124-4852828
	Contact (manager / personnel officer) Mr. Pankaj Julka
	Fax No:0124-2340017
Job title:- AMG - Billing	E-mail:- pankaj.i@nkcproject.com
	Years with present employer: 4 years

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
May-12	Till Date	Company: NKC Projects Pvt. Ltd. Designation: Additional General Manager - Billing
Feb-12	Apr-12	Company: Ramky Infrastructure Ltd. Project Name: Rehabilitation Strengthening & 4 laning of Srinagar to Banihal Section from Km 187+000 to Km 189+350 (Banihal bypass)& Km 220+700 to Km 286+110 of NH 1A in the state of Jammu & Kashmir or on DBFO Basis. Designation: Sr. Asst.Manager QS
Jan-11	Jan-12	Company: DSC Limited. Project Name: Development of 4/6 Lane Kundli-Manesar-Palwal Expressway in the State in State of Haryana on BOT Basis. Designation: Sr. Engineer Technical Audit Cell
Jul-10	Dec-10	Company: Longjain Road & Bridge Limited. Project Name: 6-Lane of Gurgaon-Kotputli-Jaipur, Section of NH-8 from Km 42.700 to Km 273.000 in the state of Haryana & Rajasthan on DBFO Basis. Designation: QS Highways
Mar-07	Jun-10	Company: AKP & MS Khurana(JV.) Project Name: Extension of Runway (from Ch. 1525 Ch 2250 for AB 320 (AB 321) type of Aircraft at Surat Airport and Extension /Strengthening/Widening of Runway (From Ch 1225 to Ch 0.00), Apron, Taxi, Perimeter Road (7.2 Km) and associate civil work including electrical work of the Runway at Surat Airport. Designation: QS with CAD Engineer
De-04	Feb-07	Company: Asian Techs Limited. Project Name: Widening & strengthening of various roads of Jodhpur city. Designation: QS with CAD Engineer
Nov-01	Nov-04	Company: Simplex – HO HUP (JV.) Project Name: Re-habilitation and up-grading of existing 2 lane road to 4/6 lane carriageway configuration of Kavali-Ongole, Km 222 to Km 291 of NH-5, AP. Designation: QS with CAD Engineer
Dec-00	Oct-01	Company: Simplex Concrete Piles (I) Ltd. Project Name: Power Project Designation: Trainee Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 60 of 75

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

Resume of Proposed Personnel-6

Position- : EQUIPMENT MAINTENANCE ENGINEER		
Personnel information	Name – Mr. Ravi Prakash	Date of birth:- 01.11.1957
	Professional qualifications – B.E. (Mech. Engg.) -1978	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.	
	Address of employer- Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)	
	Telephone: 0124-4852828	Contact (manager / personnel officer)
	Fax No:0124-2340017	E-mail:- pankaj.i@nkcproject.com
	Job title:- President – P & E	Years with present employer: 4 years 3 Months

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
Feb-12	Present	Company: NKC Projects Pvt. Ltd. Designation: President - P&E
Nov-09	Jan-12	Company: M T & T. Designation: Chief Operating Officer
Jan-99	Oct-09	Company: TIL Ltd. Designation: GM (P&E)
Apr-92	Dec-98	Company: Escorts JCB Ltd.. Designation: Regional Manager
Nov-83	Mar-92	Company: GMMCO Ltd. Designation: Branch Manager
Oct-80	Oct-83	Company: Escorts Ltd. Designation: Sales Engineer
Jul-78	Sep-80	Company: Hindustan Motors Ltd. Designation: Sales Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

Resume of Proposed Personnel-7

Position- : ENVIRONMENT AND SAFETY MANAGER	
Personnel information	Name – Mr. Pradeep Kumar Agrawal
	Date of birth:- 12.11.1959
Professional qualifications – B.E. (Civil) -1986	
Present employment	Name of employer- M/S NKC Projects Pvt. Ltd.
	Address of employer- Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana)
	Telephone: 0124-4852828
	Contact (manager / personnel officer) Mr. Pankaj Julka
	Fax No:0124-2340017
Job title:- Environment And Safety Manager	Years with present employer: 6 years
E-mail:- pankaj.j@nkcproject.com	

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience
2010	Present	Company: NKC Projects Pvt. Ltd. Designation: Environment And Safety Manager
2007	2010	Company: Hindustan Construction Co. Ltd. Project Name: Construction of LMNHP WB 1&2 (NH-28) Designation: Dy. Manager (Civil)
2006	2007	Company: HCC Ltd. Project Name: Construction of Rajasthan Atomic Power Project 5&6. Designation: Safety Manager
2000	2004	Company: HCC Ltd. Project Name: Construction of Naini Cable Stayed Bridge. Designation: Safety Manager
1996	2000	Company: HCC Ltd. Project Name: Construction of Malvika Steel Plant, Lucknow. Designation: Works Manager
1990	1996	Company: HCC Ltd. Project Name: Construction of Rajasthan Atomic Power Project 3&4. Designation: Sr. Engineer, (Civil)
1989	1990	Company: HCC Ltd. Project Name: Construction of Kakrapara (Guj.) Atomic Power Project. Designation: Engineer (Civil)
1987	1989	Company: HCC Ltd. Project Name: Construction of Rail coach factory Kapurthala (Punjab). Designation: Engineer (Civil)

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha Superintender

Performance Bank Guarantee



CIN : U45202DL2003PTC121288

NKC PROJECTS PVT. LTD.

(An ISO 9001:2008 Certified Co.)

Ref: NKC/HO/2016-17/120

Date: 16.09.2016

To,
The Chief Engineer,
DPI & Roads, Odisha
Nirman Soudha, Ground Floor,
Bhubaneswar-751001 Odisha

Kind Attention: - Er. Om Prakash Patel, Chief Engineer

Sub:- Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works) Package No.: OSRP-CW-ICB-P02B:- Submission of Performance Bank Guarantee.

Ref:- Your Letter of Acceptance No. PMU-WB-144/2015-37519 Date August 22,2016

Dear Sir,

Pursuant to Para (2) of your Letter of Acceptance referred above, we submit herewith Bank Guarantee No. 2016/195 Dt. 16.09.2016 of Corporation Bank, M-3 & 4, Greater Kailash Part-II, New Delhi, for an amount of Rs.6,77,96,000/- (Rupees Six Crore Seventy Seven Lakh Ninety Six Thousand Only) in original on a proforma as provided in Annexed to the Particular Conditions – Contract Forms of the Bid Documents, towards Performance Security of our above contract with you.

Kindly acknowledge receipt.

Thanking you and assuring you of our best cooperation.

Yours faithfully,

For and on behalf of
NKC Projects Pvt. Ltd.

(Rohit Kumar Gupta)
Vice President (F&A)



Encl: Original Performance BG No. 2016/195 Dt. 16.09.2016 of Rs 6,77,96,000/-

Regd. Office : C3/438 A, Ground Floor, Janakpuri, New Delhi - 110058

Corporate Office : Plot No 63, Phase - IV, Udyog Vihar, Gurgaon - 122016 (Haryana)

Ph.: +91-124-4852628, Fax : +91-124-2340017, E-mail : info@nkproject.com, Website : www.nkcproject.com

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 63 of 75

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha Bhubaneswar

प.क्र. I.D.3024

कार्पोरेशन बैंक Corporation Bank

(भारत सरकार का उद्यम)

(A Government of India Enterprise)

Gk II, New Delhi शाखा Branch

नियंत्रक कार्यालय का पता Address of the Controlling Office :

सहायक महा प्रबंधक The Asst. General Manager
 आंचलिक प्रबंधक The Zonal Manager
 आंचलिक कार्यालय Zonal Office

CORPORATION BANK
 Zonal Office, Delhi South
 1, Fair Road, Jhamaulalan,
 New Delhi-110033

क्रमांक Serial 180275

इस आवरण पत्र को संबंधी पत्र के दिनांक _____ तक वैध है, के साथ अनुबंधित किया जाने इस कार्यालय द्वारा
 पत्रों के लिए जो
 ••(1) श्री/सुश्री _____
 ••(2) श्री/सुश्री _____ के संयुक्त हस्ताक्षर से जारी किया गया है।

This covering letter is issued to be annexed to the letter of the Guarantee No. 2016/195
 dated 16/09/2016 for amount of Rs. 67796000/- valid till 14/04/2018
 issued by this office under the joint signatures of
 ••(1) Mr./Ms. ARIF KHAN (MANAGER)
 ••(2) Mr./Ms. PRADEEP SHARMA (MANAGER)

- यदि इस गारंटी की प्रतिलिपि की आवश्यकता हो तो इसे उपरोक्त नियंत्रक कार्यालय से प्राप्त करें।
- Confirmation of this guarantee, if the same is desired should be obtained from the controlling office named above.

दिनांक Date 16/09/2016

हस्ताक्षर Signature: [Signature]
 नाम Name: K. Subbarao
 पदनाम Designation: AGM

उपरोक्त का नाम व पता Beneficiary's name & address:

The Chief Engineer, DPI & Roads, Odisha, Nirman Soudha, Keekani Nagar, Bhubaneswar - 751001 Odisha.

कार्पोरेट कार्यालय : मंगलादेवी मंदिर मार्ग, पो.बॉ.सं. 88, मंगलूर - 575 001

Corporate Office : Mangaladevi Temple Road, P.B. No. 88, Mangalore - 575 001

- आंचलिक कार्यालय का पूरा पता दें। This Bank Guarantee is issued on behalf of our Client NKC Projects Pvt Ltd.
- Full address of the Zonal office shall be furnished.
- गारंटी करार पत्र में हस्ताक्षर करनेवाले अधिकारियों के पूरे नाम व पदनाम का उल्लेख करें।
- Full name and designation of the officials signing the Guarantee Agreement be furnished.

For NKC Projects Private Limited
[Signature]
 M/s NKC Projects Pvt. Ltd.
 (Contractor)
Director

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

Chief Engineer
 DPI & Roads
 Odisha, Bhubaneswar



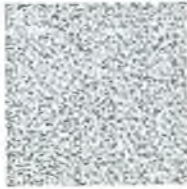
सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	: IN-DL780706580321970
Certificate issued Date	: 01-Aug-2016 12:00 PM
Account Reference	: IMPACC (IV) d1854603/ DELHV DL-DLH
Unique Doc. Reference	: SUBIN-DL854603556222878599550
Purchased by	: CORPORATION BANK
Description of Document	: Article Bank Guarantee
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: CORPORATION BANK
Second Party	: Not Applicable
Stamp Duty Paid By	: CORPORATION BANK
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)



.....Please write or type below this line.....

This is an integral Part of BG No. 2016/195 Dt. 16/09/16 of Rs 6,77,96,000/- (Rupees Six Crore Seventy Seven Lakh Ninety Six Thousand Only) issued in favour of The Chief Engineer, DPI & Roads, Odisha, Nirman Soudha, Keshari Nagar, Bhubaneswar – 751 001, Odisha.

पूरी जानकारी के लिए कृपया निम्न लिखित वेबसाइट पर जाएं।
 वेबसाइट: www.etransactions.com
 1. वेबसाइट पर जाकर 'e-Stamp' विकल्प चुनें।
 2. 'e-Stamp' विकल्प चुनने के बाद 'e-Stamp' विकल्प चुनें।
 3. 'e-Stamp' विकल्प चुनने के बाद 'e-Stamp' विकल्प चुनें।

पूरी जानकारी के लिए कृपया निम्न लिखित वेबसाइट पर जाएं।
 वेबसाइट: www.etransactions.com
 1. वेबसाइट पर जाकर 'e-Stamp' विकल्प चुनें।
 2. 'e-Stamp' विकल्प चुनने के बाद 'e-Stamp' विकल्प चुनें।
 3. 'e-Stamp' विकल्प चुनने के बाद 'e-Stamp' विकल्प चुनें।

Statutory Alert:

- The authenticity of this Stamp Certificate should be checked at www.etransactions.com. Any discrepancy in the details of the Certificate and its issuance on the website renders it invalid.
- The amount of stamp duty is payable on the value of the Certificate.
- In case of any discrepancy please inform the Government Authority.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads

Performance Security
(Bank Guarantee)

Corporation Bank,
M- 3 & 4, Greater Kailash Part-II,
New Delhi -110048

Beneficiary:
The Chief Engineer,
DPI & Roads, Odisha,
Nirman Soudha, Keshari Nagar,
Bhubaneswar – 751 001, Odisha

Date: 16.09.2016

PERFORMANCE GUARANTEE No.: 2016/195

We have been informed that M/s NKC PROJECTS PVT. LTD., Plot No.63, Udyog Vihar Phase-IV, Gurgaon-122016 (Haryana) (hereinafter called "the Contractor") has entered into Contract No./ LOA No. PMU-WB-144/2015-37519 Dated August 22, 2016 with you, for the execution of Construction for Widening & Strengthening of Existing Carriageway to 2- lane Road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works) Package No.- OSRP-CW-ICB-P02B (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we Corporation Bank, M- 3 & 4, Greater Kailash Part-II, New Delhi-110048 hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Rs 6,77,96,000/- (Rupees

For Corporation Bank
Signature
M.S. & C. New Delhi-4

For Corporation Bank
Signature
M.S. & C. New Delhi-4

For NKC Projects Private Limited
Signature
M/s NKC Projects Pvt. Ltd.
(Contractor)
Director

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

BANK GUARANTEE NO. 2016/195 DATED 16.09.2016

Six Crore Seventy Seven Lakh Ninety Six Thousand Only), such sum being payable in the types and proportions of currencies (i.e. INR) in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the 14th Day of April 2018, and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No.758, except that the supporting statement under Article 15(a) is hereby excluded.

Notwithstanding anything contained hereinabove:

1. Our liability under this bank guarantee shall not exceed Rs 6,77,96,000/- (Rupees Six Crore Seventy Seven Lakh Ninety Six Thousand Only).
2. This Bank Guarantee shall be valid upto April 14, 2018.
3. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before April 14, 2018.

For Corporation Bank

Dated 16TH day of September 2016 at New Delhi

For Demand Bank
 16/09/2016
 143-2, D-10, New Delhi-110002
 M.S.B. Bank, New Delhi

For Corporation Bank
 16/09/2016
 143-2, D-10, New Delhi-110002
 M.S.B. Bank, New Delhi

For NKC Projects Private Limited
 M/s NKC Projects Pvt. Ltd.
 (Contractor)
 Director

Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

Chief Engineer
 DPI & Roads
 Odisha, Bhubaneswar

FIN NO-3

CIN : U45202DL2003PTC121288



NKC PROJECTS PVT. LTD.

(An ISO 9001:2008 Certified Co.)

Form FIN – 3: Financial Resources

Name of Bidder: M/s NKC Projects Pvt. Ltd.

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III (Evaluation and Qualification Criteria)

Financial Resources		
S. No.	Source of financing	Amount [INR in Lakhs]
1	Liquid Assets	
a)	Cash and Bank Balance (As on 31.03.15)	2926.09
b)	Trade Receivables (As on 31.03.2015)	7913.68
		10839.77
2	Banking Facility	
a)	Lines of Credit from:	
	Corporation Bank (Bank Certificate Enclosed)	4,000.00
	Syndicate Bank (Bank Certificate Enclosed)	950.00
d)	Available Non-fund Based Limit	8,138.51
		13,088.51
	TOTAL	23928.28
		INR 2392.83 Million

verified & found it correct.

Prabir Kumar
(Prabir Kumar)
M. No. 503106



For and on behalf of
NKC Projects Pvt. Ltd.

Robit Kumar Gupta
Robit Kumar Gupta
Vice President (F & A)

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Regd. Office : 207, Second Floor, Gupta Tower - I, Vikas Puri, New Delhi - 110018
Corporate Office : Plot No. 63, Phase - IV, Udyog Vihar, Gurgaon - 122016 (Haryana)
Phone : +91-124-2340017, Fax : +91-124-2340017, E-mail : info@nkcproject.com, Website : www.nkcproject.com

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads



Corporation Bank
(A Premier Public Sector Bank)

ADV OR/NKC/ 19/2016-17

May 18, 2016

Chief Engineer,
DPI & Roads, Odisha,
Engineer -in-Chief (Civil), Odisha,
Soudha, Keshari Nagar, Unit-V
Bhubaneswar - 751 001

BANK CERTIFICATE

It is to certify that M/s. NKC Projects Pvt. Ltd., is a reputed company with a good financial standing.

In the contract for the work, namely "Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Pirhat to Chandbali (Km. 27.500 to Km. 45.000 of S-I-5) (Balance Works) under Invitation for Bids No. OSRP-CW-ICB-P02B" is awarded to the above firm, we shall be able to provide overdraft credit facilities to the extent of Rs. 40 Crores (Rupees Forty Crores Only) Fund based and Non fund based to meet their working capital requirements for executing to the above contract during the contract period.

This certificate is issued at the specific request of the customer without any risk and responsibility on the part of the bank or any of its officials.

व्यक्ति प्रबंधक / Senior Manager
एच-2-4, ग्रेटर कलशा-11, नई दिल्ली-48
MUM, Greater Kailash-II, New Delhi-48

For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
Vice President (F&A)

Shoping Centre, Greater Kailash-II, New Delhi-48
-91-11-2611 2611 2611 2611
E Mail cb286@corpbank.co.in Website: www.corpbank.com

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Mid Corporate Branch,
60, Bhetapara Main Road, Hatigaon, Guwahati-781028
TEL: +91 94010-56090
www.syndicatebank.in
Email: br.7366@syndicatebank.co.in



No. 7336/MCB/OTL/24/16

Date: 18.05.2016

To
The Chief Engineer,
DPI & Roads, Odisha,
Chief Engineer –in-Chief (Civil), Odisha,
Nirman Soudha, Keshari Nagar, Unit-V
Bhubaneswar – 751 001

BANK CERTIFICATE

This is to certify that M/s. NKC Projects Pvt. Ltd., is a reputed company with a good financial standing.

If the contract for the work, namely "Construction for Widening & Strengthening of Existing Carriageway to 2- lane road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Works) under Invitation for Bids No. OSRP-CW-ICB-P02B" is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. 9.50 Crores (Rupees Nine Crores Fifty Lakh Only) to meet their working capital requirements for executing to the above contract during the contract period, subject to fulfillment of Banks requirement.

This certificate is issued at the specific request of party and without any obligations on the part of the Bank or any of its officials in any manner, more particularly as Guarantor or otherwise.

For Syndicate Bank
For Syndicate Bank

Branch Manager
Mid-Corporate Branch
Hatigaon, Guwahati-781028

For Branch Manager
Mid-Corporate Branch
60, Bhetapara Main Road
Hatigaon, Guwahati-781028

For NKC Projects Pvt. Ltd.

Rohit Kumar Gupta
Vice President (F&A)

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For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar



CIN : U45202DL2003PTC121288

NKC PROJECTS PVT. LTD.

(An ISO 9001:2008 Certified Co.)

NAME AND ADDRESS OF BANKERS:

1. Name of Banker	:	Corporation Bank
Address of Banker	:	M -3 & 4, Greater Kailash Part-II, New Delhi-110048
Contact name and title	:	Mr. J.P. Reddy, Asst. General Manager
Telephone No.	:	011-29223701, 29210667
Fax	:	011-29216923
2. Name of Banker	:	Axis Bank Ltd
Address of Banker	:	Ground Floor, Shop No.1-6 and 8-10, Ninex Time Centre, Suncity, Golf Course Road, Sector-54, Gurgaon, (Haryana)
Contact name and title	:	Mr. Sunil Khatri, Relationship Manager
Telephone No.	:	9899819872
Fax	:	---
3. Name of Banker	:	Syndicate Bank
Address of Banker	:	Mid Corporate Branch, Hatigaon, Guwahati- 781028 Assam
Contact name and title	:	Mr. Chandan Kumar Kalita, Branch Manager
Telephone No.	:	0361-2304461
Fax	:	--

For and on behalf of
NKC Projects Pvt Ltd.

Rohit Kumar Gupta
Vice President (F & A)



Regd. Office : 207, Second Floor, Gupta Tower - I, Vijaś Puri, New Delhi - 110018
 Corporate Office : Plot No. 63, Phase - IV, Udyog Vihar, Gurgaon - 122016 (Haryana)
 Ph.: +91-124-4852828. Fax: +91-124-2340017. E-mail : info@nkcproject.com. Website : www.nkcproject.com

For NKC Projects Private Limited


M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 71 of 75


Chief Engineer,
DPI & Roads, Odisha
(Employer)

 Chief Engineer
 DPI & Roads
 Odisha Phubansohar

Advance Payment Security

Demand Guarantee

_____ [Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: _____ [Name and Address of Employer]

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ [amount in figures] (_____) [amount in words] is to be made against an advance payment guarantee.

At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures] (_____) [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number _____ at _____ [name and address of Bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the ___ day of _____,

The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

For NKC Projects Private Limited
M/s. NKC Projects Pvt. Ltd.
(Contractor)
Director

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

2____, ² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date..

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

² *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

Retention Money Security

Demand Guarantee

_____ [Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: _____ [Name and Address of Employer]

Date: _____

RETENTION MONEY GUARANTEE No.: _____

We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security] is to be made against a Retention Money guarantee.

At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures] (_____ [amount in words])¹ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Contractor on its account number _____ at _____ [name and address of Bank].

¹ The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

This guarantee shall expire, at the latest, 21 days after the date when the Employer has received a copy of the Performance Certificate issued by the Engineer. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director


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



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P02B

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, DPI&Roads, Odisha

on behalf of

Odisha Works Department, Government of Odisha

and

M/s NKC Projects Pvt. Ltd.,

Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016

Tel : +91-124-4852828 Fax : +91-124-2340017

E-mail: rohit@nkproject.com

[VOLUME-II: Conditions of Contract]

Agreement Value: Rs. 104,23,29,840

Project Management Unit, Odisha State Roads Project

Office of the Engineer-in-Chief (Civil), Odisha,

Nirman Soudha, Keshari Nagar, Unit - V, Bhubaneswar - 751 001

October 14, 2016

For NKC Projects Private Limited

Director

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

CONDITIONS OF CONTRACT AND CONTRACT FORMS

For NKC Projects Private Limited



Director



Chief Engineer
DPI & Roads
C-202, Chubbarama

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M/S NKC Projects Pvt.Ltd
(Contractor) Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

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(Contractor) **Director**


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

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(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

The employees of the Contractor and the Sub-contractor shall in no case be treated as the employees of the Employer at any point of time.129

Sub-Clause 7.3130

Inspection.....130

Amend the first line of last para as follows:130

The Contractor shall give “not less than 48 (forty eight) hours” notice to the Engineer whenever any.....130

Clause 8.3.....130

Programme.....130

Clause 10.1.....130

Taking Over of Works and Sections.....130

Clause 12.3.....130

Evaluation130

Add the following after end of para:.....132

(A) Failure to Maintain the Road during construction132

The contractor’s obligations for maintenance of the road stretches shall be limited to the portions/ stretches/ structures handed over to him by the Employer. Other stretches not handed over to him shall be maintained by the Employer till handing over.....132

In case of failure to execute the same, the following amount shall be deducted from the payment certificates of the contractor.....132

1. Road Surface : In case of failure to maintain the road surface pot hole free, damages shall be levied at the rate Rs.1500/- per km per day.....132

2. Shoulders : In case of failure to maintain the shoulders , damages shall be levied at the rate Rs.500/- per km per day.132

(B) Failure to take up Road Safety measures during construction.....132

The Contractor has to follow all traffic safety measures as defined in the Technical Specifications. In case of failure to execute the same, the work shall be taken up by the department through other agency, and the following amount shall be deducted from the payment certificates of the contractor.....132

(C) Failure to adhere to Environmental Mitigation Measures during construction133

The Contractor has to follow all Environmental Mitigation Measures as defined in the Technical Specifications . Damages shall be levied at the rate indicated below for non-conformity of the following items.133

Clause 20.6.....133

Substitute sub paragraph (d) with the following:.....133

(d) A dispute with an Indian Contractor shall be finally settled by arbitration in accordance with the Arbitration & Conciliation Act, 1996, or any statutory amendment thereof. The arbitral tribunal shall consist of 3 (three) Arbitrators, one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding Arbitrator. In case of failure of the two Arbitrators, appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed in the last, the Presiding arbitrator shall be appointed bythe For the purposes of this Sub-

For NKC Projects Private Limited


 M/S NKC Projects Pvt.Ltd. Director
 (Contractor)


 Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

Clause, the term “Indian Contractor” means a Contractor who is registered in India and is a juridical person created under Indian law.133

For NKC Projects Private Limited



Director
M/S NKC Projects Pvt
(Contractor)



Chief Engineer,
DPI & Roads, Odisha
(Employer)

Section VII. General Conditions (GC)

[Name of Employer]

[Name of Contract]

The General Conditions that follow are the Bank Harmonized Edition of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (*Fédération Internationale des Ingénieurs-Conseils*, or FIDIC), FIDIC 2005-All rights reserved. This publication is exclusive for the use of Bank Borrowers and their project implementing agencies as provided under the License Agreement dated March 11th, 2005, between the IBRD and FIDIC, and, consequently, no part of this publication may be reproduced, translated, adapted, stored in a retrieval system or communicated, in any form or by any means, whether mechanical, electronic, magnetic, photocopying, recording or otherwise, without prior permission in writing from FIDIC, except by the Employer identified above and only for the exclusive purpose of preparing these Standard Bidding Documents for the Contract also identified above.

For NKC Projects Private Limited

M/S NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

General Conditions

1. General Provisions

1.1 Definitions

In the Conditions of Contract (“these Conditions”), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.1 The Contract

1.1.1.1 “Contract” means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

1.1.1.2 “Contract Agreement” means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement].

1.1.1.3 “Letter of Acceptance” means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression “Letter of Acceptance” means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

1.1.1.4 “Letter of Tender” means the document entitled letter of tender or letter of bid, which was completed by the Contractor and includes the signed offer to the Employer for the Works.

1.1.1.5 “Specification” means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

1.1.1.6 “Drawings” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.

1.1.1.7 “Schedules” means the document(s) entitled schedules, completed by the Contractor and

M/S NKC Projects Private Limited

M/S NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.

1.1.1.8 “Tender” means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.1.9 “Bill of Quantities”, “Daywork Schedule” and “Schedule of Payment Currencies” mean the documents so named (if any) which are comprised in the Schedules.

1.1.1.10 “Contract Data” means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.

1.1.2 Parties and Persons

1.1.2.1 “Party” means the Employer or the Contractor, as the context requires.

1.1.2.2 “Employer” means the person named as employer in the Contract Data and the legal successors in title to this person.

1.1.2.3 “Contractor” means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

1.1.2.4 “Engineer” means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].

1.1.2.5 “Contractor’s Representative” means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor’s Representative], who acts on behalf of the Contractor.

1.1.2.6 “Employer’s Personnel” means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the

For NKC Projects Private Limited

M/S NKC Projects Pvt.Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Employer or the Engineer, as Employer's Personnel.

- 1.1.2.7 "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.
- 1.1.2.8 "Subcontractor" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.
- 1.1.2.9 "DB" means the person or three persons appointed under Sub-Clause 20.2 [Appointment of the Dispute Board] or Sub-Clause 20.3 [Failure to Agree on the Composition of the Dispute Board]
- 1.1.2.10 "FIDIC" means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.
- 1.1.2.11 "Bank" means the financing institution (if any) named in the Contract Data.
- 1.1.2.12 "Borrower" means the person (if any) named as the borrower in the Contract Data.
- 1.1.3.1 "Base Date" means the date 28 days prior to the latest date for submission of the Tender.
- 1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [Commencement of Works].
- 1.1.3.3 "Time for Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.
- 1.1.3.4 "Tests on Completion" means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3 Dates, Tests, Periods and Completion

For NKC Projects Private Limited

1.1.4 Money and Payments

- 1.1.3.5 “Taking-Over Certificate” means a certificate issued under Clause 10 [Employer’s Taking Over].
- 1.1.3.6 “Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.
- 1.1.3.7 “Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over twelve months except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections].
- 1.1.3.8 “Performance Certificate” means the certificate issued under Sub-Clause 11.9 [Performance Certificate].
- 1.1.3.9 “day” means a calendar day and “year” means 365 days.
- 1.1.4.1 “Accepted Contract Amount” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.
- 1.1.4.2 “Contract Price” means the price defined in Sub-Clause 14. [The Contract Price], and includes adjustments in accordance with the Contract.
- 1.1.4.3 “Cost” means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.
- 1.1.4.4 “Final Payment Certificate” means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].
- 1.1.4.5 “Final Statement” means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

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- 1.1.4.6 “Foreign Currency” means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.
- 1.1.4.7 “Interim Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.
- 1.1.4.8 “Local Currency” means the currency of the Country.
- 1.1.4.9 “Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment].
- 1.1.4.10 “Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].
- 1.1.4.11 “Retention Money” means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].
- 1.1.4.12 “Statement” means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

1.1.5 Works and Goods

- 1.1.5.1 “Contractor’s Equipment” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor’s Equipment excludes Temporary Works, Employer’s Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.
- 1.1.5.2 “Goods” means Contractor’s Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.
- 1.1.5.3 “Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.
- 1.1.5.4 “Permanent Works” means the permanent works to be

For NKC Projects Private Limited

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(Contractor) Director


Chief Engineer,
DPI & Roads, Odisha
(Employer)

executed by the Contractor under the Contract.

1.1.5.5 “Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.

1.1.5.6 “Section” means a part of the Works specified in the Contract Data as a Section (if any).

1.1.5.7 “Temporary Works” means all temporary works of every kind (other than Contractor’s Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

1.1.5.8 “Works” mean: the Permanent Works and the Temporary Works, or either of them as appropriate.

1.1.6 Other Definitions

1.1.6.1 “Contractor’s Documents” means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

1.1.6.2 “Country” means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.

1.1.6.3 “Employer’s Equipment” means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.

1.1.6.4 “Force Majeure” is defined in Clause 19 [Force Majeure].

1.1.6.5 “Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.

1.1.6.6 “Performance Security” means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

1.1.6.7 “Site” means the places where the Permanent Works are to be executed including storage and working

For NKC Projects Private Limited

M/S.NKC Projects Pvt.Ltd.
(Contractor) Director


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

areas and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

1.1.6.8 "Unforeseeable" means not reasonably foreseeable by an experienced contractor by the Base Date.

1.1.6.9 "Variation" means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

1.2 Interpretation

In the Contract, except where the context requires otherwise:

- (a) words indicating one gender include all genders;
- (b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- (c) provisions including the word "agree," "agreed" or "agreement" require the agreement to be record in writing;
- (d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and
- (e) the word "tender" is synonymous with "bid", and "tenderer" with "bidder" and the words "tender documents" with "bidding documents"

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.

1.3 Communications

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

- (a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Contract Data; and
- (b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract

Data. However:

- (i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
- (ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

1.4 Law and Language The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.

The ruling language of the Contract shall be that stated in the Contract Data.

The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.

1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- (a) the Contract Agreement (if any),
- (b) the Letter of Acceptance,
- (c) the Tender,
- (d) the Particular Conditions – Part A,
- (e) the Particular Conditions – Part B
- (f) these General Conditions
- (g) the Specification,
- (h) the Drawings, and
- (i) the Schedules and any other documents forming part of the Contract.

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Director


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DPI & Roads, Odisha
(Employer)
DPI
Odisha Submitter

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

1.6 Contract Agreement

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

1.7 Assignment

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

- (a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and
- (b) may, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

1.8 Care and Supply of Documents

The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

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1.9 Delayed Drawings or Instructions

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit

1.10 Employer's Use of Contractor's Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- (b) entitle any person in proper possession of the relevant

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part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

- (c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

1.11 Contractor's Use of Employer's Documents

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12 Confidential Details

The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor's compliance with the Contract and allow its proper implementation.

Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

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- (a) the Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
- (b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture or other unincorporated grouping of two or more persons:

- (a) these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;
- (b) these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and
- (c) the Contractor shall not alter its composition or legal status without the prior consent of the Employer.

1.15 Inspections and Audit by the Bank

The Contractor shall permit, and shall cause its Subcontractors and subconsultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and all accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Contractor's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 15.6 [Corrupt or Fraudulent Practices] which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under Sub-Clause 1.15 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures).

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2. The Employer

2.1 Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.


2.2 Permits, Licences or Approvals

The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:

- (a) copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
- (b) any permits, licences or approvals required by the Laws

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of the Country:

- (i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
- (ii) for the delivery of Goods, including clearance through customs, and
- (iii) for the export of Contractor's Equipment when it is removed from the Site.

2.3 Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

- (a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and
- (b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

2.4 Employer's Financial Arrangements

The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in such notice of the extent to which such funds will be available.

2.5 Employer's Claims

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the

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Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Employer's Equipment and Free-Issue Material], or for other services requested by the Contractor.

The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.


3. The Engineer

3.1 Engineer's Duties and Authority

The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer 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

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Odisha, DN, Lanerway

the authority attributed to the Engineer.

However, whenever the Engineer 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 shall be deemed to act for the Employer;
- (b) the Engineer 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 (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 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 shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:

- (a) Sub-Clause 4.12 [Unforeseeable Physical Conditions]: Agreeing or determining an extension of time and/or additional cost.
- (b) Sub-Clause 13.1 [Right to Vary]: Instructing a Variation, except;
 - (i) in an emergency situation as determined by the Engineer, or
 - (ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage

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specified in the Contract Data.

- (c) Sub-Clause 13.3 [Variation Procedure]: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 [Right to Vary] or 13.2 [Value Engineering].
- (d) Sub-Clause 13.4 [Payment in Applicable Currencies]: Specifying the amount payable in each of the applicable currencies

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, 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, 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. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 [Variations and Adjustments] and shall notify the Contractor accordingly, with a copy to the Employer.

3.2 Delegation by the Engineer

The Engineer 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, 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.


However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language].

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an

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Director
M/S NKC Projects Pvt. Ltd.
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Chandrasekhar

assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

- (a) any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials;
- (b) if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

3.3 Instructions of the Engineer

The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer 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 or delegated assistant (as the case may be).

3.4 Replacement of the Engineer

If the Employer intends to replace the Engineer, 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. If the Contractor considers the intended replacement Engineer 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.

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(Contractor) Director


Chief Engineer,
DPI & Roads, Odisha
(Employer)
Chief Engineer
DPI & Roads
C/o: Shri. Jagan Mohan

3.5 Determinations

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4. The Contractor

4.1 Contractor's General Obligations

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's instructions, and shall remedy any defects in the Works.

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.

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.

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.

The Contractor shall, whenever required by the Engineer, 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.

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If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
- (b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs;
- (c) the Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and
- (d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer 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 under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

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Chief Engineer,
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(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

4.2 Performance Security

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount and currencies stated in the Contract Data. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The Performance Security shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.


The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation or as a result of a Variation amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.


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(Contractor) Director


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CI (Employer)
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4.3 Contractor's Representative

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 for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, 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's prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

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 has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

4.4 Subcontractors

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the

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Particular Conditions:

- (a) the Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
- (b) the prior consent of the Engineer shall be obtained to other proposed Subcontractors;
- (c) the Contractor shall give the Engineer not less than 28 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- (d) each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Employer].

The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.

4.5 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Employer, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.

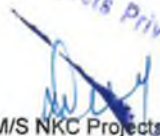
4.6 Co-operation

The Contractor shall, as specified in the Contract or as instructed by the Engineer, 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.

Any such instruction shall constitute a Variation if and to the

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(Contractor) Director


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

extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

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 the time and manner stated in the Specification.

4.7 Setting Out

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. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

4.8 Safety Procedures The Contractor shall:

- (a) comply with all applicable safety regulations,
- (b) take care for the safety of all persons entitled to be on the Site,
- (c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
- (d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over], and
- (e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

4.9 Quality Assurance

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 shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, 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.

4.10 Site Data

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or

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(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

- (a) the form and nature of the Site, including sub-surface conditions,
- (b) the hydrological and climatic conditions,
- (c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,
- (d) the Laws, procedures and labour practices of the Country, and
- (e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

4.11 Sufficiency of the Accepted Contract Amount

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 referred to in Sub-Clause 4.10 [Site Data].

Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

4.12 Unforeseeable Physical Conditions

In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

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(Employer)

Chief Engineer
DPI & Roads
Civil Engineering

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such

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(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)
G. K. Sahoo

evidence.

4.13 Rights of Way and Facilities

Unless otherwise specified in the Contract the Employer shall provide access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

4.14 Avoidance of Interference

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.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

- (a) the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
- (b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- (c) the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route;
- (d) the Employer does not guarantee the suitability or availability of particular access routes; and
- (e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne

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by the Contractor.

4.16 Transport of Goods

Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- (b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- (c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

4.17 Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

4.18 Protection of the Environment

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.

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.

4.19 Electricity, Water and Gas

The Contractor shall, except as stated below, 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.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these

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services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

4.20 Employer's Equipment and Free-Issue Materials

The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

- (a) the Employer shall be responsible for the Employer's Equipment, except that
- (b) the Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.


The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

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4.21 Progress Reports


Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.


Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

- (a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- (b) photographs showing the status of manufacture and of progress on the Site;
- (c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
 - (i) commencement of manufacture,
 - (ii) Contractor's inspections,
 - (iii) tests, and
 - (iv) shipment and arrival at the Site;
- (d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];
- (e) copies of quality assurance documents, test results and certificates of Materials;
- (f) list of notices given under Sub-Clause 2.5 [Employer's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];
- (g) safety statistics, including details of any hazardous

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(Contractor)


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Odisha Bhudhanwar

incidents and activities relating to environmental aspects and public relations; and

- (h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

4.22 Security of the Site

Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall be responsible for keeping unauthorised persons off the Site, and
- (b) 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, as authorised personnel of the Employer's other contractors on the Site.

4.23 Contractor's Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.


Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

4.24 Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons

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Odisha, Bhubaneswar

from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

5. Nominated Subcontractors

5.1 Definition of "nominated Subcontractor"

In the Contract, "nominated Subcontractor" means a Subcontractor:

- (a) who is stated in the Contract as being a nominated Subcontractor, or
- (b) whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

5.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:

- (a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- (b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and

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employees; or

- (c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
- (i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
 - (ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities; and
 - (iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

- (a) submits this reasonable evidence to the Engineer, or
- (b)
 - (i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and
 - (ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the

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(Contractor)

Director

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(Employer)

Contractor's entitlement,

then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

6. Staff and Labour

6.1 Engagement of Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.

6.2 Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

6.3 Persons in the Service of Employer


The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

6.4 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

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(Contractor)


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The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

6.5 Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:

- (a) otherwise stated in the Contract,
- (b) the Engineer gives consent, or
- (c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.

6.6 Facilities for Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7 Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning

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(Contractor)

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(Employer)

Chief Engineer,
DPI & Roads,
Odisha, India


health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.


HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Consultation Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor's employees, all Sub-Contractors and Consultants' employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behavior with respect to of Sexually Transmitted Diseases (STD)—or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labour as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counseling and referral to a dedicated national STI and HIV/AIDS program, (unless otherwise agreed) of all Site staff and labour.

The Contractor shall include in the program to be submitted for the execution of the Works under Sub-Clause 8.3 [Programme] an alleviation program for Site staff and labour and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation program shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the program shall detail the resources to be provided or utilized and any related sub-contracting proposed. The program shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this program shall not exceed the Provisional Sum dedicated for this purpose.

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(Contractor)


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(Employer)

**6.8 Contractor's
Superintendence**

Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

**6.9 Contractor's
Personnel**

The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

- (a) persists in any misconduct or lack of care,
- (b) carries out duties incompetently or negligently,
- (c) fails to conform with any provisions of the Contract, or
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

**6.10 Records of
Contractor's
Personnel and
Equipment**

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

**6.11 Disorderly
Conduct**

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

**6.12 Foreign
Personnel**

The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if

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requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

6.14 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.15 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce their danger to health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.16 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift barter or disposal thereto by Contractor's Personnel.

6.17 Arms and Ammunition

The Contractor shall not give barter, or otherwise dispose of to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.18 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.19 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.

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- 6.20 Prohibition of Forced or Compulsory Labour** The contractor shall not employ "forced or compulsory labour" in any form. "Forced or compulsory labour" consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.
- 6.21 Prohibition of Harmful Child Labour** The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.
- 6.22 Employment Records of Workers** The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer, and these records shall be available for inspection by Auditors during normal working hours. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].
- 6.23 Workers' Organisations** In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.

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Director

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DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, India

6.24 Non-Discrimination and Equal Opportunity

The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non discrimination in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on nondiscrimination in employment, the Contractor shall meet this Sub-Clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.

7. Plant, Materials and Workmanship

7.1 Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

- (a) in the manner (if any) specified in the Contract,
- (b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and
- (c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

- (a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
- (b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

7.3 Inspection

The Employer's Personnel shall at all reasonable times:

- (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
- (b) during production, manufacture and construction (at the

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Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

7.4 Testing

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Engineer may, under Clause 13 [Variations and Adjustments] vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer's presence.

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(Employer)

Chief Engineer
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If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

7.6 Remedial Work

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

- (a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
- (b) remove and re-execute any other work which is not in accordance with the Contract, and
- (c) execute any work which is urgently required for the safety

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of the Works, whether because of an accident, unforeseeable event or otherwise.

The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under subparagraph (c).

If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.

7.7 Ownership of Plant and Materials

Except otherwise specified in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

- (a) when it is incorporated in the Works;
- (b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

7.8 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

- (a) natural Materials obtained from outside the Site, and
- (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

8. Commencement, Delays and Suspension


8.1 Commencement of Works

Except otherwise specified in the Particular Conditions, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's instruction recording the agreement of both Parties on such fulfilment and instructing to commence the Works is received by the Contractor:

- (a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant

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authorities in the Country;

- (b) delivery to the Contractor of reasonable evidence of the Employer's Financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements])
- (c) except if otherwise specified in the Contract Data, possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works; and
- (d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor.
- (e) If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].

The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

8.3 Programme

The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of

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Engineering

- design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
- (b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
 - (c) the sequence and timing of inspections and tests specified in the Contract, and
 - (d) a supporting report which includes:
 - (i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
 - (ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price, or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking-Over of the Works and Sections] is

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or will be delayed by any of the following causes:

- (a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
- (b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
- (c) exceptionally adverse climatic conditions,
- (d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
- (e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

8.5 Delays Caused by Authorities

If the following conditions apply, namely:

- (a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
- (b) these authorities delay or disrupt the Contractor's work, and
- (c) the delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

8.6 Rate of Progress

If, at any time:

- (a) actual progress is too slow to complete within the Time for Completion, and/or
- (b) progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme],

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other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 [Delay Damages] below.

Additional costs of revised methods, including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.

8.7 Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall be subject to notice under Sub-Clause 2.5 [Employer's Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

8.8 Suspension of Work

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

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The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9 [Consequences of Suspension], 8.10 [Payment for Plant and Materials in Event of Suspension] and 8.11 [Prolonged Suspension] shall not apply.

8.9 Consequences of Suspension

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

- (a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and
- (b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and

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Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [Variations and Adjustments].

9. Tests on Completion

9.1 Contractor's Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.

In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may

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proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

9.4 Failure to Pass Tests on Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:

- (a) order further repetition of Tests on Completion under Sub-Clause 9.3;
- (b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or
- (c) issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].

10. Employer's Taking Over

10.1 Taking Over of the Works and Sections

Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance

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with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor's application:

- (a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
- (b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

- (a) the part which is used shall be deemed to have been taken over as from the date on which it is used,
- (b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and

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- (c) if requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages], and shall not affect the maximum amount of these damages.

10.3 Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the

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Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

10.4 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11. Defects Liability

11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

- (a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and
- (b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

11.2 Cost of Remedying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

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- (a) any design for which the Contractor is responsible,
- (b) Plant, Materials or workmanship not being in accordance with the Contract, or
- (c) failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer and Sub-Clause 13.3 [Variation Procedure] shall apply.

11.3 Extension of Defects Notification Period

The Employer shall be entitled subject to Sub-Clause 2.5 [Employer's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of a damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Employer may (at his option):

- (a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage;
- (b) require the Engineer to agree or determine a reasonable

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reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or

- (c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5 Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

11.7 Right of Access

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

11.9 Performance

Performance of the Contractor's obligations shall not be

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considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.

12. Measurement and Evaluation

12.1 Works to be Measured

The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement at Completion], and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

Whenever the Engineer requires any part of the Works to be

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measured, reasonable notice shall be given to the Contractor's Representative, who shall:

- (a) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and
- (b) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract and notwithstanding local practice:

measurement shall be made of the net actual quantity of each item of the Permanent Works, and

the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 [Works to be Measured] and 12.2 [Method of Measurement] and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract

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or, if there is no such item, specified for similar work.

Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

(a)

- (i) the measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule,
- (ii) this change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount,
- (iii) this change in quantity directly changes the Cost per unit quantity of this item by more than 1%, and
- (iv) this item is not specified in the Contract as a "fixed rate item";

or

(b)

- (i) the work is instructed under Clause 13 [Variations and Adjustments],
- (ii) no rate or price is specified in the Contract for this item and
- (iii) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

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Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned Works commences.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- (a) the Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- (b) the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- (c) this cost is not deemed to be included in the evaluation of any substituted work;

then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13. Variations and Adjustments

13.1 Right to Vary

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

- (a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
- (b) changes to the quality and other characteristics of any item of work,
- (c) changes to the levels, positions and/or dimensions of any

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part of the Works,

- (d) omission of any work unless it is to be carried out by others,
- (e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
- (f) changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

13.2 Value Engineering

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

- (a) the Contractor shall design this part,
- (b) sub-paragraphs (a) to (d) of Sub Clause 4.1 [Contractor's General Obligations] shall apply, and
- (c) if this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:
 - (i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost],and

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- (ii) the reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

However, if amount (i) is less than amount (ii), there shall not be a fee.

13.3 Variation Procedure

If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- (a) a description of the proposed work to be performed and a programme for its execution,
- (b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
- (c) the Contractor's proposal for evaluation of the Variation.

The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.

13.4 Payment in Applicable Currencies


If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

13.5 Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the

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Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

- (a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
- (b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
 - (i) the actual amounts paid (or due to be paid) by the Contractor, and
 - (ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

13.6 Daywork:

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:

- (a) the names, occupations and time of Contractor's Personnel,
- (b) the identification, type and time of Contractor's Equipment and Temporary Works, and

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- (c) the quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.7 Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.


After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.


Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.8 Adjustments for Changes in Cost

In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the

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Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$P_n = a + b L_n / L_o + c E_n / E_o + d M_n / M_o + \dots$ where:

“ P_n ” is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period “ n ”, this period being a month unless otherwise stated in the Contract Data ;

“ a ” is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

“ b ”, “ c ”, “ d ”, ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;


“ L_n ”, “ E_n ”, “ M_n ”, ... are the current cost indices or reference prices for period “ n ”, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

“ L_o ”, “ E_o ”, “ M_o ”, ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in

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the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the "currency of index" (stated in the table) is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price: whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14. Contract Price and Payment


14.1 The Contract Price

Unless otherwise stated in the Particular Conditions:

- (a) the Contract Price shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
- (b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
- (c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - (i) of the Works which the Contractor is required to

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execute, or

- (ii) for the purposes of Clause 12 [Measurement and Evaluation]; and
- (d) the Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.
- (e) Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

14.2 Advance Payment The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the

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guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:.

- (a) deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and
- (b) deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 per cent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.


If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Employer] and Sub-Clause 19.6 [Optional Termination, Payment and Release], payable by the Contractor to the Employer.


14.3 Application for Interim Payment Certificates

The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- (a) the estimated contract value of the Works executed and the

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Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);

- (b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
- (c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data;
- (c) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
- (e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
- (f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
- (g) the deduction of amounts certified in all previous Payment Certificates.

14.4 Schedule of Payments

If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

- (a) the instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
- (b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
- (c) if these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to

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Chief Engineer,
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which progress is less or more than that on which the instalments were previously based.

If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5 Plant and Materials intended for the Works

If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].


If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.

The Engineer shall determine and certify each addition if the following conditions are satisfied:

- (a) the Contractor has:
- (i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
 - (ii) submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

- (b) the relevant Plant and Materials:
- (i) are those listed in the Schedules for payment when shipped,
 - (ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and
 - (iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form

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(Employer)
Chief Engineer
DPI & Roads
Odisha
Contract Administration

and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

- (c) the relevant Plant and Materials:
- (i) are those listed in the Schedules for payment when delivered to the Site, and
 - (ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The additional amount to be certified shall be the equivalent of eighty percent of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

14.6 Issue of Interim Payment Certificates

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Contract Data. In this event, the Engineer shall give notice to the

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Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although:

- (a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
- (b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

14.7 Payment

The Employer shall pay to the Contractor:

- (a) the first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later;
- (b) the amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor, within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and
- (c) the amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement, within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2.

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(Contractor)

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(Employer)

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Odisha, Bhubaneswar

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

14.8 Delayed Payment If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

14.9 Payment of Retention Money When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a

Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

However, if any work remains to be executed under Clause 11 [Defects Liability], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been

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executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and provided by an entity approved by the Employer, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

- (a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the

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- (b) any further sums which the Contractor considers to be due, and
- (c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

- (a) the value of all work done in accordance with the Contract, and
- (b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of the said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the

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Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall deliver to the Employer and to the Contractor, the Final Payment Certificate which shall state:

- (a) the amount which he fairly determines is finally due, and
- (b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Employer's Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

- (a) in the Final Statement and also
- (b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub Clause 14.10 [Statement at Completion].

However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

- (a) if the Accepted Contract Amount was expressed in Local Currency only:

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- (i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
 - (ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
 - (iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;
- (b) payment of the damages specified in the Contract Data, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;
 - (c) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;
 - (d) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
 - (e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

15. Termination by Employer

15.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

15.2 Termination by Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

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- (a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],
- (b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
- (c) without reasonable excuse fails:
 - (i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or
 - (ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 28 days after receiving it,
- (d) subcontracts the whole of the Works or assigns the Contract without the required agreement,
- (e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
- (f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:
 - (i) for doing or forbearing to do any action in relation to the Contract, or
 - (ii) for showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

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The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Employer may:

- (a) proceed in accordance with Sub-Clause 2.5 [Employer's Claims],
- (b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or
- (c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to

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the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

15.5 Employer's Entitlement to Termination for Convenience

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Sub-Clause 16.2 [Termination by Contractor].

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

15.6 Corrupt or Fraudulent Practices

If the Employer determines that the Contractor and/or any of its personnel, or its agents, or its Subcontractors, subconsultants, services providers, suppliers and/or their employees has engaged in corrupt, fraudulent, collusive coercive, or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such expulsion had been made under Sub-Clause 15.2 [Termination by Employer].

Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with Sub-Clause 6.9 [Contractor's Personnel].

For the purposes of this Sub-Clause:

- (i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party¹;

¹ "Another party" refers to a public official acting in relation to the procurement process or contract execution]. In this context, "public official" includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

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- (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation²;
- (iii) “collusive practice” is an arrangement between two or more parties³ designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party⁴ or the property of the party to influence improperly the actions of a party;
- (v) “obstructive practice” is
 - (aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or
 - (bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under Sub-Clause 1.15 [Inspections and Audits by the Bank].

16. Suspension and Termination by Contractor

16.1 Contractor’s Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer’s Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days’ notice to the Employer, suspend work (or reduce

² “Party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

³ “Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

⁴ “Party” refers to a participant in the procurement process or contract execution.

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the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Employer's Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

- i) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer's

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- ii) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
- iii) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]),
- iv) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
- v) the Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],
- vi) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
- vii) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
- viii) In the event the Bank suspends the loan or credit from which part of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work, or (ii) terminate his employment under the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.
- ix) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment

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of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

16.3 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

- (a) cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works,
- (b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- (c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.4 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:

- (a) return the Performance Security to the Contractor.
- (b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- (c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. Risk and Responsibility


17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) bodily injury, sickness, disease or death, of any person

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whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and

- (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

17.2 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible

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for their care, from any cause not listed in Sub-Clause 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Employer's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Employer's Risks] below, insofar as they directly affect the execution of the Works in the Country, are:

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country,
- (c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel,
- (d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity,
- (e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,
- (f) use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract,
- (g) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, and
- (h) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventative precautions.

17.4 Consequences of Employer's Risks

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to

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the extent required by the Engineer.

If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [Employer's Risks], Cost plus profit shall be payable.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

17.5 Intellectual and Industrial Property Rights

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

- (a) an unavoidable result of the Contractor's compliance with the Contract, or
- (b) a result of any Works being used by the Employer:
 - (i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
 - (ii) in conjunction with any thing not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the

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(Employer)

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Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

17.6 Limitation of Liability

Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4 (b) [Consequences of Employer's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Material], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated), the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

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**17.7 Use of
Employer's
Accomoda-
tion/Facilities**

The Contractor shall take full responsibility for the care of the Employer provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18. Insurance

**18.1 General
Requirements for
Insurances**

In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the

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loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:

- (a) evidence that the insurances described in this Clause have been effected, and
- (b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the

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insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Employer's Claims] or Sub-Clause 20.1 [Contractor's Claims], as applicable.

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works and Contractor's Equipment

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

- (a) shall be effected and maintained by the Contractor as insuring Party,
- (b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually

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- bearing the costs of rectifying the loss or damage,
- (c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer's Risks],
 - (d) shall also cover, to the extent specifically required in the bidding documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Employer's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Contract Data (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
 - (e) may however exclude loss of, damage to, and reinstatement of:
 - (i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
 - (ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
 - (iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and
 - (iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed,

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unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

18.3 Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

- (a) shall be effected and maintained by the Contractor as insuring Party,
- (b) shall be in the joint names of the Parties,
- (c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and
- (d) may however exclude liability to the extent that it arises from:
 - (i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,
 - (ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and
 - (iii) a cause listed in Sub-Clause 17.3 [Employer's Risks], except to the extent that cover is available at commercially reasonable terms.

18.4 Insurance for Contractor's

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including

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legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The insurance shall cover the Employer and the Engineer against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19. Force Majeure

19.1 Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

- (a) which is beyond a Party's control,
- (b) which such Party could not reasonably have provided against before entering into the Contract,
- (c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- (d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- (i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (ii) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
- (iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
- (iv) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except

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as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and

- (v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2 Notice of Force Majeure

If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3 Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4 Consequences of Force Majeure

If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in the case of sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destructed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for

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Works and Contractor's Equipment].

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

19.5 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Worksto relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

19.6 Optional Termination, Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

- (a) the amounts payable for any work carried out for which a price is stated in the Contract;
- (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery; this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
- (c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
- (d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and

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- (e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

19.7 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

- (a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
- (b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20. Claims, Disputes and Arbitration

20.1 Contractor's Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting

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the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

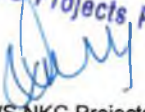
Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

- (a) this fully detailed claim shall be considered as interim;
- (b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
- (c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

Each Payment Certificate shall include such additional payment for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until

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the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer it to the Dispute Board in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision].

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

20.2 Appointment of the Dispute Board

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons.

If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the

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General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [Discharge] shall have become effective.

20.3 Failure to Agree on the Composition of the Dispute Board

If any of the following conditions apply, namely:


- (a) the Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2, [Appointment of the Dispute Board],
- (b) either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date,
- (c) the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date, or
- (d) the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after

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due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

**20.4 Obtaining
Dispute Board's
Decision**

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB's decision, then either Party may, within 28 days after receiving the decision, give notice to the other Party of its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give notice to the other Party of its dissatisfaction and intention to commence arbitration.

In either event, this notice of dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [Failure to Comply with Dispute Board's Decision] and Sub-Clause 20.8 [Expiry of Dispute Board's

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Appointment], neither Party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this Sub-Clause.

If the DB has given its decision as to a matter in dispute to both Parties, and no notice of dissatisfaction has been given by either Party within 28 days after it received the DB's decision, then the decision shall become final and binding upon both Parties.

20.5 Amicable Settlement

Where notice of dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the fifty-sixth day after the day on which a notice of dissatisfaction and intention to commence arbitration was given, even if no attempt at amicable settlement has been made.

20.6 Arbitration

Unless indicated otherwise in the Particular Conditions, any dispute not settled amicably and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Unless otherwise agreed by both Parties:

- (a) For contracts with foreign contractors, international arbitration with proceedings administered by the institution appointed in the Contract Data, conducted in accordance with the rules of arbitration of the appointed institution, if any, or in accordance with UNCITRAL arbitration rules, at the choice of the appointed institution,
- (b) the place of arbitration shall be the city where the headquarters of the appointed arbitration institution is located,
- (c) the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language], and
- (d) For contracts with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country.

The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and

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giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its notice of dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

20.7 Failure to Comply with Dispute Board's Decision

In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration]. Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.

20.8 Expiry of Dispute Board's Appointment

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB's appointment or otherwise:

- (a) Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply, and
- (b) the dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

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APPENDIX

A General Conditions of Dispute Board Agreement

- 1. Definitions** Each "Dispute Board Agreement" is a tripartite agreement by and between:
- (a) the "Employer";
 - (b) the "Contractor"; and
 - (c) the "Member" who is defined in the Dispute Board Agreement as being:
 - (i) the sole member of the "DB" and, where this is the case, all references to the "Other Members" do not apply, or
 - (ii) one of the three persons who are jointly called the "DB" (or "Dispute Board") and, where this is the case, the other two persons are called the "Other Members."

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

- 2. General Provisions** Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:
- (a) the Commencement Date defined in the Contract,
 - (b) when the Employer, the Contractor and the Member have each signed the Dispute Board Agreement, or
 - (c) when the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days' notice of resignation to the Employer and to the Contractor, and the Dispute Agreement shall terminate upon the expiry of this period.

- 3. Warranties** The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of

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Odisha, Bhubaneswar

impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:

- (a) experienced in the work which the Contractor is to carry out under the Contract,
- (b) experienced in the interpretation of contract documentation, and
- (c) fluent in the language for communications defined in the Contract.

4. General Obligations of the Member

The Member shall:

- (a) have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;
- (b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;
- (c) have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;
- (d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);
- (e) comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;
- (f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- (g) not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer

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regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;

- (h) ensure his/her availability for all site visits and hearings as are necessary;
- (i) become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;
- (j) treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and
- (k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

5. General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

- (a) be appointed as an arbitrator in any arbitration under the Contract;
- (b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- (c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding

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paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under Sub-Clause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

- (a) a retainer fee per calendar month, which shall be considered as payment in full for:
 - (i) being available on 28 days' notice for all site visits and hearings;
 - (ii) becoming and remaining conversant with all project developments and maintaining relevant files;
 - (iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
 - (iv) all services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

- (b) a daily fee which shall be considered as payment in full for:
 - (i) each day or part of a day up to a maximum of two days' travel time in each direction for the journey between the Member's home and the site, or another location of a meeting with the Other Members (if any);
 - (ii) each working day on Site visits, hearings or preparing

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decisions; and

- (iii) each day spent reading submissions in preparation for a hearing.
- (c) all reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;
- (d) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-

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half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity

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thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

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(Employer)
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PROCEDURAL RULES

Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

- (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
- (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

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The Employer and the Contractor empower the DB, among other things, to:


- (a) establish the procedure to be applied in deciding a dispute,
- (b) decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it,
- (c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
- (d) take the initiative in ascertaining the facts and matters required for a decision,
- (e) make use of its own specialist knowledge, if any,
- (f) decide upon the payment of financing charges in accordance with the Contract,
- (g) decide upon any provisional relief such as interim or conservatory measures, and
- (h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

- (a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;
- (b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
- (c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:
 - (i) either the Employer or the Contractor does not agree that they do so, or
 - (ii) the absent Member is the chairman and he/she instructs the other Members not to make a decision.

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Particular Conditions (PC)

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

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Part A - Contract Data

Conditions	Sub-Clause	Data
Employer's name and address	1.1.2.2 & 1.3	Chief Engineer, DPI & Roads, Odisha, O/o the E.I.C(Civil), Odisha, Nirman Soudha, Unit-V Bhubaneswar – 751 001
Engineer's name and address	1.1.2.4 & 1.3	Resident Engineer, RE-P02 LEA Associates South Asia Pvt. Ltd., Kalyani Nagar, PO: Gelpur, Bhadrak, Odisha, Pin-756781 Email:- lasa.bhadrak@lasindia.com
Bank's name	1.1.2.11	International Bank for Reconstruction and Development, (The World Bank)
Borrower's name	1.1.2.12	Government of Odisha through Government of India
Time for Completion	1.1.3.3	<u>18 Months</u> <i>For achievement of Milestones, Refer to Summary of Sections at the end of this table</i>
Defects Notification Period	1.1.3.7	365 days.
Sections	1.1.5.6	<i>Refer to Table: Summary of Sections below</i>
Electronic transmission systems	1.3	Fax No- +91 674 239 0080 Email: pmuosrp@gmail.com
Governing Law	1.4	Law in force in the Union of India.
Ruling language	1.4	English
Language for communications	1.4	English
Time for the Parties entering into a Contract Agreement	1.6	28 days
Time for access to the Site	2.1	<u>Section-I</u> 10 Kms shall be handed over for execution within 15 days from the date of signing of the Contract Agreement by both Parties. <u>Section-II</u> 7.50 Kms shall be handed over for execution within 3 months of

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Conditions	Sub-Clause	Data
		Commencement Date. Within two weeks of handing over of each stretch, the contractor needs to examine and provide acceptance of receiving encumbrance free land or inform the employer, with details of encumbrances if any.
Engineer's Duties and Authority	3.1(b)(ii)	Variations resulting in an increase of the Accepted Contract Amount in excess of 2% shall require approval of the Employer in aggregate subject to restrictions imposed pursuant to Sub-Clause 3.1 of Particular Conditions
Performance Security	4.2	The performance security will be in the form of an unconditional Bank Guarantee and in the same currency(ies) of the Accepted Contract. If the Bank Guarantee is issued by a financial institution located outside India, such financial institution shall have a correspondent financial institution located in India. The performance security shall be for an amount as stated below. (a) 5 percent of the Accepted Contract Amount (b) Additional Security for unbalanced bids determined in accordance with the Cl.34.5 of ITB
Normal working hours	6.5	08:00 Hours to 18:00 Hours (Except otherwise stipulated by the Government of Odisha in exceptional climatic conditions.)
Commencement of Works	8.1 (c)	Possessions of sites shall be given as mentioned in Sub-Clause 2.1 above.
	8.1 (d)	Deleted

For NKC Projects Private Limited


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

Conditions	Sub-Clause	Data
Delay damages for the Works	8.7 & 14.15(b)	Refer to Table: Summary of Sections below
Maximum amount of delay damages	8.7	10 % of the final Contract Price.
Provisional Sums	13.5.(b)(ii)	NIL
Adjustments for Changes in Cost	13.8	Period "n" applicable to the adjustment multiplier "Pn": 1 month
Total advance payment	14.2	<p>5 % Percentage of the Accepted Contract Amount payable in two equal installments in the currencies and proportions in which the Accepted Contract Amount is payable against Bank Guarantee.</p> <p>The first instalment shall be paid after due acceptance of encumbrance free land of Section-I mentioned in Sub-Clause 2.1 and after establishment of construction camp site by the contractor.</p> <p>The second instalment shall be paid after mobilization of 75% of the construction equipment and machinery at site as proposed by the contractor to be deployed in the works as per the work programme for the first six months.</p> <p>The Bank Guarantee(s) shall be for the amount equal to the advance to be paid to the contractor.</p> <p>The advance payment shall not be an interest bearing advance.</p>
Repayment amortization rate of advance payment	14.2(b)	<p>10 %</p> <p>Repayment will begin when the payment for the work executed, as certified by the Engineer reaches 30% of the Contract Price or six months from the date of commencement of work whichever is earlier.</p>
Percentage of Retention	14.3	6%
Limit of Retention Money	14.3	5 % of the Accepted Contract Amount

For NKC Projects Private Limited

M/S. NKC Projects Pvt. Ltd.
(Contractor)

Director


 Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

 Chief Engineer,
 DPI & Roads,
 Odisha, India

Conditions	Sub-Clause	Data
Plant and Materials	14.5(b)(i)	Not Applicable
	14.5(c)(i)	Not Applicable
	14.5(c)(ii)	On the following materials, subject to maximum of 2% of the accepted contract amount against Bank Guarantee of equal value, at any point of time, as required for utilization in the permanent works subject to maximum of 35% of the contract amount. 1. Reinforced Steel 2. Processed Aggregates complying with the relevant specifications.
Minimum Amount of Interim Payment Certificates	14.6	(i) Minimum INR 10 Million for the first three months. (ii) Minimum INR 20 Million from 4th month onwards The contractor's work programme shall be in commensurate with the above stipulations.
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	These financing charges shall be calculated at 1% over the PLR rate fixed by Reserve Bank of India to Commercial Banks for payment in local currencies (INR) and at 2% over the 3 month's London Inter Bank Offer Rate (LIBOR) for foreign currencies.
Maximum total liability of the Contractor to the Employer	17.6	The accepted contract amount
Periods for submission of insurance:	18.1	
a. evidence of insurance.		14 days
b. relevant policies		28 days

For NKC Projects Private Limited

M/S NKC Projects Pvt Ltd.
(Contractor)

Director

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

Conditions	Sub-Clause	Data
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d)	US\$ 5000 or Rs. 250,000 per occurrence
Minimum amount of third party insurance	18.3	Rs. 25,00,000 per occurrence with unlimited number of occurrences
Date by which the DB shall be appointed	20.2	28 days after the Commencement date
The DB shall be comprised of	20.2	Three Members from IRC panel
List of potential DB sole members	20.2	None
Appointment (if not agreed) to be made by	20.3	Secretary General of Indian Roads Congress.
Rules of arbitration	20.6(a)	For contracts with foreign contractors, arbitration shall be conducted in accordance with UNCITRAL arbitration rules.

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(Employer)

Summary of Sections

The following table shows the time for completion and amount of delay damages to be paid by the Contractor for delaying completion of different sections. Such delay damage shall be recovered from the Contractor from the Interim Payment Certificates, in case the contractor fails to pay the delay damage due. In case the Contractor delays in achieving any of the milestone/milestones but completes the total work within total completion period, then the delay damages for delay in completion of a particular section paid by the Contractor/ recovered from the IPCs of the Contractor and withheld shall be refunded back to the Contractor.

Section Name/Description (Sub-Clause 1.1.5.6)	Time for Completion (Sub-Clause 1.1.3.3)	Damages for Delay (Sub-Clause 8.7)
Section-I: 10 Kms as mentioned in Cl. 2.1	14(Fourteen) Months from Commencement of Works	INR. 250.000 per day
Section-II: 7.50 Kms as mentioned in Cl. 2.1 and completion of contracted works in all respects	18(Seventeen) Months from Commencement of Works	0.05% per day of the final contract price

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(Employer)

Chief Engineer
DPI & Roads
Odisha Bhubaneswar

Part B - Specific Provisions

<p>Clause 1.5 Priority of Documents</p>	<p>Delete sub paragraphs (a) to (i) in Sub-Clause 1.5 and substitute with the following:</p> <ul style="list-style-type: none"> a. the Contract Agreement (if any), b. the Letter of Acceptance, c. the record of pre-award clarifications (if any), d. the addenda e. the Particular Conditions- Part-A-Contract Data f. the Particular Conditions-Part-B-Specific Provisions, g. the General Conditions h. Works Requirement <ul style="list-style-type: none"> (a) Part-I General Specifications (b) Part-II-Supplimentary Technical Specifications including additional Technical Specifications. (c) Part-III-Technical Specifications for Building Work <ul style="list-style-type: none"> i. the Drawings (k) the Environment Management Plan (EMP) and (l) any other documents forming part of the Contract
<p>Sub-Clause 4.1 Contractor's General Obligations</p>	<p>Add the following at the end of 5th Paragraph.</p> <p>Working Drawings / fabrication drawings for temporary works (such as form work, staging, centering, scaffolding, specialized construction, handling and launching facilities and the like), material list for structural fabrication as well as detailed drawings for anchorage and temporary support details for pre-stressing cables as well as bar bending and cutting schedules for reinforcement etc. shall be prepared by the Contractor at his own cost and forwarded in triplicate to the Engineer at least four weeks in advance of actual constructional requirements. The Engineer will scrutinize and return one copy of the same for the Contractor's use with amendments, if any, noted in red ink within two weeks of submission. Such approval shall not relieve the Contractor of any of his responsibilities in connection with temporary works. The Contractor will supply six copies of the approved drawings for the Engineer's use.</p> <p>The cost of preparing all such items of work shall be deemed to have been included in the respective rates/ prices quoted by the Contractor in the Bill of Quantities.</p> <p>The Contractor shall ensure that his representative or</p>

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(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

	Senior Site Representative attends all the periodic review meetings notified by the Engineer / Employer / Employer's Representative.
Clause 4.2 Performance Security	Substitute the words 'an entity and from within a country (or other jurisdiction)' starting in the 4th line of 2nd paragraph of Sub-Clause 4.2 with 'any Nationalized/ Scheduled Commercial Bank located in India or a Foreign Bank with counter guarantee from a Nationalized/ Scheduled Commercial Bank located in India'
Clause 4.4 Sub-Contractors	Replace the words 'the whole of Works' with 'more than 30% of the Works in terms of value including the Work subcontracted to'
Clause 4.7 Setting Out	Add the following paragraph after 1st paragraph of sub-Clause "The Contractor shall give to the Engineer not less than 48 (forty eight) hours notice of his intention to set out or give levels for any part of the Works so that timely arrangement may be made for checking or issuing instructions."
Clause 4.14 Avoidance of Interference	Add the following paras (c), (d) and (e) after para (b) as follows: (c) In case, any operation connected with traffic necessitated diversion, obstruction or closure of any road, railway or any other Right of Way, the approval of the Engineer or the Engineer's Representative and the concerned authorities shall be obtained well in advance by the Contractor. (d) The Contractor shall so conduct his operations as to have under construction no greater length or amount of work than he can carry out efficiently with due regard to the convenience of the public. (e) The Contractor shall maintain the existing road in its normal condition suitable for the season of the year, from the time he commences the work on Site until the completion of the works. The Contractor's obligations shall be limited to the portions/ stretches/ structures handed over to him by the Employer. Other stretches not handed over to him shall be maintained by the Employer till handing over.
Sub-Clause 6.4 Staff and Labour	Add the following at end of Sub-Clause 6.4: The employees of the Contractor and the Sub-contractor shall in no case be treated as the employees of the Employer at any point of time.

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	<p>Salient features of some major Labour Laws applicable to establishments engaged in Construction of Civil Works are given in Annexure A-1 for reference purpose.</p> <p>The contractor and sub contractor shall comply with the safety and welfare provisions as detailed in Annexure A-II</p>
Sub-Clause 7.3 Inspection	<p>Amend the first line of last para as follows: The Contractor shall give “not less than 48 (forty eight) hours” notice to the Engineer whenever any...</p>
Clause 8.3 Programme	<p>Insert the words ‘for his consent in five hard copies and 2 versions on compact discs’ after ‘Engineer’ in the 1st sentence of Sub-Clause 8.3.</p> <p>Delete sub paragraph (a) of Sub Clause 8.3 and replace with the following:</p> <p>(a) the order in which the Contractor intends to carry out the works including;</p> <ol style="list-style-type: none"> i) A detailed works programme indicating the anticipated timing of each stage of construction. ii) A detailed mobilization programme with all principal mobilization events including the anticipated timing of procurement, delivery to site, construction, erection and commissioning, provision of facilities for the Employer’s and Engineer’s personnel, mobilization of key personnel, etc. This programme will provide the basis for the stage release of advance payments as prescribed under Clause 14.2.
Clause 10.1 Taking Over of Works and Sections	<p>Add the following additional paragraph after second paragraph of Sub-Clause 10.1:</p> <p>‘Before the Works are taken over in accordance with this Clause 10, the Contractor shall supply all drawings as appropriate of the Work as-built. Unless otherwise agreed, the Work shall not be considered to be completed for the purpose of Taking Over until such drawings have been approved by the Engineer and submitted to the Employer.’</p>
Clause 12.3 Evaluation	<p>Replace ‘0.25%’ with ‘1%’ in sub-para (a) (ii) of Sub-Clause 12.3.</p> <p>Add the following after sub-para (a) (iv):</p>

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Chief Engineer,
DPI & Roads, Odisha
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	(a) (v) No change in the rate for any item contained in the BOQ shall be considered in case of any decrease in the actual quantity of work executed.
Sub-Clause 14.1 The Contract Price	<i>Add</i> (c) Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefore, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved export bond or bank guarantee, valid until the Time for Completion plus six months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event the Contractor's Equipment is not exported from the Country on completion of the Contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the Contractor to the Employer upon the importation of individual items of Contractor's Equipment and spare parts. Upon export of individual items of Contractor's Equipment or spare parts, or upon the completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's Equipment and spare part to be exported, based on the depreciation scale(s) and other criteria used by the customs authorities for such purposes under the provisions of the applicable Laws. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to be exported; and (b) on the initial imported value that Contractor's Equipment and spare parts remaining in the Country after completion of the Contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining.
Clause 14.13 Issue of Final Payment Certificate	Replace the word '28' with '42' in the 1st sentence of 1st paragraph of Sub-Clause 14.13 Replace the word '28' with '42' in the last paragraph of Sub-

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	Clause 14.13
Clause 14.15 Currencies of Payment	<p>Replace sub paragraph (e) of sub-Clause 14.15 with the following:</p> <p>'if no rates of exchange are stated in the Schedule of Payment Currencies, SBI's B.C.Selling rate of exchange prevailing on the Base Date shall be applicable.</p>
17.2 Contractor's Care of the Works	<p>Add the following after end of para:</p> <p>(A) <u>Failure to Maintain the Road during construction</u></p> <p>The contractor's obligations for maintenance of the road stretches shall be limited to the portions/ stretches/ structures handed over to him by the Employer. Other stretches not handed over to him shall be maintained by the Employer till handing over.</p> <p>In case of failure to execute the same, the following amount shall be deducted from the payment certificates of the contractor.</p> <ol style="list-style-type: none"> 1. Road Surface : In case of failure to maintain the road surface pot hole free, damages shall be levied at the rate Rs.1500/- per km per day. 2. Shoulders : In case of failure to maintain the shoulders , damages shall be levied at the rate Rs.500/- per km per day. <p>(B) <u>Failure to take up Road Safety measures during construction</u></p> <p>The Contractor has to follow all traffic safety measures as defined in the Technical Specifications. In case of failure to execute the same, the work shall be taken up by the department through other agency, and the following amount shall be deducted from the payment certificates of the contractor.</p> <p>Deduction for non-performance</p> <p>1.Diversion:- (a) Rs. 1,20,000/- per location plus Rs.1500/- per day per location towards maintenance from the date of installation till removal of the diversion (b) Damages of Rs.5000/- per day per location shall be imposed from the date of occurrence till installation of the safety items.</p>

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(Employer)

	<p>2.Part Road Barricading:- (a) Rs. 75,000/- per location of 250 mtr. or less plus Rs.1500/- per day per location towards maintenance from the date of installation till completion of the stretch (b) Damages of Rs.5000/- per day per location shall be imposed from the date of occurrence till installation of the safety items.</p> <p>(C) <u>Failure to adhere to Environmental Mitigation Measures during construction</u></p> <p>The Contractor has to follow all Environmental Mitigation Measures as defined in the Technical Specifications . Damages shall be levied at the rate indicated below for non-conformity of the following items.</p> <ol style="list-style-type: none"> 1. Not filling up of the post of Environment and Safety Officer- Penalty @ Rs. 50,000/- per month 2. No proper sanitation & waste disposal arrangements at the labour camp site- Penalty @ Rs. 10,000/- per single violation compounded to Rs. 50,000/- at any single instance 3. No dust control measures at site- Penalty @ Rs. 5,000/- per location per single violation compounded to Rs. 50,000/- at any single instance 4. No pollution and / or noise control of crusher, hot mix plant, batch mix plant- Penalty @ Rs. 10,000/- per single violation compounded to Rs. 50,000/- at any single instance 5. Improper disposal of debris/ residues- Penalty @ Rs. 10,000/- per single violation compounded to Rs. 50,000/- at any single instance 6. Spillage of oil at camp site not arrested- Penalty @ Rs. 10,000/- per single violation compounded to Rs. 50,000/- at any single instance 7. Persons not using Personal Protective Equipments (PPE)- Penalty @ Rs. 200/- per single violation per person 8. Burrow area/ quarry management not done- Penalty @ Rs. 10,000/- per location per instance.
<p>Clause 20.6 Arbitration</p>	<p>Substitute sub paragraph (d) with the following:</p> <p>(d) A dispute with an Indian Contractor shall be finally settled by arbitration in accordance with the Arbitration & Conciliation Act, 1996, or any statutory amendment thereof. The arbitral tribunal shall consist of 3 (three) Arbitrators, one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding Arbitrator. In case of failure of the</p>

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	<p>two Arbitrators, appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed in the last, the Presiding arbitrator shall be appointed bythe For the purposes of this Sub-Clause, the term “Indian Contractor” means a Contractor who is registered in India and is a juridical person created under Indian law.</p>
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Annexure-AI**Salient features of some major Labour Laws applicable to establishments engaged in Construction of Civil Works****(i) Workmen Compensation Act, 1923**

The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

(ii) Payment of Gratuity Act, 1972

Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

(iii) Employees' PF and Miscellaneous Provisions Act, 1952

The Act provides for monthly contributions by the employer plus workers @10 % or 8.33 %. The benefits payable under the Act are:

- (a) Pension or family pension on retirement or death as the case may be.
- (b) Deposit linked insurance on the death in harness of the worker.
- (c) Payment of PF accumulation on retirement/death etc.

(iv) Maternity Benefit Act, 1951

The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(v) Contract Labour (Regulation and Abolition) Act, 1970

The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided by the Principal Employer by Law. The principal employer is required to take Certificate of Registration and the Contractor is required to take a License from the designated Officer. The Act is applicable to the establishments or Contractor of principal employer if they employ 20 or more contract labour.

(vi) Minimum Wages Act, 1948

The employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, and Runways are scheduled employment.

(vii) Payment of Wages Act, 1936

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It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

(viii) Equal Remuneration Act, 1979

The Act provides for payment of equal wages for work of equal nature to Male and Female workers and not for making discrimination against Female employees in the matters of transfers, training and promotions etc.

(ix) Payment of Bonus Act, 1965

The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33 % of wages and maximum of 20 % of wages to employees drawing Rs. 3,500/- per month or less. The bonus to be paid to employees getting Rs. 2,500/- per month or above up to Rs.3, 500/- per month shall be worked out by taking wages as Rs.2, 500/- per month only. The Act does not apply to certain establishments. The newly set up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of the Act.

(x) Industrial Disputes Act, 1947

The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

(xi) Industrial Employment (Standing Orders) Act, 1946

It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the employer on matters provided in the Act and get the same certified by the designated Authority.

(xii) Trade Unions Act, 1926

The Act lays down the procedure for registration of trade unions of workmen and employees. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities.

(xiii) Child Labour (Prohibition and Regulation) Act, 1986

The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labour is prohibited in Building and Construction Industry.

(xiv) Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 The Act is applicable to an establishment, which employs 5 or more inter-state migrant workmen through an intermediary (who has

recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, in an establishment to which this Act becomes applicable, are required

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to be provided certain facilities such as housing, medical aid, travelling expenses from home upto the establishment and back, etc

(xv) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and The Building and Other Construction workers Welfare Cess Act of 1996

All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under this Act. All such establishments are required to pay Cess @ 1% of the cost of construction as notified by the Labour and Employment Department, Government of Odisha vide Resolution dated December 15, 2008. The employer of the establishment is required to provide safety measures at the Building or Construction work and other welfare measures, such as Canteens, First-aid facilities, Ambulance, Housing accommodation for Workers near the workplace etc. The employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

(xvi) The Factories Act, 1948

The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

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(Employer)

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Annexure-A II**Safety & Welfare Provisions for labour to be employed by the Contractor**

All necessary personal safety equipment as considered adequate by the Engineer shall be available for use of persons employed on the Site and maintained in a condition suitable for immediate use; and the Contractor shall take adequate steps to ensure proper use of such equipment by those concerned.

1. Safety Provisions:

The Contractor shall comply with all the precautions as required for the safety of the workmen.

- (i) All workmen at site shall be provided with safety helmets and yellow/orange jackets. Workmen required on site during night hours shall be provided with fluorescent yellow jackets with reflective lopes.
- (ii) Workers employed on mixing asphaltic materials, cement, lime mortars, concrete etc. shall be provided with protective footwear, protective goggles.
- (iii) Those engaged in handling any material, which is injurious to the eyes, shall be provided with protective goggles.
- (iv) Those engaged in welding works shall be provided with welder's protective eye-shield.
- (v) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- (vi) Suitable scaffolds shall be provided for workmen for all work that cannot safely be done from the ground, or from solid construction except for such short period work as can be done safely from ladders. When a ladder is used, an extra labourer shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable foot-holds and hand-holds shall be provided on the ladder, which shall be given an inclination not steeper than 1/4 to 1.
- (vii) Scaffolding or staging more than 3.25 metres above the ground or floor, swung or suspended from an overhead support or erected with stationary support, shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1 metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the support or structure.
- (viii) Working platforms, gangways, and stairways shall be so constructed that they do not sag unduly or unequally, and if the height of any platform or gangway or stairway is more than 3.25 metres above ground level or floor level, it shall have closely spaced boards, have adequate width and be suitably provided with guard rails as described in (ii) above.
- (ix) Every opening in the floor of a structure or in a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing with a minimum height of one metre.
- (x) Safe means of access and egress shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 metres in

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length. The width between side rails in a rung ladder shall in no case be less than 30 cm for ladders up to and including 3 metres in length. For longer ladders the width shall be increased at least 6 mm for each additional 30 cm of length. Spacing of steps shall be uniform and shall not exceed 30 cm.

(xi) Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Contractor shall provide all necessary fencing and lights to protect the public from accidents and shall be bound to bear the expenses of defending 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 costs 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.

(xii) Excavation and Trenching: All trenches, 1.5 metres or more in depth, shall at all times be supplied with at least one ladder for each 20 metres in length or fraction thereof. Ladders shall be extended from the bottom of the trench to at least 1 metre above the surface of the ground. The sides of a trench, which is 1.5 metres or more in depth shall be stepped back to provide a suitable slope, or be securely held by timber bracing so as to avoid the danger of side collapse. Excavated material shall not be placed within 1.5 metres of the edge of any trench or half the depth of the trench, whichever is more. Excavation shall be made from the top to the bottom. Under no circumstances shall undermining or undercutting be done.

(xiii) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that manhole covers are open and manholes are ventilated at least for an hour before workers are allowed to go into them. Manholes so open shall be cordoned off with suitable railing and provide warning signals or boards to prevent accidents to the public.

(xiv) Demolition: Before any demolition work is commenced and also during the process of the work:

- a) All roads and open areas adjacent to the work site shall either be closed or suitably protected.
- b) No electric cable or apparatus, which is liable to be a source of danger other than a cable or apparatus used by operators, shall remain electrically charged:
- c) All practical steps shall be taken to prevent danger to persons employed by the Employer, from risk of fire or explosion, or flooding. No floor, roof or other part of a building shall be so overloaded with debris or materials as to render it unsafe.

(xv) When work is performed near any place where there is risk of drowning all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

(xvi) Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following:

- (a) These shall be of good mechanical construction, sound material and adequate strength and free from patent defects and shall be kept in good working order be regularly inspected and properly maintained.
- (b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from defects.

For NKC Projects Private Limited

M/S NKC Projects Pvt.Ltd Director
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

(c) For every hoisting machine and every chain hook, shackle, swivel and pulley block used in hoisting, lowering or as means of suspension, safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with safe working load. In case of a hoisting machine or a variable safe working load, each safe working load and conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to in the paragraph above shall be loaded beyond safe working load except for the purpose of testing

(xvii) Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards; hoisting appliances shall be provided with such means as will reduce the risk of accident during descent of load to the minimum. Adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energised, insulating mats, working apparel such as gloves, sleeves and boots, as may be necessary, shall be provided. Workers shall not wear any rings, watches and carry keys or other material which are good conductors of electricity.

(xviii) All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in a safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

(xix) These safety provisions shall be brought to the notice of all concerned by displaying on a notice board at a prominent place at the work location. Persons responsible for ensuring compliance with the Safety Code shall be named therein by the Contractor.

(xx) To ensure effective enforcement of the rules and regulations relating to safety precautions, arrangements made by the Contractor shall be open to inspection by the Engineer or his Representative.

(xxi) Notwithstanding anything contained in condition (i) to (xv) above, the Contractor shall remain liable to comply with the provisions of all acts, rules, regulations and bylaws for the time being in force in India and applicable in this matter.

The Contractor shall be responsible for observance, by his sub-contractors, of the foregoing provisions.

2. Labour Welfare Provisions:

(i) First Aid:

At every workplace, there shall be maintained in a readily accessible place first aid appliances including an adequate supply of sterilised dressings and sterilised cotton wool as prescribed in the Factory Rules of the State in which the work is carried on. The appliances shall be kept in good order and, in large work places, they shall be placed under the charge of a responsible person who shall be readily available during working hours.

(ii) Accommodation for Labour:

The Contractor shall during the progress of the work provide, erect and maintain necessary temporary living accommodation and ancillary facilities for labour at his own expense to standards and scales approved by the Engineer.

For NKC Projects Private Limited

 M/S NKC Projects Pvt. Ltd. Director
 (Contractor)


 Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

(iii) Drinking Water:

In every workplace, there shall be provided and maintained at suitable places easily accessible to labour, a sufficient supply of cold water fit for drinking.

Where drinking water is obtained from an intermittent public water supply each workplace shall be provided with storage tanks where drinking water shall be stored.

Every water supply storage shall be at a distance of not less than 15 metres from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well, which is within such proximity of any latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door, which shall be dust proof and waterproof.

A reliable pump shall be fitted to each covered well. The trap door shall be kept locked and opened only for cleaning or inspection, which shall be done at least once a month.

(iv) Washing and Bathing Places:

Adequate washing and bathing places shall be provided separately for men and women. Such places shall be kept in clean and drained condition.

(v) Scale of Accommodation in Latrines and Urinals:

There shall be provided within the precincts of every workplace, latrines and urinals in an accessible place, and the accommodation, separately for each for these, shall not be less than at the following scale:

No. of Seats

(a) Where number of persons does not exceed 50 2

(b) Where number of persons exceed 50 but does

not exceed 100 3

(c) For additional persons per 100 or part thereof 3

In particular cases, the Engineer shall have the power to increase the requirement, wherever necessary.

(vi) Latrines and Urinals:

Except in workplaces provided with water-flushed latrines connected with a water borne sewage system, all latrines shall be provided with dry-earth system (receptacles) which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. Receptacles shall be tarred inside and outside at least once a year.

If women are employed, separate latrines and urinals, screened from those for men and marked in the vernacular in conspicuous letters "For women only", shall be provided. Those for men shall be similarly marked "For men only". A poster showing the figure of a man and a woman shall also be

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 Odisha Bhuvaneswar

exhibited at the entrance to latrines for each sex. There shall be adequate supply of water, close to latrines and urinals.

(vii) Construction of Latrines:

Inside walls shall be constructed of masonry or other non-absorbent material and shall be cement-washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for the purpose and kept available for inspection. Latrines shall have at least a thatched roof.

(viii) Disposal of Excreta:

Unless otherwise arranged for by the local sanitary authority, arrangement for proper disposal of excreta by incineration at the workplace shall be made by means of a suitable incinerator approved by the local medical health and municipal or cantonment authorities. Alternatively, excreta may be disposed of by putting a layer of night soils at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn into manure).

The Contractor shall, at his own expense, carry out all instructions issued to him by the Engineer to effect proper disposal of soil and other conservancy work in respect of Contractor's work-purpose or employees on the site. The Contractor shall be responsible for payment of any charges, which may be levied by municipal or cantonment authority for execution of such work on his behalf.

(ix) Provisions of shelters during rest:

At every workplace, there shall be provided, free of cost, four suitable sheds, two for meals and two others for rest, separately for use of men and women labour. The height of each shelter shall not be less than 3 metres from floor level to lowest part of roof. Sheds shall be kept clean and the space provided shall be on the basis of at least 0.5 sq.m. per head.

(x) Crèches:

At a place where women are ordinarily employed, there shall be provided at least one hut for use of children under the age of 6 years belonging to such women. Huts shall not be constructed to a standard lower than that of thatched roof, mud floor and wall with wooden planks spread over mud floor and covered with matting.

Huts shall be provided with suitable and sufficient openings, for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be a maidservant in attendance. Sanitary utensils shall be provided to the satisfaction of local medical, health a municipal or cantonment authorities. Use of huts shall be restricted to children, their attendants and mothers of children.

(xi) Canteen:

A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever it is considered necessary.

(xii) Planning, siting and erection of the above mentioned structures shall be approved by the Engineer or his Representative and the whole of such temporary accommodation shall at all times

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DPI & Roads

during the progress of the Works be kept tidy and in a clean and sanitary condition to the satisfaction of the Engineer or his Representative and at the Contractor's expense. The Contractor shall conform generally to sanitary requirements of local medical, health and municipal or cantonment authorities and at all times adopt such precautions as may be necessary to prevent soil pollution of the Site.

On completion of the Works, the whole of such temporary structures shall be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the whole of the site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the Engineer.

(xiii) Anti-malarial precautions:

The Contractor shall, at his own expense, conform to all anti malarial instructions given to him by the Engineer, including filling up any borrow pits which may have been dug by him.

(xiv) Awareness and Education of HIV/AIDS

The contractor shall provide/carryout HIV/AIDS awareness and training programme to its labour and management, at least twice per year during the construction period.

(xv) Child Labour Prohibition

The contractor shall not employ Child Labour for any works or in any manner under the Contract at any time. In the event that the Contractor uses child labour, the Employer shall terminate the Contract.

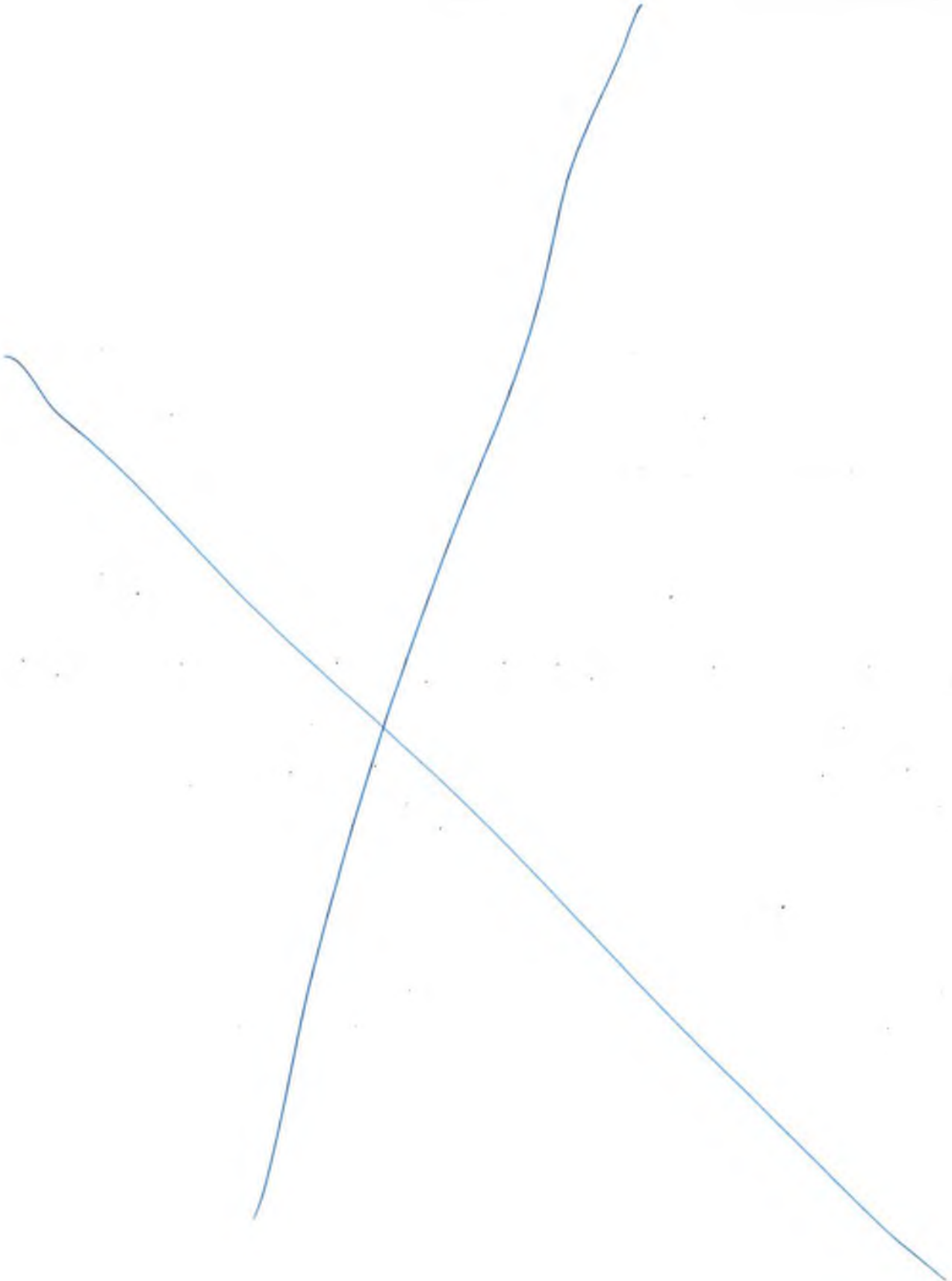
(xvi) Amendments:

The Employer may, from time to time, add to, or amend these Rules and issue such directions as it may be considered necessary for the proper implementation of these Rules or for the purpose of removing any difficulty, which may arise in the administration thereof

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(Contractor) Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)



For NKC Projects Private Limited

M/S NKC Projects Pvt.Ltd.
(Contractor)

Director


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

Appendix to the Particular Conditions - Contract Forms

Table of Forms

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For NKC Projects Private Limited


M/S NKC Projects Pvt. Ltd.
(Contractor) Director


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

Notification of Award

LETTER OF ACCEPTANCE

[letterhead paper of the Employer]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Bid dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount of the equivalent of *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section IX, Annex to the Particular Conditions - Contract Forms, of the Bidding Document

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Agency: _____

Attachment: Contract Agreement

For NKC Projects Private Limited

M/S NKC Projects Pvt.Ltd. **Director**
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Contract Agreement

THIS AGREEMENT made the _____ day of _____, _____, between _____ of _____ (hereinafter "the Employer"), of the one part, and _____ of _____ (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as _____ should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - (i) the Letter of Acceptance
 - (ii) the Letter of Bid
 - (iii) the addenda Nos _____ (if any)
 - (iv) the Particular Conditions
 - (v) the General Conditions;
 - (vi) the Specification
 - (vii) the Drawings; and
 - (viii) the completed Schedules,
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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M/S NKC Projects Pvt.Ltd. **Director**
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of _____ on the day, month and year indicated above.

Signed by _____ (for the Employer)

Signed by _____ (for the Contractor)

Performance Security

Option 1: (Demand Guarantee)

_____ [Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: _____ [Name and Address of Employer]

Date: _____

PERFORMANCE GUARANTEE No.: _____

We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works](hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures]()[amount in words],¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office on or before that date.

¹ The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Employer.

² Insert the date twenty-eight days after the expected completion date. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the

For NKC Projects Private Limited

M/S NKC Projects Pvt.Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

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M/S NKC Projects Pvt.Ltd
(Contractor)

Director


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

Option 2: Performance Bond

By this Bond _____ as Principal (hereinafter called "the Contractor") and _____] as Surety (hereinafter called "the Surety"), are held and firmly bound unto _____] as Obligee (hereinafter called "the Employer") in the amount of _____, for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Employer dated the _____ day of _____, 20 ____, for _____ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Bid or bids from qualified Bidders for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by Employer to Contractor under the Contract, less the amount properly paid by Employer to Contractor; or
- (3) pay the Employer the amount required by Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

For NKC Projects Private Limited

M/S NKC Projects Pvt.Ltd. **Director**
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this _____ day of _____ 20 ____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

For NKC Projects Private Limited

Director

M/S NKC Projects Pvt.Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Advance Payment Security

Demand Guarantee

_____ [Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: _____ [Name and Address of Employer]

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ [amount in figures]()[amount in words] is to be made against an advance payment guarantee.

At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures]()[amount in words]¹ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number _____ at _____ [name and address of Bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the ___ day of _____,

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

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(Contractor)

Director

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(Employer)

2____,² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date..


This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.


[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

² *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

For NKC Projects Private Limited


M/S NKC Projects Pvt.Ltd. Director
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Retention Money Security

Demand Guarantee

_____ [Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: _____ [Name and Address of Employer]

Date: _____

RETENTION MONEY GUARANTEE No.: _____

We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works](hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of [insert thesecond half of the Retention Moneyorifthe amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money,thedifference between half of the Retention Money and the amount guaranteed under the Performance Security] is to be made against a Retention Money guarantee.


At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures]([amount in words])¹ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the

¹ The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

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M/S NKC Projects Pvt.Ltd Director
(Contractor)


Chief Engineer,
DPI & Roads, Odisha
(Employer)

Contractor on its account number _____ at _____ [name and address of Bank].

This guarantee shall expire, at the latest, 21 days after the date when the Employer has received a copy of the Performance Certificate issued by the Engineer. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

[signature(s)]

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(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P02B

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, DPI&Roads, Odisha
on behalf of
Odisha Works Department, Government of Odisha

and

M/s NKC Projects Pvt. Ltd.,
Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016
Tel : +91-124-4852828 Fax : +91-124-2340017
E-mail: rohit@nkcproject.com

[VOLUME-III: Technical Specifications]

Agreement Value: Rs. 104,23,29,840

*Project Management Unit, Odisha State Roads Project
Office of the Engineer-in-Chief (Civil), Odisha,
Nirman Soudha, Keshari Nagar, Unit - V, Bhubaneswar - 751 001*

October 14, 2016

For NKC Projects Private Limited


Director


Chief Engineer
DPI & Roads
Bhubaneswar

CONTENTS of CONTRACT

Volume – I	:	Letter of Acceptance, Letter of Bid and Addenda
Volume – II	:	Particular Conditions and the General Conditions;
Volume – III	:	Specifications
Volume – IV	:	Drawings
Volume – V	:	Completed Schedules

CONTENTS of VOLUME III

SPECIFICATIONS

For NKC Projects Private Limited



Director



Chief Engineer
D&R
OSRP-CW-ICB-P02B

Scope of Works

1. BACKGROUND

- 1.1 The Government of Odisha through Government of India has signed for financial assistance in the form of a Loan from the International Bank for Reconstruction and Development (the World Bank) for the Odisha State Roads Project. Part of this financial assistance will be applied towards civil works for the widening and strengthening of about 310 km of State Highways (SH).
- 1.2 The executing agency for the Odisha State Road Project is the Works Department, Odisha (OWD). The OWD has established a Project Management Unit (PMU) exclusively to be in-charge of the Odisha State Road Project. The PMU is headed by the Chief Engineer, World Bank Projects, Odisha assisted by appropriate professional and support staff.
- 1.3 The proposed construction packages 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-ICB-P02B	Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from <i>Pirhat to Chandbali</i> (Km. 27/500 to Km.45/000 of SH-9)(Balance Works)	17.5 kms	18 Months

Geographical & Climatic Information

1.3.1 Bhadrak - Pirhat

This road located in the Eastern part of Orissa, takes off from NH 5 at 155/0 km at Bhadrak and terminates at 52.600 km on SH -9 at Chandbali after river Baitarani. The total length of the road is 52.6 km and in the project corridor 17.5km of the length from Pirhat to Chandbali has been considered for improvement now. The work had been taken up under different contracts earlier and the present scope contains the balance work.

The road passes through Bhadrak district. This road is located in the Mahanadi Delta area and the major river located at Chandbali is river Baitarani. The terrain is plain and the drop in level in the entire 17.5 km is about 4 to 5 m only. This road suffers from inundation at places during rainy season as many stretches are having

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(Contractor)

Director

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DPI & Roads,
Odisha

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 Orissa. Generally in the recent past, it has been observed that this area is affected by severe cyclones and flood during October to December. 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. This road passes through Motto and Digochhia Junction (A road leads to Dhamara Port from this junction).

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 built up areas and toll plazas;
- 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, World Bank Projects, 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.

3. REPORTING REQUIREMENTS

The Contractor shall prepare and submit to the Employer along with soft copy of each of the following reports:

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M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

SI	Document	Number of Copies	Time
1	Work Programme	3	Four weeks after commencement of Works.
2	RFI Database month wise in the Interim Payment Applications. ¹	3	Every month.
3	Sectional/Substantial Completion Reports. ²	3	After substantial completion

¹ The project shall be monitored through a Project Management & Monitoring System online. The RFIs and IPCs shall be managed through the system only.

² SECTIONAL AND SUBSTANTIAL / FINAL COMPLETION REPORTS

The Contractor will prepare a comprehensive final Completion Report for each defined section of the construction contract, after such sections reach a stage of substantial completion during the period of the services. These reports must be submitted immediately after the completion of the work by the contractor and before taking over of such sections by the Employer. The report shall incorporate summary of the method of construction, as built construction drawings, problems encountered & solutions undertaken thereon.

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Technical Specification

GENERAL TECHNICAL REQUIREMENTS

1.0. GENERAL REQUIREMENTS

The Technical Specifications in accordance with which the entire work described hereinafter shall be constructed and completed by the Contractor, and comprise of the following:

1.1 PART – I - General Technical Specifications

The General Technical Specifications shall be the “SPECIFICATIONS FOR ROAD AND BRIDGE WORKS” (FIFTH REVISION – 2013), as corrected in the original issued by the Ministry of Shipping , Road Transport & Highways(MORTH), Government of India and published by the Indian Roads Congress (IRC), with a cross reference to relevant Bureau of Indian Standards (BIS) for materials or other aspects not covered by the IRC.

1.2 PART - II - Supplementary Technical Specifications

The Supplementary Technical Specifications shall comprise various Amendments/Modifications/Additions to the “SPECIFICATIONS FOR ROAD AND BRIDGE WORKS” referred to in PART - I above and also **Additional Specifications** for particular item of works not already covered in PART-I.

1.2.1 A particular Clause or a part thereof in “SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (FIFTH REVISION – 2013)” as corrected in the original referred in PART - I above, where Amended/Modified/Added upon, and incorporated in PART-II, referred to above. Such Amendment/Modification/Addition supersedes the relevant Clause or part of the Clause.

1.2.2 When an Amended/Modified/Added Clause supersedes a Clause or part thereof in the said Specifications, then any reference to the superseded Clause shall be deemed to refer to the Amended/Modified/Added Clause or part thereof.

1.2.3 In so far as Amended/Modified/Added Clause may come in conflict or be inconsistent with any of the provisions of the said Specifications under reference, the Amended/Modified/Added Clause shall always prevail.

1.2.4 The Additional Specifications shall comprise specifications for particular item of works not already covered in PART - I.

1.2.5 The Sub-Clauses of the following Sections in the “Specifications for Road and Bridge Works (FIFTH REVISION – 2013) have been amended/modified/added upon 100, 300, 400, 500, 600, 800, 900, 1000, 1500 & 2800.

- 1.2.6** In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest codes and specifications of IRC and IS in that order. Where even these are silent, the construction and completion of the works shall conform to sound engineering practice as approved by the Engineer and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer shall be final and binding on the Contractor.
- 1.2.7** The provisions of special conditions of contract, those specified elsewhere in the tender document, as well as execution drawings and notes, or other specifications issued in writing by the Engineer shall form part of the technical specifications of this project.
- 1.3** **PART – III- Specifications for Building Works**
- 1.4** **PART – IV- Specifications and Guidelines for Environment Mitigation Plan**

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

PART – I


The General Technical Specifications shall be the “SPECIFICATIONS FOR ROAD AND BRIDGE WORKS” (FIFTH REVISION – 2013), as corrected in the original issued by the Ministry of Road Transport & Highways(MORTH), Government of India and published by the Indian Roads Congress (IRC), with a cross reference to relevant Bureau of Indian Standards (BIS) for materials, testing acceptance or other such aspects not covered by the IRC.

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Director

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Chief Engineer
DPI & Roads, Odisha

PART- II SUPPLEMENTARY TECHNICAL SPECIFICATION

(AMENDMENTS/ ALTERATIONS/ MODIFICATIONS/ ADDITIONS/DELETIONS TO EXISTING CLAUSES OF GENERAL TECHNICAL SPECIFICATIONS-PART-I)

SECTION 100 GENERAL

Clause 102 Definitions

The following abbreviations shall be added in this Clause.

- “MORTH” - Ministry of Road Transport & Highways
- “WBM” - Water Bound Macadam
- “WMM” - Wet Mix Macadam
- “MDD” - Maximum Dry Density (as per IS: 2720-Part 8)
- “OMC” - Optimum Moisture Content

Wherever in the Specification, the phrase “Condition of Contract” is Mentioned, it shall mean Conditions of Contract part-I and II Contained in Section.. of Bidding Documents.

Clause 103 Add at the end of the clause

The latest edition of these standards or any other relevant standards till 30 (thirty) days before the final date of submission of the tender shall be adopted.

Clause 105 Scope of Work

Clause 105.3 Add the following below the existing clause

The contractor shall establish, adhere to monitor and maintain an adequate Quality Management Plan (QMP).

The QMP shall provide input to the overall project management plan and shall include quality control, quality assurance, and continuous process improvement approaches for the project. The QMP shall cover the quality assurance aspects of all services rendered, all items to be supplied and all construction activities to be performed under the Contract, also including temporary structures and equipment which will influence the quality of the completed works or the progress of the Contract.

The QMP shall provide input to the overall project management plan and shall include Quality Control Checklists, Quality Assurance Plan, and continuous process improvement approaches for the project. The QMP shall be reviewed by the Engineer to ensure that decisions are based on accurate information and to assure reduction of cost and

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schedule overruns caused by *rework*. The Contractor's Quality Assurance Plan describes the methods and procedures which the Contractor will apply for the execution of the Contract, including how the contractor will:

- (a) identify the quality requirements specific to the contract,
- (b) plan and execute the work to satisfy those requirements
- (c) inspect and/or test the work to ensure compliance with the quality requirements
- (d) ensure strict document control and structured filing of contract administration documents
- (e) record and monitor the results as evidence of compliance
- (f) monitor the material supply and delivery processes;
- (g) ensure the ability to trace materials incorporated in the works;
- (h) undertake testing and measurement requirements;
- (i) provide evidence of testing apparatus being recently calibrated;
- (j) demonstrate manufacturer's specification confirming compliance of materials;
- (k) record of required testing, measurement and design sheets;
- (l) document all non-conformances and ensure that prompt action is taken to correct non-compliance.

The Contractor's Quality Management Plan must clearly describe the systems, procedures and methods that will be used to deliver and monitor compliance of the Services.

The QMP shall also cover subjects listed below:

- Organization and Management Responsibility
- Document and data control
- Construction programme
- Method statements
- Process Control
- Working, inspection, testing and documentation procedures
- Safety and emergency procedures
- Control and documentation of purchasing and handling of materials
- Non-conformity and corrective action.
- Internal quality audits
- Servicing
- Education and training of staff
- Site Environment Plan

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Chief Engineer
DPI & Roads
DPI & Roads, Odisha


The general procedures of the QMP shall be submitted to the Employer and Engineer for approval not later than TWENTY EIGHT DAYS after the date of receipt of letter of acceptance. The special part of the QMP shall be submitted successively to the effect that it shall have been approved prior to the commencement of the activities to which the program shall apply.

Clause 105.4 Add the following sentence

“If the Quality Assurance plan of the project as finalized and approved by the Engineer demands other time schedule for various submissions and approvals, the QA plan requirement will prevail”.

Clause 107 **Contract Drawings**

Clause 107.3 **Add the following after the end of the para**

After careful study of the drawings issued by the Engineer, the Contractor shall, prepare, where necessary all supplementary and working drawings with necessary field/construction information and check for adequacy of construction methods and procedure etc. and shall submit the same to the engineer for approval prior to construction. Engineer shall be given not less than 7 days for review of these supplementary/working drawings and as directed, the contractor shall modify the drawings incorporating the comments and requirements of the Engineer.

Clause 111 **Precautions for Safeguarding the Environment**

This whole clause shall be modified by following.

Clause 111.1 **General**

The clause shall be read as follows

The contractor shall take all precautions for safeguarding the environment during the course of the construction of works. He shall abide by all rules, regulations and laws in force governing pollution and environmental protection that are applicable to the area where the works are situated.

On completion of the Works, all areas disturbed by the Contractor's construction activities shall be restored in their original condition, or as per the plan agreed prior to commencement of construction activities.

The cost of this work shall be deemed to be included in the rates, unless specifically mentioned in the contract.

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Clause 111.2 Borrow pits for Embankment Construction

The clause shall be read as follows

Borrow pits shall not be dug within the Right-of-Way of the road. The contractor will submit a borrow area management plan before opening up any borrow area to ensure the schedules of his excavation activities, safety arrangements during operation and rehabilitation after closure of the borrow pit. The contractor shall operate strictly adhering to the Borrow Area Management Plan.

The Contractor will ensure that proper excavation techniques are used to improve stability and safety of the borrow area. The excavation shall be carried out in such a way that the area does not inundate during monsoons and generate cesspools of water for breeding site. The stipulations in Clause- 305.2.2 shall govern.

The cost of such safety and rehabilitation work shall be deemed to be included in the rates, unless specifically mentioned in the contract. Failure to adhere to the Environmental Mitigation Measures during construction will attract penalty as mentioned in the Contract data serial no. 37(c).

Clause 111.3 Quarry Operations

The clause shall be read as follows

The contractor shall obtain material from licensed quarries only after the consent of the Revenue department or other concerned authorities. The quarry operations shall be undertaken within the purview of the rules and regulations in force. Contractor shall ensure scheduling the movement of transport carrying material to and from site during non-peak hours. The contractor will ensure the schedules of his activities, safety arrangements during operation and rehabilitation after closure of the quarry. The contractor shall operate strictly adhering to the Borrow Area Management Plan.

The trucks carrying all types of construction material shall be covered with tarpaulin to prevent spillage and air pollution. Stockpiling of material shall be properly planned so as to ensure that no traffic jam takes place on the highway. In no case overloading than the allowable capacity of vehicle shall be permitted.

The cost of such safety and rehabilitation work shall be deemed to be included in the rates, unless specifically mentioned in the contract. Failure to adhere to the Environmental Mitigation Measures during construction will attract penalty as mentioned in the Contract data serial no. 37(c).

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Clause 111.5 Pollution from Hot Mix Plants and Batching Plants

Add the following paragraph at the end of this Sub-clause.

The contractor shall ensure that noise, vibrations and emission conforms to the regulatory norms and be fitted with dust extraction unit. Failure to adhere to the norms will attract penalty as mentioned in the Contract data serial no. 37(c).

Clause 111.6 Substances hazardous to health

Add the following as 111.6.1 & 111.6.2

Clause 111.6.1 Precautions against Toxic Chemicals

The storage and use of any herbicide or other toxic chemical shall be strictly in accordance with the manufacturer's instructions. The Engineer shall be given at least 7 working days' notice of the proposed use of any herbicide or toxic chemical.

A register of all herbicides and other toxic chemicals delivered to the site shall be kept and maintained up to date by the contractor. The register shall include name physical properties and characteristics, chemical ingredients, health and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product.

Clause 111.6.2 Precautions against generation of hazardous materials

The contractor shall not use or generate any material in the process work, which are hazardous to the health of persons, animals or vegetation. Where it is necessary to use some substance, which can cause injury to the health of the workers, the contractor shall provide suitable clothing or appliances to his workers, viz. ear plugs, helmets or dust masks or any other suitable devices.

Clause 112 Arrangement for Traffic during Construction

Clause 112.1 General

Delete the last sentence and add the following

“One week before undertaking work which would involve any obstruction whatsoever to traffic, the Contractor shall submit, for the Engineer's approval, a Traffic Management Plan.

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The plan shall include:

- i) Typical drawing for temporary diversions
- ii) Typical details of arrangements for construction under traffic including details of traffic arrangements proposed to be in place after the cessation of work each day.

Special consideration shall be given in the preparation of the Traffic Control Plan for the safety of pedestrian and works delineation of the roadway at night.

Temporary diversions will be constructed only with the approval of the Engineer.

Clause 112.2

Passage of Traffic along a part of the Existing Carriage way under improvement:

The clause shall be read as follows

If the existing road is used as diversion, then contractor will maintain it at his cost only.

For widening /strengthening existing carriageway where part width of the existing carriageway is proposed to be used for passage of traffic, treated shoulders / widened portion of the road shall be provided for passage of traffic on the side on which work is not in progress. The treatment to the shoulder/ widened portion of the road shall consist of providing at least 150mm thick granular base course with new materials (such as crushed stone / blast furnaces slag) or with the salvage materials obtained from the roadway excavation or dismantling of diversions, in order to provide a temporary carriageway of at least 5m and such treated shoulder / widened portion of the road shall be maintained throughout the period during which traffic uses the same to the satisfaction of the Engineer. The continuous length, in which such work shall be carried out, would be limited normally to 500 m at a place. However, where work is allowed by the Engineer, in the longer stretches, passing places at least 20 m long with additional paved width of 5M shall be provided at every 500 m interval.

After the works are completed, with the approval of the Engineer, the temporary passages shall be dismantled, the debris disposed off and the area cleared as per the direction of the Engineer.

Clause 112.3

Passage of Traffic along a temporary diversion

The clause shall be read as follows

In stretches, where it is not possible to pass the traffic on the partwidth of carriageway for construction of structures, a temporary diversion shall be constructed with 5m carriageway and 2.5 m earthen

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shoulders on each side \9 total width of roadway is 10m \10 with the following provision for road crust in 5 m width.

- i. Earthwork
- ii. 150 mm compacted granular sub base

The location of such stretch , alignment and longitudinal section of diversion including junctions and temporary cross drainage provisions shall be as approved by the Engineer.

After the works are completed, with the approval of the Engineer, the temporary passages shall be dismantled, the debris disposed off and the area cleared as per the direction of the Engineer.

Clause 113 General Rules for the Measurement of Works for Payment:

Clause 113.2 Measurements for Lead for Materials

Delete this Clause and replace with

“The rates in the Bill of Quantities are deemed to include the costs of haulage from source of supply to the plant as well as to the construction site as the case may be for all materials required for the Works.”

Clause 114 Scope of Rates for Different Items of Work

Clause 114.2 Add Below Item (ii) of clause 114.2

The Contractor shall submit the request for Inspection, test reports, measured levels, measurement sheets, payment applications via electronic media/ in a computerized system to the Engineer in a format approved by the Engineer.

Add the following as item (xix) of the sub-clause 114.2

Cost of all provisions for executing the work safely including all protective clothing, barriers, earplugs, shoes, helmets etc.

Clause 114.4 Add the following new Clause as 114.4

If any work executed by the Contractor does not meet the specifications, it shall be deemed as rejected. The Engineer, in his sole discretion, may consider a proposal by the Contractor to retain, the element or part of the structure. The Contractor’s proposal shall be supported by calculations, drawings and other data to prove the soundness of the proposal and shall clearly describe the additional measures required to ensure the intended performance of the structure. Rate/ price for the rehabilitation structure shall be settled mutually between the Engineer and the Contractor and in case of failure to arrive

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at an agreed rate. The Engineer's decision regarding the rate shall be final and binding.

SECTION 300 EARTH WORK, EROSION CONTROL AND DRAINAGE

Clause 301 Excavation for Roadway and Drains

Clause 301.3.3 Excavation - General

Add the following after the last para.

“The construction of the road has to be planned to utilize maximum materials excavated from roadway and embankment confirming to the plan and profile drawing requirements. The planning shall be done in such a manner to **utilize the excavated granular materials in either subgrade layer or diversion road.** Suitable soil excavated from the roadway shall be utilized in the embankment. **The sequence of operations shall be got approved by the Engineer prior to excavation.**”

Clause 301.3.7 This clause shall be read as under:

“In works involving widening of existing pavements or providing paved shoulders, the existing shoulder /verge / median shall be removed to its full width. The sub-grade material upto a depth of 300 mm from the lowest part of the pavement for widened portion or paved shoulders shall be loosened and re-compacted as per Clause 305 to a density not less than 97% of maximum dry density determined according to Is: 2720 (Part 8). Any unsuitable material encountered in this portion of subgrade shall be removed and replaced with suitable material and compacted in accordance with Clause 305”.

Clause 301.3.11 Use and Disposal of excavated materials

Add at the end of para

Unsuitable and Surplus material which in the opinion of the Engineer cannot be used in the works, shall be removed from site by the Contractor and disposed of at the nearest pit or other approved disposal location **with all lead and lifts** in accordance with all statutory requirements.”

Clause 301.8 Add item No.v in table
(v) Disposal of surplus material with all lead and lifts ...cum*

Clause 301.9 Rates

Clause 301.9.2 This Clause shall read as under

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Chief Engineer
DPI & Roads
Orissa, India



“The Contractor unit rate for loosening and re-compacting at sub-grade level shall include full compensation for loosening to the specified depth, removing the loosened soil outside the roadway excavation, rolling the surface below, breaking the clods, spreading the excavated soil in layers watering where necessary and compacting to the requirements.”

Clause 305 Embankment Construction

Clause 305.2.1.1 Delete the words “subgrades and earthen shoulders” from the first line.

Add the following at the end of first paragraph

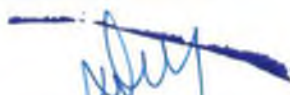
The material to be used in the subgrades shall be moorum/gravelly soil.

Clause 305.2.1.5 Add the following at the end of Note (2)
The material for subgrade shall satisfy the requirement of 4 day soaked design **CBR of 10% or more**, when tested as per IS: 2720 (Part 16) at 97% of maximum laboratory dry density (IS:2720-Part 8).

Clause 306 Soil Erosion and Sedimentation Control

Clause 306.4 Measurement for payment

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(Contractor)


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

Substitute Clause 306.4 as follows

“ All temporary sedimentation and pollution control works shall be deemed as incidental to the earthwork and other items of work and as such no separate payment shall be made for the same.”

Clause 306.5 Rates

This Clause shall be deleted

SECTION 400 SUB-BASES, BASES (NON-BITUMINOUS) AND SHOULDERS

Clause 401 GRANULAR SUB BASE

Clause 401.2 Materials

Replace the clause with the following.

The Materials to be used for the work shall be crushed stone aggregate and **crusher run screening** only. The materials shall be free from organic or other deleterious constituent and confirm to Grading V of Table 400-1.

Clause 406. WET MIX MACADAM SUB-BASE/BASE

Clause 406.2.1.1 Physical requirements:

Add at the end of first paragraph

The fraction of materials passing through 4.75 mm sieve shall be crusher run screening only. The river sand or quarry sand shall not be permitted either as such or mixed with crusher-run-screening in the Wet Mix Macadam.

Add the following at the end of the paragraph:

Soundness test shall be carried out in accordance with IS : 2386 (Part-5). The average loss of weight of coarse aggregate after 5 cycles shall not exceed 12% when tested with sodium sulphate and 18% when tested with magnesium sulphate as specified in IS: 383.

Clause 406.3. CONSTRUCTION OPERATIONS

Clause 406.3.1. Preparation of base

404.3.1 shall be applicable by replacing the work “Water Bound Macadam” by “Wet Mix Macadam”.

Clause 406.3.3 Add the following at end of 2nd para

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Unless otherwise instructed by the Engineer , the moisture content at the time of compaction shall be between 80% and 120% of the optimum moisture content

Clause 406.3.4 Add after the second para with the following:

All the layers of WMM course shall be spread only by a paver finisher and compacted as per clause no. 406.3.5.

Clause 406.3.5. Delete second sentence of first para.

Substitute para 7 of this clause as follows :

Rolling shall be continued till the density achieved over the full thickness of the material laid is at least 98% of the maximum dry density as determined by the method outlined in I.S.:2720(part 8) and satisfies the requirements of Sub Clause 903.3.

Clause 408 SHOULDERS, ISLANDS AND MEDIAN

Clause 408.2 Materials

Add after first para as follows

The hard shoulder shall consists of minimum 150mm thick granular/moorum layer having liquid limit less than 25% and PI between 3% to 6%.

Replace second para with :

Median/Traffic islands shall be raised and kerbed at the perimeter and the enclosed area filled with agriculture soil and suitably covered with grass turf/shrubs as per clause 307 and/or paved as per clause 410.3.4 or 410.3.5.

Clause 408.4 Construction Operations

Clause 408.4.1 Shoulder

Add as follows after para 4

The hard shoulder shall be compacted as per table 300-2.

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Clause 501 General Requirement for Bituminous Pavement Layers.

Clause 501.3 Replace the Phrase “ in a hot mix plant” with “ in a batch type hot mix plant only (in no case material from drum mix type hot mix plant shall be entertained)” in the first line.

Clause 503 Tack Coat

Clause 503.8 Rate

Replace second sentence as

The rate shall cover provision of binder for tack coat at 0.25kg per square meter for granular surface and 0.2 kg per square meter for normal bitumen surfaces with provision that the variation between this quantity and actual quantity of bitumen will be assessed and the payment adjusted accordingly.

Clause 505 Dense Bituminous Macadam

Clause 505.2.5 Aggregate grading and binder content

Clause 505.2.5.1 Add after the 1st Para.

Grading specified for the work is grading –II provided in table 500-10.

Clause 505.9 Replace the last sentence of first paragraph with “The rate shall include the provision of bitumen at 4.5% by weight of the total mixture for Grading-II only “.

SECTION 600 CONCRETE PAVEMENTS

Clause 601 Dry Lean Cement Concrete sub-base

Clause 601.6.4 Placing

Replace the 1st para as “ Lean concrete shall be placed using semi mechanized equipments or adopting hand guided method of construction with approval of the Engineer.”

Clause 602 CEMENT CONCRETE PAVEMENT

Clause 602.9.3.3 Paving equipment

Add at the end of 1st paragraph the concrete can be placed adopting hand guided method of construction. Work shall be carried out by skilled persons as per the methodology approved by the Engineer.

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SECTION 800 TRAFFIC SIGNS, MARKING & OTHER ROADS APPURTENANCES

Clause 801 Traffic Signs

Add the following after the para.

"All road signs shall be of retro-reflectorised type with super high-intensity retro-reflective sheeting. The sheeting is typically unmetallised micro-prismatic retro-reflective element material or any other type as approved by the Engineer."

Clause 805.1 Add the following after the para.

The hectometer/kilometer stones shall be made of concrete of M20 grade.

SECTION 900 QUALITY CONTROL FOR ROAD WORKS

Clause 903 Quality Control Tests During Construction

Add new sub clause as 903.4.3 as follows

Clause 903.4.3 Bituminous mix shall be spread with paver fitted with electronic sensing device and string line arrangement (supported by steel pegs @ 5 m apart) on either side of paving width for automatic levelling, surface evenness and profile control. Use of string line is compulsory to provide signal to the electronic sensing device fitted with the Paver Finisher.

Bituminous works shall be tested immediately after finishing for:

- a) Thickness (compacted) measured by extracting cores shall be dealt in accordance with MORTH Specification Section 900.
- b) Density (compaction) test as performed on the extracted cores
- c) Workmanship test by measuring roughness of the finished layer by duly calibrated Towed Fifth Wheel Bump Integrator.

Note: Contractor shall arrange the core extraction machine at his cost and shall take cores of the executed bituminous works jointly with Engineer without any extra cost.

The result of tests shall be compared with the prescribed acceptable values. The payment of all such works executed shall be based on the test results. In case test results for parameters (b) & (c) above fall below the required values in accordance with specification, deductions as specified below here under shall apply limiting to 'Nil' payment for the executed bituminous works. Separate deductions shall be made for each attribute i.e. Density Test and Workmanship test.

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b) **Density (Compaction Test):**

Reduction in Core Density	Deduction in the payable rate
-Upto 1.00% from the required percentage	@ 5%
- Between 1.01% to 2.00% from the required percentage	@15%
- Between 2.01% to 3.00% from the required percentage	@30%
-By more than 3.01% from the required percentage	@ 100%. Such works shall be rejected and NIL payment shall be made

The minimum deduction in the payable rate shall be made for 250 Sqm for each failure.

c) Workmanship Test: Roughness measured longitudinally

Calibration of equipment and measurement of surface unevenness shall be done in accordance with IRC:SP:16-2004.

The finished bituminous concrete layers shall be tested for workmanship (immediately before allowing traffic) by measuring roughness, longitudinally separately for each lane with the Calibrated Towed Fifth Wheel Bump Integrator. The measured roughness shall not exceed a value of 2000 mm/km for finished Bituminous Concrete surfaces.

Any completed layer (concrete or BC) having roughness in excess of the value 2000 mm/km shall be paid in accordance with the Deduction Formulae as specified below:

Measured Roughness	Deduction in the payable rate
- Upto 5.00% more than the requirement	Nil
-More than 5.01% and upto 30.00% more than the requirement	@ (10%+1% for every 1% in excess of 5%)
-More than 30% more than the requirement	Work shall be rejected. Complete re-work shall be done.

The area for which deduction in the payable rate shall apply shall be determined by the Engineer based on analysis of results. However, regardless of any other consideration, the minimum deduction shall not be less than 2000 m².

SECTION 1000 MATERIALS FOR STRUCTURES

Clause 1009.3 Add the following note under table 1000-3

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All steel shall be procured from original producers (manufacturing billets) such as SAIL/ TATA/ RINL/ JINDAL. Thermo Mechanically Treated bars (TMT bars) of grade Fe-500 conforming to IS: 1786 shall be used.

Clause 1012 Concrete Admixtures

Add the following at the end of paragraph of Clauses 1012.1

Admixtures shall not impair the durability of concrete; they shall not combine with the ingredients to form harmful compounds or endanger the protection of reinforcement against corrosion.

Add the following at the end of the clause.

After selecting a few acceptable brands & types of admixture based on the manufacturer's data/technical literature. Independent acceptance tests should be carried out for the same using the approved combinations of cement / sand / aggregates intended for use in the Project. After establishing the basic acceptability using strength criteria (compression & tensile strengths) a number of trial mixes be designed using different proportion of admixtures / cement / water etc. to establish the data bank on the behaviour of the admixture for the project site conditions. A spectroscopic signature of accepted product should be obtained and preserved for comparison for acceptance of the production lots.

Re-trials should be conducted with change in source / type of cement.

Workmanship

The dosage should be finalised on the basis of field trial and special mechanical devices should be used for dispensing the admixture in the batching / mixing plant. No addition of admixture after dosage is permitted (including addition in transit mixers).

Manufacturer's experts should be available for consultation / trouble shooting of problems associated with their product. The conditions of storage, shelf life etc. as specified by the manufacturer should be strictly observed. The manufacturer's Quality Assurance Plan during process of production should be obtained and field for reference / record.

Clause 1015 Test and Standards of Acceptance

Add following as last paragraph :

Independent testing of steel shall be carried out by the contractor for each consignment from each source in the laboratory approved by the

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Engineer before use... These tests are in addition to the tests carried out by the manufacturer.

SECTION 1500 FORMWORK

Clause 1502 Materials

Delete the last sentence of para one

Delete the word "or Timber" in 1st line of para 2

SECTION 2800 REPAIR OF STRUCTURE

FOLLOWING NEW CLAUSES SHALL BE ADDED

Clause 2816 Dismantling of damaged and existing structures

The dismantling of various components of structure like railing, kerbs, footpath, approach slab, wing walls, piers, abutments, parapet, deck slab etc. shall be carried out as specified in drawings and as per directions of Engineer. The work shall be executed in accordance with MORTH specifications section 200, clause 202.

Clause 2817 Dowel bars

Dowel bars in deck slab at locations of parapet and expansion joint and grouting with epoxy resin locations shall be provided as shown in the drawings.

Holes shall be drilled vertically using rotary drill machines. Care shall be taken that the holes are drilled vertical and the deck concrete is not damaged. It shall be ensured that buried reinforcement of the deck is not damaged due to drilling by avoiding locations above reinforcement. Rebar detector shall be used for this purpose. 16 mm dia. dowel bars shall be inserted in the hole and kept in undisturbed position with appropriate fixture. The annular space shall be filled by epoxy grouting.

Work of epoxy grouting shall be done in accordance with MORTH Specifications Section 2800 clause 2803. It shall be ensured that the inside of the hole is dry.

Epoxy resin shall be of following specifications:

Compressive strength	- min 35 MPa at 24 hours.
Tensile strength	- 15 - 20 MPa at 7days.
Flexural strength	- 30-40 MPa at 7 days
Viscosity @ 250C	- 900-1200 cps

For NKC Projects Private Limited

Clause 2818 Railing / Parapets

Cast-in-situ railing/ parapets shall be constructed in accordance with the requirements of structural concrete section 1700. The reinforcement shall conform to section 1600. The formwork shall conform to section 1500. The work in general shall conform to section 2700 clause 2703.

The reinforcement of the railings/ parapets shall be welded with the existing reinforcement of the deck slab and with the dowel bars as shown in the drawings or as directed by the Engineer.

Clause 2819 Expansion Joint

The old expansion joint assemblies shall be removed carefully along the entire width of the carriageway as per MORTH Clause 2809.1 and recess of size shall be prepared as specified in drawing. The requirements of new expansion joint shall confirm to MORTH specifications section 2600.

Clause 2820 Drainage Spout

For existing bridge decks drainage spouts shall be replaced and new drainage spouts shall be provided as shown in the drawings.

The waterproofing material shall be provided around the area of drainage spout from the top of the deck.

The work shall be executed in accordance with MORTH Specifications Section 2700 clause 2705 except to the extent modified below.

The work shall be done after the wearing coat is removed. The existing spouts shall be removed carefully with minimum damage to surrounding concrete. The pocket formed shall be sufficiently large to ensure good flow and compaction of concrete around the new spout. The area around the spout covering the pocket of new concrete adequately, approximately 500 mm x 500 mm shall be provided with a 5 mm thick polymer modified cementitious (PMC) brush topping layer.

Before commencing application of PMC brush topping the prepared concrete substrata shall be thoroughly soaked with clean water. The surface shall then be primed with PMC slurry. Before priming it should be ensured that any free surface water is removed. PMC mortar shall be applied before priming agent sets. The material shall be applied in accordance with manufacturer's recommendations.

For NKC Projects Private Limited

The specifications for polymer modified cementitious (PMC) brush topping and polymer modified cementitious (PMC) mortar shall be as per clause 2822.

Clause 2821

Approach Slab

Approach slabs, which are cracked or otherwise damaged, shall be recasted after dismantling of the existing slab as specified in drawing. The work shall be executed in accordance with MORTH specifications section 2700 clause 2704. The approach slab shall be laid over lean concrete as per drawing after compacting the base properly

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Chief Engineer
DPI & Roads
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Chief Engineer,
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PART III

TECHNICAL SPECIFICATIONS FOR BUILDING WORKS

This part shall comprise the latest “Specifications for Building Works” Volume I to Volume IV, 1995 as published by the Central Public Works Department, Govt. of India and deemed to be bound into this document.

For NKC Projects Private Limited

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  **Director**

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Chief Engineer
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Odisha

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PART IV

ENVIRONMENT MANAGEMENT PLAN

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Director

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Chief Engineer
DPI & Roads

Chief Engineer,
DPI & Roads, Odisha

ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Environmental Issue/Aspect	Management Measures
E.1	Tree Cutting	The Contractor shall not cut or damage trees except that are required to be felled for construction of traffic diversion works and facilities, after obtaining necessary permission for felling of the same from the authorities.
E.2	Joint Field Verification	The Engineer and the Contractor will organize and carry out joint field verification to ascertain the possibility of saving environmental and community resources. The complaints/suggestions together with the observations and expert opinion of the joint verification team containing the need for additional protection measures or changes in design/scale/nature of protection/management measures shall be well documented with other requisite details such as date, time, place and signature of the individuals involved. Approval will be accorded by the Engineer in consultation with the Project Authority.
E.3	Location and installation of Crushers, Hot-mix Plants and Batching Plants	<p>All plants (hot-mix, crushers, batching plant, WMM or any other) shall be located at least 1000 mts. away from habitations, forests and wildlife movement areas, preferably in the downwind direction.</p> <p>The Contractor shall submit the proposed location plan (including survey number/s of the land parcel/s under consideration, area, land-use and surrounding features) and seek prior approval of the Engineer before entering into any formal agreement with land owner/s for setting-up such construction facilities. The Contractor will formalize agreement with land owner/s only after a written approval has been accorded by the Engineer.</p> <p>The 'installation' of the plant/s shall commence after the contractor has obtained 'consent to establish' from the Orissa State Pollution Control Board. The 'operation' of the plant/s shall be permitted by the Engineer after the 'consent to operate' has been obtained from the SPCB. A copy of the application submitted to the SPCB and the consent/s received must be submitted to the Engineer, based on which the approvals will be accorded. Action/s by the Engineer against any non-compliance on this count shall be borne by the Contractor at his own risk and cost.</p>
E.4	Construction Camp/s – Selection, Design and Lay-out	<p>No construction camps, including material stack yards and storage facility will not be proposed within 500 mts. From</p> <ol style="list-style-type: none"> a. a settlement/habitation b. water source and c. reserved or protected forest limits <p>to avoid conflicts and stress on the local infrastructure facilities and natural resources.</p>

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M/s NKC Projects Pvt. Ltd.
(Contractor) Director

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

S. No.	Environmental Issue/Aspect	Management Measures
		<p>In case the contractor proposes setting-up of plant/s within a construction camp, clause P.3 will apply.</p> <p>The Contractor shall submit the proposed location plan (including survey number/s of the land parcel/s under consideration, area, land-use and surrounding features) and seek prior approval of the Engineer before entering into any formal agreement with land owner/s for setting-up construction camps. The Contractor will formalize agreement with land owner/s only after a written approval has been accorded by the Engineer.</p> <p>Complete details about the pre-dominant wind direction and design of facilities, including circulation area, parking, material storage, kitchen/mess, sanitation, waste collection and disposal, drainage, electrical utility placement and water supply shall be provided by the Contractor as part of the documentation seeking approval of the Engineer on this count.</p>
E.5	Construction Vehicles, Equipment and Machinery	<p>All vehicles, equipment and machinery to be procured for construction shall conform to the relevant Bureau of India Standard (BIS) norms. The Contractor shall ensure that all vehicles, equipment and machinery used for construction are regularly maintained and conform to the emission standards specified by the CPCB. Certification issued for such contrivances by the designated/approved authorities shall be submitted to the Engineer.</p> <p>The Contractor shall maintain a proper record of Pollution Under Control Certificates for all vehicles and machinery used for works under the contract. Copies of such records shall be kept at the site office and shall be made available to the Engineer when sought.</p>
E.6	Identification, Operation and Rehabilitation of Burrow Areas	<p>The Contractor shall submit the proposed location plan (including site details, survey number/s of the land parcel/s under consideration, area and quantum of material proposed for extraction, land-use and surrounding features) and seek prior approval of the Engineer before entering into any formal agreement with land owner/s for opening burrow areas. The Contractor will formalize agreement with land owner/s only after a written approval has been accorded by the Engineer. The Engineer will be required to inspect every proposed burrow area location and evaluate (parallel with technical examination) such proposals in accordance to environmental requirements as laid down in the EMP prior to issuing the 'approval' for use of such sites.</p> <p>No burrow areas shall be opened within 500 mts. from wildlife movement zones and forest areas. The burrow areas shall be at least 250 mts. from schools, human habitations (residential and commercial establishments), village access roads, state highways and other roads.</p> <p>No burrow area will be opened/operated without the written permission of the Engineer. The location, shape and size of the designated burrow areas will be as approved by the Engineer and in accordance to the IRC recommended practice for burrow pits for road embankments (IRC 10: 1961). The 'format' for seeking Engineer's approval on environmental considerations will be as per the template provided in this EMP and will include a reference/location map; area, existing land use and haul road details;</p>

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Director

S. No.	Environmental Issue/Aspect	Management Measures
		<p>photograph of the site; and the proposed rehabilitation plan. The Contractor will not start burrowing earth from the approved burrow area/s until an agreement is signed between land owner/s and Contractor and a copy of this agreement is submitted to the Engineer.</p> <p>In burrow pits, the depth shall be regulated so that the sides of the excavation should not be steeper than 1:2, from the edge.</p> <p>All burrow areas whether in private, community or govt. land shall be restored as per the approved rehabilitation plan immediately after completion of the use of such a source. The Contractor shall plan and ensure rehabilitation work in such a manner that it is completed prior to the rainy season. 'Substantial completion' or 'completion' certificates for the civil work shall not be issued unless restoration and rehabilitation works have been completed by the Contractor and the same has been accorded a written approval by the Engineer.</p>
E.7	Identification, Operation and Rehabilitation of Stone Quarry	<p>The Contractor shall submit the proposed location plan (including site details, survey number/s of the land parcel/s under consideration, area and quantum of material proposed to be used, land-use, photograph/s of the site and surrounding features within 500 mts.) and seek prior approval of the Engineer before entering into any formal agreement with land owner/s in case of a new quarry site or with the owner/operator in case use of an existing quarry is proposed.</p> <p>No quarry and/or crusher units shall be 'selected' or 'used', which is within 1000 mts. from a human habitation, forest boundary and wildlife habitats/movement areas.</p> <p>The Contractor shall obtain necessary legal permission/s from Department of Mines, Govt. of Orissa and the District Administration, SPCB and local Tehsildar and submit a copy of the same to the Engineer. All quarry operations, including procurement, storage and use of blasting material/s will be undertaken within the rules and regulations in vogue.</p>
E.8	Identification, and Operation of Sand Quarry	<p>The Contractor shall submit the proposed location plan (including details of the site/s under consideration, proposed quantum of material extraction and surrounding features) and seek prior approval of the Engineer. No sand quarry shall be opened within 500 mts. from wildlife movement zones and forest areas.</p> <p>In the event of selection of a new site for sand quarrying, the Contractor shall obtain prior approval and concurrence from Competent District Authority, the local Tehsildar and the Engineer keeping in view the objections and convenience of the local population. Where the supplier of sand is another party, the authentic copy of lease agreement that has been executed between the local Tehsildar and the supplier has to be submitted to the Engineer before any procurement of material is made from such a site. The procurement of material shall be allowed only from those sand quarry sites that are permitted by the local Tehsildar with the concurrence of the District Collector with due regard to Orissa Miner Mineral Concession Rules, 2004.</p>

For NKC Projects Private Limited

S. No.	Environmental Issue/Aspect	Management Measures
E.9	Arrangement for Construction Water	<p>The Contractor shall submit the proposed location plan (including site details; type of the source under consideration; its usage by other consumers; proposed quantum of water extraction) and seek prior approval of the Engineer. To avoid disruption/disturbance to other water users, the Contractor will extract water only from the approved locations and shall seek a written approval of the Engineer before finalizing and using any such water source – whether ground or at surface.</p> <p>Use of ground water facility shall be subject to the local legislation; ground water availability in the area and the granting of necessary permission by the Competent Authority. The Contractor shall pay the royalty for use of such water as decided under the relevant norms. A copy of the permission obtained from the Competent Authority shall be submitted to the Engineer prior to the use of any such source. The possibility/ permission for sinking of bore wells adjacent to nalas and streams may be examined, such that while the water requirement for the road construction activity is met and these structures when abandoned can help in ground water recharge after suitable modification.</p>
E.10	Clearing and Grubbing	<p>All works shall be carried out by the Contractor in a manner such that the damage or disruption to flora is minimal. Only ground cover/shrubs that impinge directly on the permanent works or necessary temporary works will be removed with prior approval from Engineer.</p>
E.11	Stripping, stacking and preservation of top soil	<p>The top soil from all sites including road side widening and working area, cutting areas, quarry sites, burrows areas, construction camps, haul roads in agricultural fields (if any) and areas to be permanently covered shall be stripped to a specified depth of 150mm and stored in stockpiles for re-use. A portion of the temporarily acquired area (along the boundaries in a construction camp, burrow areas etc.) and along the road at the Right of Way edge will be earmarked for storing top soil. The locations for stacking will be pre-identified in consultation and with approval of the Engineer.</p> <p>The following precautionary measures will be taken by the Contractor to preserve the stockpiles till they are re-used:</p> <ol style="list-style-type: none"> Stockpile will be such that the slope does not exceed 1:2 (vertical to horizontal), and height is restricted to 2 m. To retain soil and to allow percolation of water, the edges of the pile will be protected by silt fence. Multiple handling kept to a minimum to ensure that no compaction occurs. Such stockpiles shall be covered with empty gunny bags or will be planted with grasses to prevent loss during rains. <p>Such stockpiled topsoil will be utilized for -</p> <ul style="list-style-type: none"> ➤ Covering reclamation sites or other disturbed areas including burrow areas (other than those in barren areas) ➤ Top dressing of road embankment and fill slopes ➤ Filling up of tree pits and ➤ In the agricultural fields of farmers, acquired temporarily that need to be restored.

For NKC Projects Private Limited

S. No.	Environmental Issue/Aspect	Management Measures
		<p>Residual topsoil, if there is any, will be utilized for the plantation works along the road corridor.</p> <p>The utilization as far as possible shall be in the same area/close to the same area from where the top soil was removed. The stripping, preservation and reuse shall be closely supervised and properly recorded by the Engineer.</p>
E.12	Labour Camp Management	
12.1	Accommodation	<p>Prior to setting-up such a labour/worker's facility, the location, lay-out and basic provision of facilities to be provided at each labour camp site shall be submitted to the Engineer for approval. The construction or hiring of such facilities shall commence only after the written approval from the Engineer has been received by the Contractor.</p>
12.2	Potable Water	<p>The Contractor shall ensure the fulfillment of the following conditions:</p> <ol style="list-style-type: none"> Supply of sufficient quantity of potable water within the precincts of every workplace in a cool and shaded area. Such facilities shall be regularly maintained from health and hygiene point of view. All open wells will be entirely covered and will be provided with a trap door to prevent accidental fall and contamination from dust, litter etc. A reliable pump will be fitted to each covered well. <p>The Engineer is required to inspect the labour camp once in a week to ensure compliance to the health and hygienic standards prescribed in the Labour Regulations and in the EMP.</p>
12.3	Sanitation and Sewage System	<p>The Contractor shall ensure that -</p> <ol style="list-style-type: none"> The provision of toilets and sewage system for the camp is to be designed, built and operated in such a fashion that no health hazard occurs and no pollution to the air, surrounding agricultural fields, ground water or adjacent water courses takes place. Separate toilets and bathrooms for women workers wherever required, screened from those of men, are provided with markings in vernacular language. All such facilities must have adequate water supply with proper drainage and disposal facility. All toilets in workplaces are to be maintained, cleaned and disinfected daily using proper disinfectants. Portable toilets may be brought to use and the night soil from such units has to be disposed through designated septic tanks so as to prevent pollution of the surrounding areas. In the main camp, no night soil or sewerage shall be disposed of at any place other than the septic tanks constructed at the site. <p>All these facilities shall be inspected on a weekly basis by the Engineer to check the hygiene standards.</p>

S. No.	Environmental Issue/Aspect	Management Measures
E.13	Transportation of Construction Materials and Haul Road Management	<p>The Contractor shall maintain properly (as directed by the Engineer) all roads (existing or constructed for the project), used for transporting construction materials, equipment and machineries for the works under this contract. It shall be the responsibility of the Contractor to ensure that all roads used for transportation of construction materials are clear from any dust, sand, soil, aggregates etc. that may have fallen from the transporting vehicles. The Contractor will arrange for regular water sprinkling, at least three times in a day, for dust suppression of all such roads and surfaces.</p> <p>All vehicles delivering goods to the site shall be covered to avoid spillage of materials and air pollution.</p> <p>The unloading of all materials at construction sites will be limited to day time only to avoid accidents. Screens of hessian cloth, agro-net and such other barricading material are to be erected along all dumping and stockpiling sites, so that generation of the dust in the vicinity of such locations can be minimized to a great extent.</p>
E.14	Worksite Safety Management	
14.1	Traffic Diversions	This shall be done according to the provisions of Technical Specifications Cl. 112.
14.2	Traffic Safety	This shall be done according to the provisions of Technical Specifications Cl. 112
14.3	Safety of Workers	<p>The Contractor will make sure that during the construction work all relevant provisions of the Factories Act, 1948 and the Building and Other Construction Workers (Regulation of Employment and Conditions of Services) Act, 1996 are adhered to. The Contractor will comply with all the precautions as required for ensuring the safety of the workmen as per the International Labor Organization (ILO) Convention No. 62 as far as those are applicable to this contract.</p> <p>The Contractor shall provide and ensure enforcement with zero tolerance on the following:</p> <ol style="list-style-type: none"> Protective footwear and protective goggles to all workers employed handling asphalt materials, cement, mortar, concrete, blasting and crusher operations. Welder's protective eye-shields and protective footwear to workers engaged in welding works. Earplugs to workers exposed to high noise levels. Hard hat or helmets to all workers, supervising staff and inspecting officials entering a construction site, plant area, quarry and engaged in loading/unloading operations. Protective goggles and clothing to workers engaged in stone breaking activities.

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads,
OdishaChief Engineer,
DPI & Roads,
Odisha

S. No.	Environmental Issue/Aspect	Management Measures
		f) Nettings below and on the sides of overhead construction and excavation work to prevent mishaps due to accidental fall of workmen and debris. g) 'No smoking' and other 'high risk' areas are to be provided with warning signage besides strict enforcement of PPE with zero tolerance limits.
14.4	Risk from Electrical Equipment(s)	All power transmission lines whether cladded or sufficiently covered are potential hazards at construction sites. The Contractor shall take all required precautions to prevent danger from electrical cables, wires and equipment and ensure that – <ul style="list-style-type: none"> a) No material will be stacked or placed below/near power transmission lines, wires and equipment, which can be a potential danger to any road user, workman or public. b) All such electrical installations and wirings shall be barricaded in manner that ensures safety of the road users, workers, operating vehicles/equipment (such as cranes, excavators, loaders, fabricating units) and wildlife. c) Necessary fencing, illumination and proper insulation of the electrical lines shall be ensured by the contractor for safety and security of the general public, road users, workers and the wildlife. d) The contractor shall ensure proper maintenance of electrical supply lines/points. e) All such electrical operating units shall be switched off before operations are closed every day or night as the case may be. f) All electrical equipment/cables/wires to be used in the construction shall have to conform to the relevant BIS specifications/codes. g) The contractor will ensure that such equipment/cables/wires are free from patent defect, and maintained in good working order (as per the owner manual supplied by the manufacturer) through regular supervision, monitoring, maintenance and repair/replacement from time to time.
14.5	First Aid	The Contractor shall arrange for - <ul style="list-style-type: none"> ▪ A readily available lifesaving first aid kits including an adequate supply of sterilized dressing materials and appliances as per the Factories Rules in every work zone. ▪ Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital. ▪ Equipment and trained nursing /paramedical staff at construction camps. ▪ Periodic health checks for workers.
14.6	Risk Force Majeure	The Contractor shall take all reasonable precautions to prevent danger of destruction to life and property of the public as well as the workers on account of flood, fire, explosion, accidents involving vehicles carrying hazardous materials etc. in an around work sites, camps, maintenance units, burrow areas, quarries, haul roads and in any other place associated with the project activity.

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 M/s NKC Projects Pvt. Ltd.
 (Contractor) Director

S. No.	Environmental Issue/Aspect	Management Measures
		<p>The Contractor will make the required arrangements so that in case of any mishap all necessary steps can be taken for prompt on-the-spot first aid treatment. Arrangements shall be made for quick rescue operation including shifting of the injured to the nearest hospital</p> <p>Fire extinguishers/fire-fighting equipment and salvaging equipment for the recovery of hazardous chemicals on account of accidents or spillage are to be kept ready at camping sites or major construction sites to attend to such eventualities.</p> <p>A Construction Safety Plan to be prepared by the Contractor during the Mobilization phase shall identify all necessary actions in the event of an emergency. The actions shall include description of stand-by arrangements, rescue of workers/people and salvage of hazardous chemicals/ materials in case of such eventualities. This plan shall be prepared in accordance with the standard practice adopted under labour welfare activities and Factories Act and will be approved by the Engineer.</p>
E.15	Accessibility	Construction activities that affect the use of side roads and existing accesses to individual properties, whether public or private, shall not be undertaken without providing adequate provision/s approved by the Engineer. The Contractor will provide safe and convenient passage for vehicles, pedestrians and livestock to and from road sides and property accesses connecting the project road by providing safe temporary arrangements, including a connecting road, as necessary.
E.16	Disruption to Other Users of Water	<p>While working across or close to any perennial water bodies, the Contractor shall not obstruct/prevent the flow of water.</p> <p>Construction over and close to the non-perennial streams shall be undertaken in dry season and if such activity is likely to disrupt, constrain or impact the community use of the water body, adequate prior information (at least two weeks in advance) will be provided to such a community. Such water body may be ponds, water harvesting structures (WHS), feeder channels to pond, irrigation sources etc. If the supply of water or access to a source is being completely cut off, then the Contractor shall make necessary arrangements to provide water in the interim period. Water quality test shall be done prior to providing / supplying the water.</p>
E.17	Labour Requirements	The Contractor preferably will use labour drawn from local areas to provide maximum benefit to the local community especially to the vulnerable individuals/groups living in the project area.
E.18	Pollution Management	
18.1	Dust Pollution	The Contractor will take every precaution to reduce the level of dust (SPM and RSPM) and make arrangements to minimize dust pollution through provision of wind screens/barriers, water sprinkling/mist spray units, and encapsulation of dust source shall be made at the plant sites.

S. No.	Environmental Issue/Aspect	Management Measures
		<p>Specifications of crushers, hot mix plants and batching plants shall comply with the requirements of the relevant legislations and as laid out in the 'Consents' issued by the OSPCB. The Contractor will provide necessary certificates to confirm that all crushers used for the works under the Contract conform to relevant dust emission control legislation.</p> <p>Even if the Contractor chooses to use an existing crusher (already operating in the area), basic minimum standards stipulated under the Pollution Control Legislation will have to be met and dust control devices need to be installed and operated. Copies of the required certificates and 'consents' of such a plant shall be procured by the Contractor and submitted to Engineer prior to the procurement of material from a unit of this nature.</p>
18.2	Siltation of Water Bodies and Degradation of Water Quality	<p>Release of wastes (non-toxic and toxic) by the Contractor into water bodies and drainage systems that may adversely impact the aquatic life both locally and in the downstream stretches shall be viewed as serious non-compliance of EMP since these may affect the eco-flow, aquatic life and livelihoods of people dependent on such resources.</p> <p>The Contractor will ensure that construction and excavated materials containing fine particles are stored in an enclosure, particularly during the rainy season, such that sediment-laden water does not drain into nearby water bodies..</p> <p>The Contractor shall take all precautionary measures to prevent the wastewater generated during construction from entering into streams, water bodies or the irrigation system by providing proper septic tanks and soak pits. Spills, dust fines, waste oil, wastes and debris shall be cleared and disposed off as per the guidelines provided in the EMP under the supervision of the Engineer.</p> <p>The Contractor will avoid continuation of construction activity close to the streams or water bodies during monsoon. Stream courses and drains will be kept free from dumping of solid wastes, excavated earth, sludge and discharge of waste water from construction camps and sites. Liquid wastes arising from construction sites are to be impounded into proper collection pits.</p>
18.3	Water Pollution from Fuel, Lubricants and Chemicals	<p>Garage, service stations, refueling stations and equipment maintenance yards shall be so located at least 100 mts. away from kitchen, mess and drinking water facilities within the camp site.</p> <p>The Contractor shall ensure that all vehicles, machinery and equipment are operated (including re-fueling) and maintained in such a fashion that any spillage (while working or accidental) of fuel and lubricants does not contaminate the land and water resources. There shall be lined drains and service ramps with oil and grease traps/oil interceptors in such areas to prevent liquid wastes from entering into soil, any aquifer, local water source, bore well, pond and other water bodies. Storage of drums (both filled and empty) and refueling shall be done on concrete platforms (impervious surface). Additionally, roofing (of any type other than asbestos) shall be provided to prevent contamination of land and water due to run-off from such sites during rains. Oil interceptors are also to be provided at vehicle parking areas.</p>

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

S. No.	Environmental Issue/Aspect	Management Measures
		The contractor will arrange for collection, storage, reuse/disposal of spent oil, lubricants, grease, sludge, slurry, bitumen, chemicals and paints or other such material. Covered bins/drums (marked specifically regarding the contents) shall be kept separately at maintenance and refueling areas. Disposal shall be at pre-identified sites (as listed in the Waste Management Plan) as approved by the Engineer. All spills and collected petroleum products will be disposed off in accordance with the prevailing MoEF and SPCB guidelines issued for such purpose. The Engineer will certify that all arrangements comply with the guidelines of SPCB/ MoEF.
18.4	Noise Pollution	<p>The Contractor shall ensure the following:</p> <ol style="list-style-type: none"> All plants and equipment used in construction (including those of sub-Contractors and/or suppliers such as aggregate crushing plants) shall strictly conform to the MoEF/CPCB noise standards and shall have latest noise suppression mountings. All vehicles and equipment used in construction will be fitted with exhaust silencers. Servicing of all construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective, these shall be replaced. Maintenance of equipment, machinery and vehicles (including proper lubrication, tuning, checks for muffler effectiveness) shall be regular and up to the satisfaction of the Engineer to keep noise levels under control. Construction activity at sites within 100m habitations and hospitals shall not be carried out during night (10:00 pm to 06:00 am). Construction activity at sites within 500m from wildlife movement zones, reserved and protected forest areas shall not be carried out between 06:00 pm to 06:00 am. Blasting operations, if any shall be carried out with full safety precautions and in compliance with measures as specified in the legal provisions. <p>Monitoring shall be carried out by the Contractor in presence of the Engineer at the construction sites as per the Noise Monitoring Plan provided in this EMP and results shall be shared with the Engineer.</p>
E.19	Drainage and Flood Control	The contractor will also ensure that no material (such as earth, stone, or other construction material or wastes) blocks the natural flow of water in any water course or cross drainage channel. All cross drainage and structure construction sites shall be cleared/cleaned-up prior to the rainy season. Also, prior to the monsoon season, the Contractor will provide either permanent or temporary drains to prevent water accumulation in residential, commercial and agricultural areas adjoining the under-construction zones of the road. Besides this, drainage shall be cleared to avoid accumulation of water within the construction sites, camp and plant sites and storage yard well in advance of the rainy season.

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M/s NKC Projects Pvt. Ltd.
(Contractor) DirectorChief Engineer,
DPI & Roads, Odisha

S. No.	Environmental Issue/Aspect	Management Measures
E.20	Slope Protection and Control of Soil Erosion	<p>The Contractor will provide slope protection works as per design, or as directed by the Engineer to control soil erosion and sedimentation through use of dykes, sedimentation chambers, basins, fiber mats, mulches, grasses, slope drains and other devices as required under specific local conditions. All temporary sedimentation, pollution control works and maintenance thereof will be deemed as incidental to the earth work or other items of work and as such no separate payment will be made for them.</p> <p>The Contractor shall ensure the following:</p> <ol style="list-style-type: none"> After construction of road embankment, the side slopes of all cut and fill areas will be graded and covered with stone pitching, grass and shrub, as per design specifications. Turfing works will be taken up as soon as possible provided the season is favorable for the establishment of grass sods. Other measures of slope stabilization may include mulching/netting with sowing of grass seeds and sprinkling of water on such slopes after the completion of the earth work. Along sections abutting water bodies, stone pitching, as laid out in the design, will be provided to protect slopes.
E.21	Waste Management	
21.1	Waste Management – Planning and Identification of Disposal Sites	<p>The Contractor will ensure that any spoils/materials unsuitable for embankment fill are not be disposed off near any water course; water body; agricultural land; natural habitats like grass lands, wet lands, flood plains, forests and pastures. All proposed disposal sites for waste material shall be identified by the Contractor and a Rehabilitation Plan (including details about pollution prevention and safety measures) for each such site shall be submitted to the Engineer for approval.</p>
21.2	Re-use and Disposal of Debris Generated from Dismantling of Structures and Road Surface	<p>Debris generated due to the dismantling of the existing road will be suitably re-used in the proposed construction as follows:</p> <ul style="list-style-type: none"> ▪ The dismantled scraps of bitumen will be disposed off through utilization for the paving of cross roads, access roads and paving works in construction sites and campus, temporary traffic diversions, haulage routes, parking areas along the corridor or in any other manner approved by the Engineer. ▪ At locations identified for disposal of residual bituminous wastes, the disposal will be carried out over a 60 mm thick layer of rammed clay so as to eliminate the possibility of leaching of wastes into the ground water. ▪ The Contractor will suitably dispose off unutilized non-toxic debris either through filling up of burrows areas located in wasteland or at pre-designated disposal sites, subject to the approval of the Engineer. ▪ Debris generated from pile driving or other construction activities along the rivers and streams drainage channels shall be carefully disposed in such a manner that it does not flow into the water body.

S. No.	Environmental Issue/Aspect	Management Measures
		<ul style="list-style-type: none"> ▪ Non-bituminous wastes may be dumped in burrow pits (preferably located in barren lands) where such burrow pits are not suitable to develop as an economic source like pisci-culture or a source of irrigation. Such burrow pits can be filled up with non-bitumen wastes and then covered with a minimum 30cm layer of the soil, where plantation of trees and shrubs can be taken-up. <p>The Contractor at his own cost shall resolve any claim, arising out of waste disposal or any non-compliance that may arise on account of lack of action on his part.</p>
21.3	Waste Disposal from Construction Camp/s and Plant Site/s	<p>The Contractor will provide garbage bins in the construction camp/s and ensure that these are regularly emptied and disposed off in a hygienic manner. No incineration or burning of wastes shall be carried out by the Contractor. The disposal of kitchen waste and other biodegradable matter shall be carried out in pits covered with a layer of earth within the camp site.</p> <p>Discarded plastic bags, paper and paper products, bottles, packaging material, gunny bags, hessian, metal containers, strips and scraps of metal, PVC pipes, rubber and poly urethane foam, auto mobile spares, tubes, tyres, belts, filters, waste oil, drums and other such materials shall be either reused or will be sold/given out for recycling.</p>
E.22	Chance Found Archaeological Property	<p>All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on the site shall be the property of the Government and shall be dealt with as per provisions of the relevant legislation.</p>
E.23	Demobilization and Decommissioning	<p>The Contractor shall clear all temporary structures and dispose all garbage, night soils and POL waste as per the approved Waste Management Plan. All construction zones including river-beds, drainage channels, culverts, road-side areas, camps, hot mix plant sites, crushers, batching plant sites and any other area used/affected by the project will be rehabilitated as per the approved plans. The Engineer shall ensure that all clean-up and restoration operations are completed satisfactorily and written approval is given to the contractor before the 'works completion certificate' is issued/recommended to the Client.</p> <p>All clean-up and restoration operations, including road-side and structure construction site clean-up; burrow area rehabilitation; provision of drainage and slope protection measures and; restoration of top-soil shall be completed. All disposal pits or trenches will be filled in disinfected and effectively sealed off. Residual topsoil, if any will be distributed or spread evenly at plantation sites, on adjoining/near-by barren land or affected agricultural land adjacent to the RoW.</p> <p>The Engineer shall ensure through site inspection that the Contractor and Engineer have complied with all these provisions prior to 'taking-over' the milestone stretch in question.</p>

IDENTIFICATION OF DISPOSAL SITE LOCATIONS

[One Time Format, to be filled by the Contractor before dumping in each location]

Link : _____
[Give chainages and nearest settlements from both ends]

Sl. No.	Criteria on which information for each site is to be collected	Site 1	Site 2	Site 3
1	Existing Land Use			
2	Area covered (m ²)			
3	Total Material that can be dumped within the site (m ²)			
4	Depth to which dumping is feasible (m)			
5	Distance of nearest watercourse (m)			
6	Nearest Settlement (m)			
7	Date/s of Community Consultation/s			
8	Whether the community is agreeable to siting of dumping site (Y/N)			
9	Date of Permission from Villager/local community			
10	Proposed future use of the Site			
11	Selected Site (tick any one column only)			

Enclosures: [Tick as appropriate]

1. Map of each location (Totalno.s) : Attached / Not Attached
2. Photographs of
 - a. Each disposal location : Attached/ Not Attached
 - b. Each community consultation : Attached/ Not Attached
3. Photo copy of Agreement with individual owners
 - a. Mr. : Attached/ Not Attached
 - b. Mr. : Attached/ Not Attached

Remarks

Submitted	Checked	Approved
Signature.....	Signature.....	Signature.....
Name.....	Name.....	Name.....
Designation..... Contractor	Environmental Engineer. Construction Supervision Consultant	Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Private Limited
(Contractor) Director

Chief Engineer,
DPI & Roads, Odisha

SETTING-UP CONSTRUCTION CAMP AND STORAGE AREA

[One Time Format, to be to be filled by the Contractor & submitted before target date of establishing camps or each time before change of layout]

Location of Camp : _____

Date _____

Sl. No.	Item	Unit	Details
1.	Detail of item camp		
a.	Size of Camp	m x m	
b.	Area of Camp	Sq.m	
c.	Distance from Nearest Settlement		
d.	Distance from Nearest Water Source [Type/Size/Capacity/present Use/Ownership]		
e.	Date of camp being operational dd/mm/yy		
f.	Present land use		
g.	No of trees with girth > 0.3m.		
h.	Details of Storage area (Availability of impervious surface)	Mxm	
i.	Availability of separate waste disposal from storage area	Cum	
2.	Details of topsoil stacking		
a.	Quantity of top soil removed	Sq.m	
b.	Details of storage of topsoil [Describe stacking arrangement]		
3.	Details of workforce		
a.	Total No of Laborers	Nos	
b.	Total no of Male Workers	Nos	
c.	No of Male Workers below 18 years	Nos	
d.	Total No of Female Workers	Nos	
e.	No of Female workers below 18 years	Nos	
f.	No of children	Nos	
4.	Details of dwelling units		
a.	No of dwellings/huts		
b.	Minimum Size of Dwelling	m x m	
c.	No. of openings per dwelling	Nos	
d.	Minimum size of opening	m x m	
e.	Walls	Specifications	
f.	Roofing	Specifications	
g.	Flooring	Specifications	

For NKC Projects Private Limited

M/s NKC Projects Private Limited
(Contractor) DirectorChief Engineer
DPI & RoadsChief Engineer,
DPI & Roads, Odisha

Sl. No.	Item	Unit	Details
h.	Drinking Water Tank	Specifications	
i.	Capacity of Drinking Water Tank	Cum	
j.	Size of Drinking Water Tank	Mxm	
k.	Total no of WC	Nos	
l.	No of Wcs for female workers	Nos	
m.	Minimum Size of WC	Mxm	
n.	Total No of Bathrooms for female workers	Nos	
o.	Size of septic tank for WC/Baths	Mxm	
p.	Capacity of Water Tank for WCs /Bathrooms and general purpose	cum	
q.	Fencing around camp	Y/N	
5.	Details of facilities		
a.	Availability of security 24 hrs a day	Yes/No	
b.	Details of First Aid Facility	Yes/No	
c.	Availability of Dav Care Centre	Yes/No	
d.	Availability of dust bins (capacity 60 Itr)	Nos	

Encl:

- Site Layout of Construction camp
- Drawings of dwelling units with allied facilities

Attached/ Not Attached
Attached/ Not Attached

Remarks

Submitted

Signature.....

Name.....

Designation.....
Contractor**Checked**

Signature.....

Name.....

Environmental Engineer.
Construction Supervision Consultant**Approved**

Signature.....

Name.....

Resident Engineer

ESTABLISHMENT OF BURROW AREAS PRIOR TO OPENING
 [One time Format, to be submitted by the Contractor for taking consent for opening of EACH Burrow area]

Link No. _____ [Give chainages and nearest settlements from both ends]
 Material _____

Sl. No.	Location				Area m x m	Quantity of Available Material (cum)	Distance from nearest Water Course (m)	Distance from nearest Settlement(m)	Land Use		No. of Trees Affected	Rehabilitation Measures Proposed
	Name of Village	Chainage of Project Road (km)	Side (LHS /RHS)	Haul road length (km)					Before	After		

- Photograph of Proposed Site Attached/ Not Attached
- Location Map Attached/ Not Attached
- Agreement with Land Owner Attached/ Not Attached

Submitted

Signature.....
 Name.....
 Designation.....
 Contractor

Checked

Signature.....
 Name.....
 Environmental Engineer.
 Construction Supervision Consultant

Approved

Signature.....
 Name.....
 Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
 (Contractor)

Chief Engineer
 DPI & Roads

Chief Engineer,
 DPI & Roads, Odisha

ESTABLISHMENT OF HOT MIX PLANT /BATCH MIX PLANT
 [To be submitted by Contractor for taking permission from PMU]

Link _____

Sl. No.	Location				Area (m ²)	Distance from nearest Water Course (m)	Distance from nearest Settlement	Existing Land Use	Prevalent Wind Direction	Weather in Down Wind Direction (Y/N)	Approved by EO (Y/N)	Remark
	Name of Village	Chainage (km)	Side (LHS /RHS)	Haul road length (m)								

- 1. Photograph of Proposed Site Attached/ Not attached
- 2. Site Plan Attached/ Not attached
- 3. Permission from OSPCB Attached/ Not attached (Valid upto _____)

Submitted
 Signature.....
 Name.....
 Designation.....
 Contractor

Checked
 Signature.....
 Name.....
 Environmental Engineer.
 Construction Supervision Consultant

Approved
 Signature.....
 Name.....
 Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Private Limited. Ltd. Director

Chief Engineer
 DPI & Roads

Chief Engineer,
 DPI & Roads, Odisha

Form P5

ROAD SAFETY REPORTING FORMATS

[Reporting by Contractor to PMU before commencement of construction in the Working Zone]

Link _____

DIVERSION at location : km _____

Report-Date.....

Sl. No.	Item	Unit	Remarks
Details of Construction Zone			
1.	Length of Working Zone	m	
2.	Distance between this and adjacent construction zone	m	
3.	Length of approach transition zone (should be min 50 for a speed of 50 km/ hr)	m	
4.	Length of terminal transition zone	m	
5.	Length of Longitudinal Buffer Zones	m	
6.	Length of Lateral Buffer Zone	m	
Signage's in advance warning zone			
1.	Sign 'Men at Work' before 200m	Y/N	
2.	Sign 'Men at Work' before working zone	Y/N	
3.	Signage saying 'Compulsory Keep Right /Left' provided	Y/N	
4.	Signage saying 'Narrow Road on left/ right' provided	Y/N	
Signage in Approach Transition Zone			
1.	Signage saying 'Compulsory Keep Right /Left' provided	Y/N	
2.	Delineators placed along length of transition	Y/N	
Signage in work zone			
1.	Hazard Marker placed where railing for CD structure on diversion starts	Y/N	
2.	Barricade on either side of work sub zone	Y/N	
Signage in Terminal transition zone			
1.	Sign for Restriction Ends	Y/N	
Road Delineator			
1.	Delincator posts provided	Y/N	
2.	Sand bag delineators with Retroreflective stickers provided	Y/N	
3.	Object Makers Provided	Y/N	

1. Sketch of construction zone showing all sub zones and location of signs
Attached Attached/ Not
2. Format on Acquisition of Temporary diversions
Attached Attached/ Not

Submitted

Checked

Approved

Signature.....

Signature.....

Signature.....

Name.....

Name.....

Name.....

Designation.....
ContractorEnvironmental Engineer.
Construction Supervision Consultant

Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt Ltd
(Contractor) DirectorChief Engineer
DPI & RoadsChief Engineer,
DPI & Roads, Odisha

ARRANGEMENT FOR TEMPORARY LAND
 [Quarterly Reporting by Contractor to PMU, Site Layout of all locations to be attached with this format]

Link _____

Report – Date: _____

Sl. No.	Item	Target date for Establishment	Date of Establishment	Location					Present Land use	Size (m x m)	Existing Trees >30 cm girth	Dist. From nearest settlement	Dist. From nearest water source	Site approved or not (Y/N)	Remarks by CMU (PRBDB) if any
				Name of Village	Chainage (km)	Side (LHS /RHS)	Area (m ²)	Haul road length (m)							
1	Burrow Areas														
	BA 1														
2	Workers Camps														
	WC 1														
3	Site for Batching Plant														
	BP 1														
4	Site for Hot Mix Plant														
	HMP 1														
5	Stock Yard														
	SY 1														

Submitted

Signature.....

Name.....

Designation.....
Contractor

Checked

Signature.....

Name.....

Environmental Engineer.
Construction Supervision Consultant

Approved

Signature.....

Name.....

Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor) **Director**

Civil Engineer
DPI & Roads
Odisha, Bhubaneswar

Chief Engineer,
DPI & Roads, Odisha

IDENTIFICATION OF SOURCE OF WATER FOR CONSTRUCTION

[Monthly Reporting by the Contractor]

Link _____

Report – Date: _____

Sl. No.	Source (Name)	Location /Ch.	Distance from Road	Permission Required	Remarks

Submitted

Checked

Approved

Signature.....

Signature.....

Signature.....

Name.....

Name.....

Name.....

Designation.....
Contractor

Environmental Engineer.
Construction Supervision Consultant

Resident Engineer

DETAILS OF EARTHWORK

[Monthly Report to be filled by the Contractor for Each Burrow Area under use]

Link _____

Month.....

Date of Submission.....

Location of Burrow Area under use

	Name of Village	Chainage (km)	Side (LHS / RHS)	Haul road length (m)
I				
II				

2. Details of Burrow Areas

2.1	Capacity of the Burrow Area	
2.2	Percentage of the capacity exhausted	
2.3	Total quantity of the Earth Excavated (in cum)	
2.4	Quantity of Top Soil removed from the Burrow Areas	
2.5	Location of Top Soil stored removed	
2.6	Quantity of Top Soil stored at the beginning of the month	
2.7	Quantity of Top Soil utilized at the end of the month	
2.8	Location (s) where Top Soil has been utilized (Specify on a location plan)	
2.9	Quantity of earthwork excavation from existing road	
2.10	Total quantity of earthwork reused in cum. (5%)	
2.11	Location disposal (if other than sites) (Specify clearly on a location plan)	
2.12	Quantity of earthwork re-used in fill operation	
2.13	Location of burrow areas in disuse / exhausted	
2.14	Outline a rehabilitation plan for each of the exhausted burrow areas with special reference to Erosion Protection Measures. Also, submit at separate detailed rehabilitation plan for exhausted burrow areas for approval supported adequately with layouts, plans and drawings.	

Remarks

Submitted

Checked

Approved

Signature.....

Signature.....

Signature.....

Name.....

Name.....

Name.....

Designation.....
Contractor

Environmental Engineer.
Construction Supervision Consultant

Resident Engineer

DETAILS OF HOT MIX PLANT

[Monthly Report for Each Hot Mix Plant , to be filled by the Contractor]

Reporting Month.....

Date of Submission.....

1. Environment Features of the surrounding area

1.1	Name and location of Hot Mix Plant (w.r.t. PWD km ch.)	
1.2	Wind direction	
1.3	Name (s), distance population and type of settlements in a 1.5 km radius of site.	

2. Draw/ Attach Sketch Plan of HMP clearly indicating distance and approach roads.

3. Details of HMP and Mitigation Measures taken

3.1	Installed Capacity	
3.2	Average Utilization	
3.3	Make	
3.4	Model	
3.5	Last Serviced	

4. Explain Air Pollution Control Measures taken at the HMP site

5. Explain Noise Pollution Control Measures taken at the HMP site

Remarks

Submitted
Signature.....
Name.....
Designation.....
Contractor

Checked
Signature.....
Name.....
Environmental Engineer.
Construction Supervision Consultant

Approved
Signature.....
Name.....
Resident Engineer

DETAILS OF LAND FILL OPERATIONS

[Monthly Report for Each Land Fill site, to be filled by the Contractor]

Month.....

Reporting

Reporting Date

1. Environment Features of the surrounding area

1.1	Location of each land fill site (Provide sketch Map below)	Name of Village	Chainage (km)	Side (LHS/RHS)	Haul road length (m)
	I				
	II				
1.2	Capacity of each land fill site				
1.3	Safety measure taken at land fill site (s)	1. 2. 3.			

1. Sketch maps

Attached/ Not attached

2.

Submitted

Checked

Approved

Signature.....

Signature.....

Signature.....

Name.....

Name.....

Name.....

Designation.....
Contractor

Environmental Engineer.
Construction Supervision Consultant

Resident Engineer

DETAILS OF MACHINERY IN OPERATION

[Monthly Report , to be filled by the Contractor]

Link _____

Reporting Month.....

Date of Submission.....

1. Details of Machinery Operation

Sr. no.	Machinery in operation	Registration No./ Mark	Make	Validity date of Pollution Control Certificate
1	Pavers	1.		
		2.		
2	Rollers	1.		
		2.		
3	Number of excavators	1.		
		2.		
4	Number of graders	1.		
		2.		
5	Number of dumpers	1.		
		2.		
		3.		
6	Others (Give details)			

1. Copy of OSPCB emission control certificates (To be attached Quarterly) Attached/ Not Attached

Remarks

Submitted

Checked

Approved

Signature.....

Signature.....

Signature.....

Name.....

Name.....

Name.....

Designation.....
Contractor

Environmental Engineer.
Construction Supervision Consultant

Resident Engineer

DETAILS OF WORKSHOPS IN OPERATION

[Quarterly Report , to be filled by the Contractor]

Reporting
 Month..... Date of
 Reporting.....

Sr. No.	Details	Location 1	Location 2	Location 3
1	No. of workshops with repairs facility (furnish location and type of facility provided)			
2	Number of vehicles in repair at each location			
3	Number of oil interceptor provided in each repair / fueling site			
4	Total quantity of oil and wastes recovered in each interceptor during last month. (kg / lit)			
5	Details of waste disposal (Whether Sold/ Disposed)			

Submitted

Signature.....

Name.....

Designation.....
 Contractor

Checked

Signature.....

Name.....

Environmental Engineer.
 Construction Supervision Consultant

Approved

Signature.....

Name.....

Resident Engineer

REDEVELOPMENT OF BURROW AREAS
 [Monthly Reporting Format to be filled by the Contractor]

Link _____

Report-Date _____

Sl. No.	Burrow Area No.	Rehabilitation Measures	Date of approval of Rehabilitation	Date of Handing Over back to the Owner	Remarks

- | | |
|---|------------------------|
| 1. Drawing for Redevelopment for each Burrow Area | Attached/ Not Attached |
| 2. Photographs of sites before use | Attached/ Not Attached |
| 3. Photographs of sites after rehabilitation | Attached/ Not Attached |

Submitted

Signature.....

Name.....

Designation.....
Contractor

Checked

Signature.....

Name.....

Environmental Engineer.
Construction Supervision Consultant

Approved

Signature.....

Name.....

Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

*Chief Engineer
DPI & Roads
Distt. Bhubaneswar*

*Chief Engineer,
DPI & Roads, Odisha*

SAFETY CHECK LIST

[Monthly Reporting Format to be filled by the Contractor for each location]

Name of Safety Officer _____
 Date of Inspection _____
 Location

Description	Category		
	A	B	C
General			
House Keeping			
Stacking of Material			
Passageway			
Lighting			
Ventilation			
Others			
Electrical			
Switches			
Wirings			
Fixed Installation			
Portable Lighting			
Portable Tool			
Welding Machine			
Others			
Fire Prevention			
Fire Fighting Appliance			
Dangerous Goods Store			
Gas Welding Cylinders			
Others			
Others			
Dust Control			
Noise Control			
First Aid Equipment			
Washing Facility			
Latrine			
Canteen			
Provision of Personal Protective			
Helmet			
Eye Protector			
Ear Protector			
Respirator			
Safety Shoes			
Safety Belts			
Others			

A: Adequate at time of inspection ; B: Needs Improvement ; C: Needs Immediate Attention

For NKC Projects Private Limited

Remarks

Submitted

Signature.....

Name.....

Designation.....
Contractor

Checked

Signature.....

Name.....

Environmental Engineer.
Construction Supervision Consultant

Approved

Signature.....

Name.....

Resident Engineer

ACCIDENT REPORT[To be completed **ON OCCURRENCE** of injury by the Safety Officer]

Location : _____
 Time : _____ Day/ Night Weather : _____

Part I**Type of Accident**

D01 ()	Fall of person from a height	D11 ()	Explosion
D02 ()	Slip, trip or fall on same level	D12 ()	Fire
D03 ()	Struck against fixed objects	D13 ()	Contact with hot or corrosive substance
D04 ()	Struck by flying or falling objects	D14 ()	Contact with poisonous gas or toxic substances.
D05 ()	Struck by moving objects	D15 ()	Contact with poisonous gas or toxic substances
D06 ()	Struck / caught by cable	D16 ()	Hand tool accident
D07 ()	Stepping on hail etc.	D17 ()	Vehicle / Mobile plant accident
D08 ()	Handling without machinery	D18 ()	Machinery operation accident
D09 ()	Crushing / burying	D19 ()	Other (please specify)
D10 ()	Drowning or asphyxiation		

Agent Involved in Accident

E01 ()	Machinery	E11 ()	Excavation / underground working
E02 ()	Portable power appliance	E12 ()	
E03 ()	Vehicle or associated equipment / machinery	E13 ()	Ladder
E04 ()	Material being handled, used or stored	E14 ()	Scaffolding / gondola
E05 ()	Gas, vapor, dust, fume or oxygen	E15 ()	Construction formwork, shuttering and false work.
E06 ()	Hand tools	E16 ()	Electricity supply cable, wiring switchboard and associated equipment
E07 ()	Floor edge	E17 ()	Nail, splinter or chipping
E08 ()	Floor opening	E18 ()	Other (Please specify)
E09 ()	Left shaft	E19 ()	
E10 ()	Stair edge		

Unsafe Action Relevant to the Accident

F01 ()	Operating without authority	F11 ()	Failure to use eye protector
F02 ()	Failure to secure objects	F12 ()	Failure to use respirator
F03 ()	Making safety devices inoperative	F13 ()	Failure to use proper clothing
F04 ()	Working on moving or dangerous equipment	F14 ()	Failure to use warn others or given proper signals
F05 ()	Using un-safety equipment	F15 ()	Horseplay
F06 ()	Adopting unsafe position or posture	F16 ()	No unsafe action
F07 ()	Operating or working at unsafe speed	F17 ()	Others (please specify)
F08 ()	Unsafe loading, Placing, mixing etc.	F18 ()	
F09 ()	Failure to use helmet	F19 ()	
F10 ()	Failure to use proper footwear		

G01 ()	No protective gear	G08 ()	Unsafe layout of job, traffic etc.
G02 ()	Defective protective gear	G09 ()	Unsafe process of job methods
G03 ()	Improper dress / footwear	G10 ()	Poor housekeeping
G04 ()	Improper guarding	G11 ()	Lack of warning system
G05 ()	Improper ventilation	G12 ()	Defective tool, machinery or materials
G06 ()	Improper illumination	G13 ()	No unsafe condition
G07 ()	Improper procedure	G14 ()	Others (please specify)

Human Factors Relevant to the Accident

H01 ()	Incorrect attitude /motive	H06 ()	Disobeyance of Rules
H02 ()	Alcohol/ Drug Usage	H07 ()	More Risk taking issue
H03 ()	Poor perception issue	H08 ()	Lack of Comprehension
H04 ()	Unsafe act by other persons	H09 ()	No unsafe personal factor
H05 ()	Fatigue Related Issues	H10 ()	Other (please specify)

Remarks

Submitted	Checked	Approved
Signature.....	Signature.....	Signature.....
Name.....	Name.....	Name.....
Designation..... Contractor	Environmental Engineer. Construction Supervision Consultant	Resident Engineer

Part-II

[To be completed Upon Finalization of Employee's compensation Claim]

- 101 () No permanent incapacity
- 102 () Less than 5% incapacity
- 103 () More than 5% incapacity
- 104 () Final

Submitted	Checked	Approved
Signature.....	Signature.....	Signature.....
Name.....	Name.....	Name.....
Designation..... Contractor	Environmental Engineer. Construction Supervision Consultant	Resident Engineer

Form C9

POLLUTION MONITORING

(Periodically To be submitted by Contractor for locations at which monitoring to be conducted as per EMP)

Report – Date: _____

Compliance to Mitigation measures suggested in last report

If not reasons thereof.....

Sl. No.	Chainage (km)	Details of locations	Duration of monitoring	Instruments used	Completion	Standards	Results	Reasons for exceeding standards	Mitigation Measures suggested	Type of area (Residential /Industrial /Commercial)	Remarks
1. Air Monitoring											
						SPM RSPM HC Sox NOx	SPM RSPM HC Sox NOx				
2. Water Monitoring											
						pH TSS TDS Turbidity Hardness Coliform BOD COD Oil & Grease	pH TSS TDS Turbidity Hardness Coliform BOD COD Oil & Grease				

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer
DPI & Roads

Chief Engineer,
DPI & Roads, Odisha

Sl. No.	Chainage (km)	Details of locations	Duration of monitoring	Instruments used	Completion	Standards	Results	Reasons for exceeding standards	Mitigation Measures suggested	Type of area (Residential /Industrial /Commercial)	Remarks
3. Soil Monitoring											
						pH Organic Matter Alkalinity Conductivity Water holding Capacity Pb	pH Organic Matter Alkalinity Conductivity Water holding Capacity Pb				
4.Noise Monitoring											
						L day equivalent L night equivalent L equivalent	L day equivalent L night equivalent L equivalent				

Remark

Submitted

Signature.....

Name.....

Designation.....
Contractor

Checked

Signature.....

Name.....

Environmental Engineer.
Construction Supervision Consultant

Approved

Signature.....

Name.....

Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer
DPI & Roads

Chief Engineer,
DPI & Roads, Odisha

RESTORATION OF CONSTRUCTION SITES

(Monthly To be submitted by Contractor for locations at which monitoring to be conducted as per EMP)

Link _____

Report-Date.....

Sl. No.	Contract Package	Labour Camp		Construction Camp		Plant Site		Burrow areas		Disposal Locations		Top Soil	
		O	R	O	R	O	R	O	R	O	R	Preserved	Restored

Remarks

Submitted

Checked

Approved

Signature.....

Signature.....

Signature.....

Name.....

Name.....

Name.....

Designation.....
Contractor

Environmental Engineer.
Construction Supervision Consultant

Resident Engineer

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

*Chief Engineer
DPI & Roads
Odisha*

Chief Engineer,
DPI & Roads, Odisha



Form PMU 1

FORMAT FOR KEEPING RECORDS OF CONSENT OBTAINED BY CONTRACTOR
[Monthly Format]

Report-Date: _____

Sl. No.	Clearance	Applicable Acts	Agencies	Obtained on	Valid upto	Remarks
1						
2						
3						
4						
5						
6						

Remarks

Verified

Countersigned

Signature.....

Signature.....

Name.....

Name.....

Resident Engineer
Construction Supervision Consultant

Executive Engineer (PMU)

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer
DPI & Roads
Odisha, P.O. Bhubaneswar

Chief Engineer,
DPI & Roads, Odisha

CHECK LIST FOR ENVIRONMENT INSPECTION
[Monthly Format]

Date of Inspection _____

Sl. No.	ESMP Measures	Remarks
1	Provision of a personnel accountable for implementation of ESMP /Safety Measures with Contractor	
2	Consent of PCB to Establish HMP	
3	Consent of PCB to operate HMP	
4	Compliance of PCB Conditions for HMP installation and operation	
5	Whether compliance reported through monthly Progress report to Divisional Office of Executive Engineer	
6	PUC taken for all Construction vehicles	
7	Concrete platform with trap under bitumen boiler, Fuel Tank for HMP and generator set provided or not	
8	Precautions to prevent contamination of soil by emulsion, Bitumen, oil and lubricant taken while storing	
9	Providing cover to fine construction material & bituminous mix during transportation	
10	Burrow areas:	
	a) Burrow areas approved by Department	
	b) Existing land was used	
	c) Nos Opened	
	d) Available Quantity	
	e) Utilized Quantity	
	f) Balance Quantity	
11	Spoil and debris disposal:	
	a) Present status of land	
	b) Closure and completion plan	
12	Site specific traffic Safety management Plan:	
	a) Contractor installed the warning /regulatory Traffic signs at the construction site	
	c) The arrangement adequate	
13	Safety equipment i.e. helmet, gloves, gumboot, mask, earplugs etc. provided to workers	

For NKC Projects Private Limited

Sl. No.	ESMP Measures	Remarks
14	Health Facility at camp and work site i.e. First Aid kit & suitable vehicle for conveyance in case of emergency / accident	
15	Permit for Procuring River sand	
16	License from Department of mines for quarrying	
17	Consent to establish / operation of crusher	
18	Provision of labour camp with sanitation & potable water	
19	Fire precautions at Hot Mix Plant and site Office	
20	Air and noise monitoring done in camp site	
21	Whether any cultural property is being impacted	
22	Status of drainage provision in camp area	
23	General House Keeping	

Remarks

Verified

Signature.....

Name.....

Resident Engineer
Construction Supervision Consultant

Countersigned

Signature.....

Name.....

Executive Engineer (PMU)

SUMMARY SHEET
[To be filled MONTHLY by PMU]

Month _____ Date _____

Sl. No.	Description	Remarks
1	No Objection Certificate	
A	Hot mix Plant	
	Location 1	
	Location 2	
	Location 3	
B	Cement batching Plant	
	Location 1	
	Location 2	
	Location 3	
2	Pollution Under Certificate	
	Vehicles	
	Machineries	
3	No objection Certificate for Diesel Gen set	
	Location 1	
	Location 2	
4	Labour Camps	
	No. of sites Identified	
	Approved	
	Opened	
	Conforms to conditions imposed at the time of opening of sites	
	Closed	
5	Workers	
	No of workers employed	
	No of male workers	
	No of female workers	
	No of day workers	
6	Burrow Area	
	No. of sites identified	
	Approved	
	Opened	
	Quantity of available material	
	Quantity of material Utilized	
	Quantity of Topsoil preserved	
	Quantity to top soil used	
	No of sites closed	
	No. of sites Rehabilitated	
7.	Quarry	
	No. of sites identified	
	Approved	
	Opened	
	Material available	
	Material obtained	
	No. of sites Rehabilitated	
8	Disposal Locations	
	No. of sites identified	
	Approved	
	Opened	
	Amount of Waste disposed	
	Type of waste disposed	
	No. of sites Rehabilitated	

Sl. No.	Description	Remarks
9	Road Safety	
	Road Safety norms followed as per guidelines, SP-55 and approved Traffic plan	
10	Cleaning of Culvert/ drains	
	No. of culverts/ drains	
	Nos. Cleaned	
11	Trees	
	No of trees marked for cutting in field	
	No of trees cut	
	No of trees to be Planted	
	Trees Planted	
12	Haul Roads	
	Adequacy of maintenance of Haul Road Network	

Remarks	
----------------	--

Verified

Countersigned

Signature.....

Signature.....

Name.....

Name.....

Resident Engineer
Construction Supervision Consultant

Executive Engineer (PMU)



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P02B

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, DPI&Roads, Odisha
on behalf of
Odisha Works Department, Government of Odisha

and

M/s NKC Projects Pvt. Ltd.,
Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016
Tel : +91-124-4852828 Fax : +91-124-2340017
E-mail: rohit@nkcproject.com

[VOLUME-IV: Drawings]

Agreement Value: Rs. 104,23,29,840

*Project Management Unit, Odisha State Roads Project
Office of the Engineer-in-Chief (Civil), Odisha,
Nirman Soudha, Keshari Nagar, Unit - V, Bhubaneswar - 751 001*

October 14, 2016

For NKC Projects Private Limited


Director


Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

CONTENTS of CONTRACT

Volume – I	:	Letter of Acceptance, Letter of Bid and Addenda
Volume – II	:	Particular Conditions and the General Conditions;
Volume – III	:	Specifications
Volume – IV	:	Drawings
Volume – V	:	Completed Schedules

CONTENTS of VOLUME IV

Sl.	Description	Page No.
1	Plan & Profile, Specifications, Utility Shifting & Environment Drawings	1 to35
2	Bridges and Culvert Drawings	36-92

For NKC Projects Private Limited




Director



Chief Engineer
DPI & Roads
Cdr. Shubaneswar

INDEX OF DRAWINGS (Pirahat-Chandbali, km 27/500 to km 45/000 of SH-09)

L. NO	DESCRIPTION	DRAWING NO.	SI. No.	DECRPTION	DRAWING NO.
1	Cover Sheet		13	Plan & Profile km 26.000 to km 27.000	OSRP/CEG/SH-09/P &P/26
	INDEX SHEETS				
2	Index of Highway Drawings	OSRP/CEG/SH-09/INDEX/01	14	Plan & Profile km 27.000 to km 28.000	OSRP/CEG/SH-09/P &P/27
3	Index of Other Highway & Environment Drawings	OSRP/CEG/SH-09/INDEX/02	15	Plan & Profile km 28.000 to km 29.000	OSRP/CEG/SH-09/P &P/28
4	Index of Drawings of Structures	OSRP/CEG/SH-09/INDEX/03	16	Plan & Profile km 29.000 to km 30.000	OSRP/CEG/SH-09/P &P/29
5	List of Structure (Culverts) (1of 2)	OSRP/CEG/SH-09/LOS/01	17	Plan & Profile km 30.000 to km 31.000	OSRP/CEG/SH-09/P &P/30
6	List of Structure (Culverts) (2of 2)	OSRP/CEG/SH-09/LOS/02	18	Plan & Profile km 31.000 to km 32.000	OSRP/CEG/SH-09/P &P/31
7	Attempted Stetches of Highway	OSRP/PMU/SH-09/AS/01	19	Plan & Profile km 32.000 to km 33.000	OSRP/CEG/SH-09/P &P/32
			20	Plan & Profile km 33.000 to km 34.000	OSRP/CEG/SH-09/P &P/33
			21	Plan & Profile km 34.000 to km 35.000	OSRP/CEG/SH-09/P &P/34
	HORIZONTAL CURVE DETAILS				
8	Horizontal Curve Details (1 of 2)	OSRP/CEG/SH-09/HC/01	22	Plan & Profile km 35.000 to km 36.000	OSRP/CEG/SH-09/P &P/35
9	Horizontal Curve Details (2 of 2)	OSRP/CEG/SH-09/HC/02	23	Plan & Profile km 36.000 to km 37.000	OSRP/CEG/SH-09/P &P/36
			24	Plan & Profile km 37.000 to km 38.000	OSRP/CEG/SH-09/P &P/37
			25	Plan & Profile km 38.000 to km 39.000	OSRP/CEG/SH-09/P &P/38
	VERTICAL CURVE DETAILS				
10	Vertical Curve Details (1 of 2)	OSRP/CEG/SH-09/VC/01	26	Plan & Profile km 39.000 to km 40.000	OSRP/CEG/SH-09/P &P/39
11	Vertical Curve Details (2 of 2)	OSRP/CEG/SH-09/VC/02	27	Plan & Profile km 40.000 to km 41.000	OSRP/CEG/SH-09/P &P/40
			28	Plan & Profile km 41.000 to km 42.000	OSRP/CEG/SH-09/P &P/41
			29	Plan & Profile km 42.000 to km 43.000	OSRP/CEG/SH-09/P &P/42
	PLAN & PROFILE				
12	Plan & Profile km 25.000 to km 26.000	OSRP/CEG/SH-09/P &P/25	30	Plan & Profile km 43.000 to km 44.000	OSRP/CEG/SH-09/P &P/43
			31	Plan & Profile km 44.000 to km 45.000	OSRP/CEG/SH-09/P &P/44

R2	SEP-2016	SECOND REVISION	LASA	RAJU MATHUR	M.R. MISHRA (EE)	D.P. PATEL (OE)	DPR CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOA COLONY, MALVIYA NAGAR JAIPUR-31. Tel: +91-141-2520898, 2521899, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com	DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1ind FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .	CLIENT :	 OOD'SHA WORKS DEPARTMENT	PROJECT :	CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE :	N.T.S	DRAWING TITLE :	INDEX OF DRAWINGS (SHEET 1 OF 2)	
NO.	DATE	REVISION	BY	DRAWN	PREPARED :	CHECKED:	APPROVED:										

Director
 Mis NKC Projects Ltd
 For NKC Projects Private Limited
 Page 1 of 92
 Chief Engineer
 (Employer)

Volume-IV Drawings
 OSRP-CW/ICB-P02B

INDEX OF OTHER HIGHWAY & ENVIRONMENT DRAWINGS (SH-09: Pirhat-Chandbali)

For NKC Projects Pvt. Ltd. (Contractor)

Atitdas

Page 2 of 92

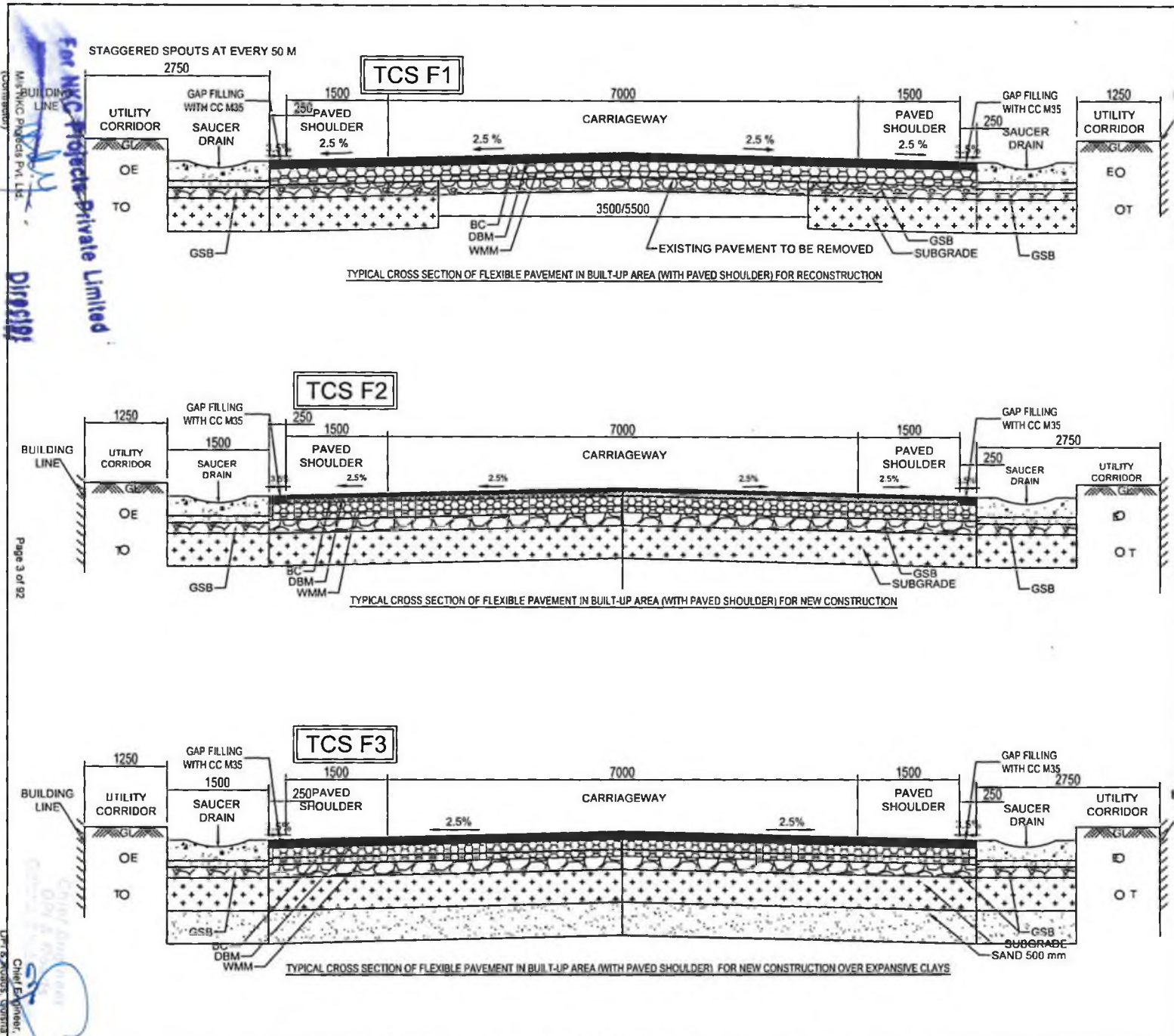
Chief Engineer
DPR & Design Section
(Employer)

Volume-IV Drawings

OSRP-CW-ICB-P02B

SL. NO	DESCRIPTION	DRAWING NO.	SL. NO	DESCRIPTION	DRAWING NO.
SCHEDULES					
			55	Standards Drawings Details of RPMs & Chevron Markers	OSRP/CEG/RPM
32	Schedule of Road Sign Post (1 of 2)	OSRP/CEG/SH-09/SCH/01	56	Schedule of RRPMs	OSRP/CEG/RPM/01
33	Schedule of Road Sign Post (2 of 2)	OSRP/CEG/SH-09/SCH/02	57	Standards Drawings Typical Road Marking Details (Sheet 1 of 2)	OSRP/CEG/RM/01
34	Schedule of Extra Widening & Guard Posts	OSRP/CEG/SH-09/SCH/03	58	Standards Drawings Typical Road Marking Details (Sheet 2 of 2)	OSRP/CEG/RM/02
35	Schedule for Pavement Composition	OSRP/CEG/SH-09/SCH/PAV	59	Standards Drawings Typical Road Signs (Sheet 1 of 4)	OSRP/CEG/RS/01
36	Schedule for Pavement & Cross Section Type	OSRP/CEG/SH-09/SCH/TCS	60	Standards Drawings Typical Road Signs (Sheet 2 of 4)	OSRP/CEG/RS/02
			61	Standards Drawings Typical Road Signs (Sheet 3 of 4)	OSRP/CEG/RS/03
			62	Standards Drawings Typical Road Signs (Sheet 4 of 4)	OSRP/CEG/RS/04
TYPICAL X-SECTIONS					
37	Typical Cross Sections	OSRP/CE/TCS/ 2 & 3	63	Standards Drawings Typical Bus Bay Sheet - I	OSRP/CEG/BB/01
38	Typical Cross Sections	OSRP/CE/TCS/ 38& 39	64	Standards Drawings Typical Bus Bay Sheet - II	OSRP/CEG/BB/02
39	Typical Cross Sections	OSRP/CE/TCS/ 18&35	65	Typical Details of Dowel Bar & tie Bar Arrangement	OSRP/CEG/RIGID/-1
40	Typical Cross Sections	OSRP/CE/TCS/ 32&33	66	Typical Details of Transition between Rigid and Flexible Pavement	OSRP/CEG/RIGID/-2
41	Typical Slope Protection work&TCS-40	OSRP/CEG/PW	67	Typical Details of Transition of Road sections	OSRP/CEG/TR
42	Standard Drawings Details of Drains & Kerb	OSRP/CEG/DR			
43	Details of Application of Super Elevation	OSRP/CEG/SE		TOLL PLAZZA DETAILS	
			68	Standard Drawings of Toll Plaza Layout	OSRP/CEG/TP/01
			69	Standard Drawings Toll Plaza Main Office	OSRP/CEG/TP/02
JUNCTION/INTERSECTIONS DETAILS					
44	Typical 4-Legged Intersection with single Lane BT Road	OSRP/CEG/JN/01	70	Standard Drawings Toll Booth	OSRP/CEG/TP/03
45	Typical T-Junction with Single Lane BT Road	OSRP/CEG/JN/02	71	Standard Drawings Barrier ate for Toll Plaza	OSRP/CEG/TP/04
46	Typical Y-Junction With Sinle Lane BT/Earthen Road	OSRP/CEG/JN/03	72	Standard Drawings Electrical Layout and Main Office	OSRP/CEG/TP/05
47	Standard Drawings Typical - Cross Drain Single Lane BT Road/Earth Road	OSRP/CEG/CD-JN	73	Standard Drawings Electrical Layout Toll Plaza	OSRP/CEG/TP/06
			74	Standard Drawings Eplumbin Layout Toll Plaza	OSRP/CEG/TP/07
ROAD SIGNS, MARKINS & MISC. ROADWAY FURNITURES					
48	Standard Drawings Details of Road Humps & Rumble Strips	OSRP/CEG/RH & RS		ENVIRONMENT DRAWINGS	
49	Schedule of Humps & Rumlbers	OSRP/CEG/SCH-RH&RS	75	Toe Wall for Water Bodies	OSRP/CEG/ENV-03
50	Standard Drawings Details of Footpath Barriers	OSRP/CEG/FB	76	Interception Barricade for Institutions	OSRP/CEG/ENV-05
51	Standard Drawings Metal Beam Crash Barrier Details	OSRP/CEG/CB	77	Typical arrangement for Reptile Under Pass	OSRP/CEG/ENV-14
52	Standard Drawings Typical KM Stone & 5th KM Stone	OSRP/CEG/KM/01	78	Typical Arrangement for Utility Duct	OSRP/CEG/MISC - 01
53	Standards Drawings Typical Details of 200m Stone & Guard post	OSRP/CEG/KM & GP	79	Typical Drawing for Silt Fence Sediment Arrestor	OSRP/PMU/ENV - 01
54	Standards Drawings Details of Road Declinators	OSRP/CEG/RD	80	Oil & Grease Trap for Plant Site	OSRP/CEG/ENV/06

REVISION HISTORY NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED 01 SEP-2016 SECOND REVISION RAJA RAJU MATHUR 02 JAN-2013 FIRST REVISION OND VINAY P. KUMHRIA (AE) M.H. MISHRA (SE) H.K. PRADHAN (CE) 03 JUNE 2006 ORIGINAL CED	DPR CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOH COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com	DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1ind FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S.	DRAWING TITLE : INDEX OF HIGHWAY AND ENVIRONMENT DRAWINGS SHEET 2 OF 3 DRAWING NUMBER : OSRP/CEG/SH09/P02B/INDEX/2
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LEGENDS

1) BC		9) EMBANKMENT	
2) DBM		10) PC	
3) WMM		11) BM	
4) GSB		12) E-Electrical Cable	
5) SUBGRADE		13) T-Telecom Cable	
6) DLC		14) W-Water Supply Line	
7) PCC		15) G-Gas Line	
8) EARTHFILL		16) S-Sewer	

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS
 - FOR DRAIN DETAILS REFER DRAWING NO OSRP/CEG/DR
 - FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
 - THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO.OSRP/CEG/RIGID 02.
 - FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSRP/CEG/OD
 - PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
 - IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

For MNC Projects Private Limited
 MNC Projects Pvt. Ltd.
 Director

Page 3 of 92

Chief Engineer
 O.P. & Associates, Gurgaon
 (Employer)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2013	SECOND REVISION	JAG		RAJU BASTAR	NAR MISHRA (CE)	O.P. PATEL (EC)
01	JAN-2013	FIRST REVISION	OND	VINAY	PRINDEHA (AO)	NAR MISHRA (CE)	N.K. PRADHAN (CC)
-	JUNE 2008	ORIGINAL	OND				

OPR CONSULTANT
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJI COLONY, MALVIYA NAGAR
 JAJPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginfolia.com

DESIGN CONSULTANT
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT

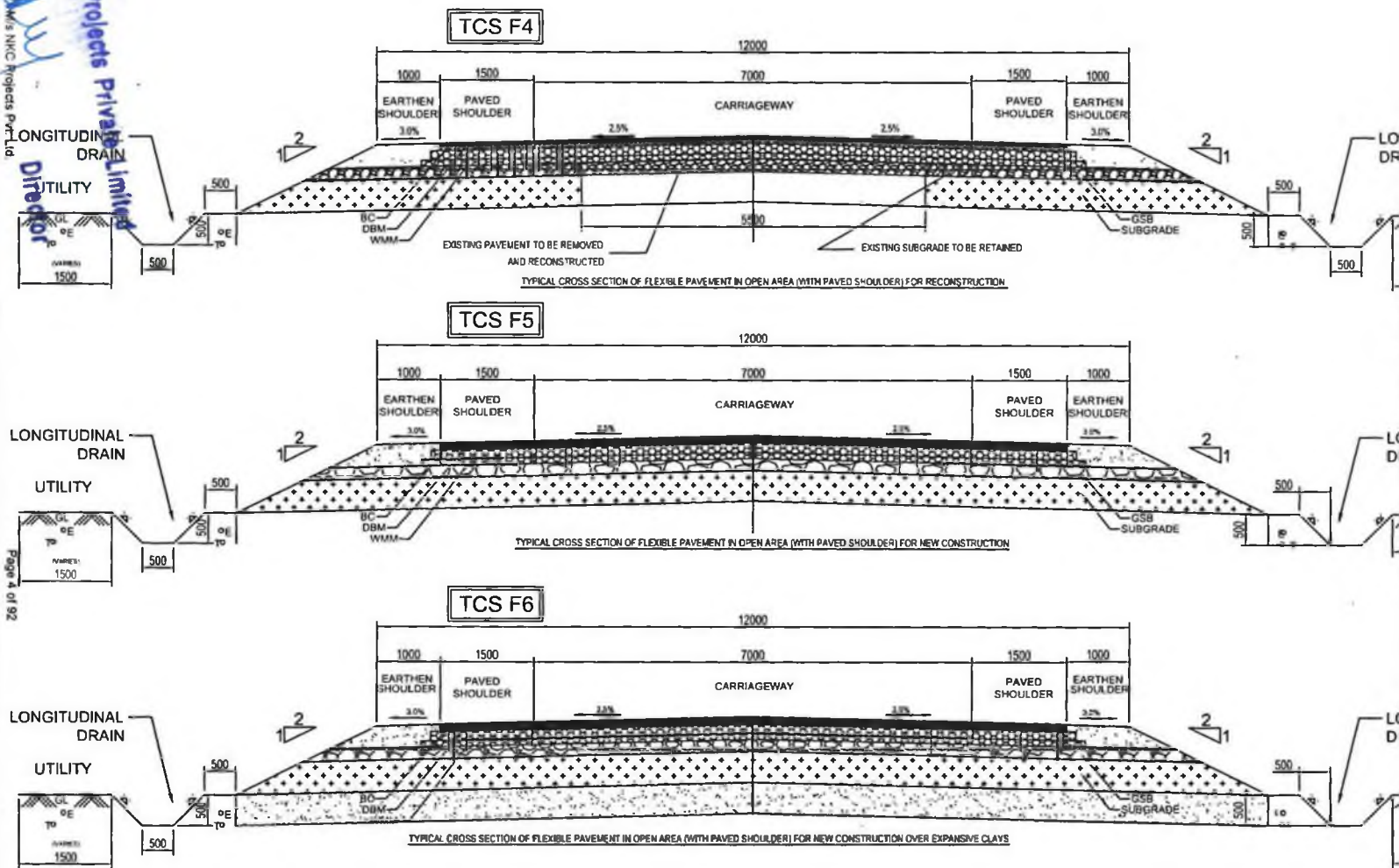
 ODISHA WORKS DEPARTMENT

PROJECT
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE
 N.T.S.

DRAWING TITLE
 TYPICAL CROSS SECTION - F1, F2 & F3
 (SHEET 1 OF 5)
 DWS NUMBER OSRP/CEG/SH09/P02B/TCS/01
 REV. 02

OR NKC Projects Private Limited
 Director
 M/s NKC Projects Pvt. Ltd. (Company)



LEGENDS

- | | | | |
|---------------|--|-------------------------|--|
| 1) BC | | 9) EMBANKMENT | |
| 2) DBM | | 10) PC | |
| 3) WMM | | 11) BM | |
| 4) GSB | | 12) E-Electrical Cable | |
| 5) SUBGRADE | | 13) T-Telecom Cable | |
| 6) DLC | | 14) W-Water Supply Line | |
| 7) PCC | | 15) G-Gas Line | |
| 8) EARTH FILL | | 16) S-Sewer | |

NOTES:

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- FOR LAYER THICKNESS DETAILS REFER SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS
- THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. OSRP/CEG/RIGID 02.
- FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSRP/CEG/OD
- PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
- IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

Chief Engineer
 DPT & ROADS, Cuttack
 (Emp. Over)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2019	SECOND REVISION	JASH		RAJ MATHUR	SLR MISHRA (CC)	G.P. PATEL (CC)
01	JAN-2013	FIRST REVISION	OND	VHAT	PALMISHRA (AC)	SLR MISHRA (CC)	N.K. PRADHAN (CC)
-	JUNE 2009	ORIGINAL	CCS				

DPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJJI COLONY, MALVIYA NAGAR
 JAJPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

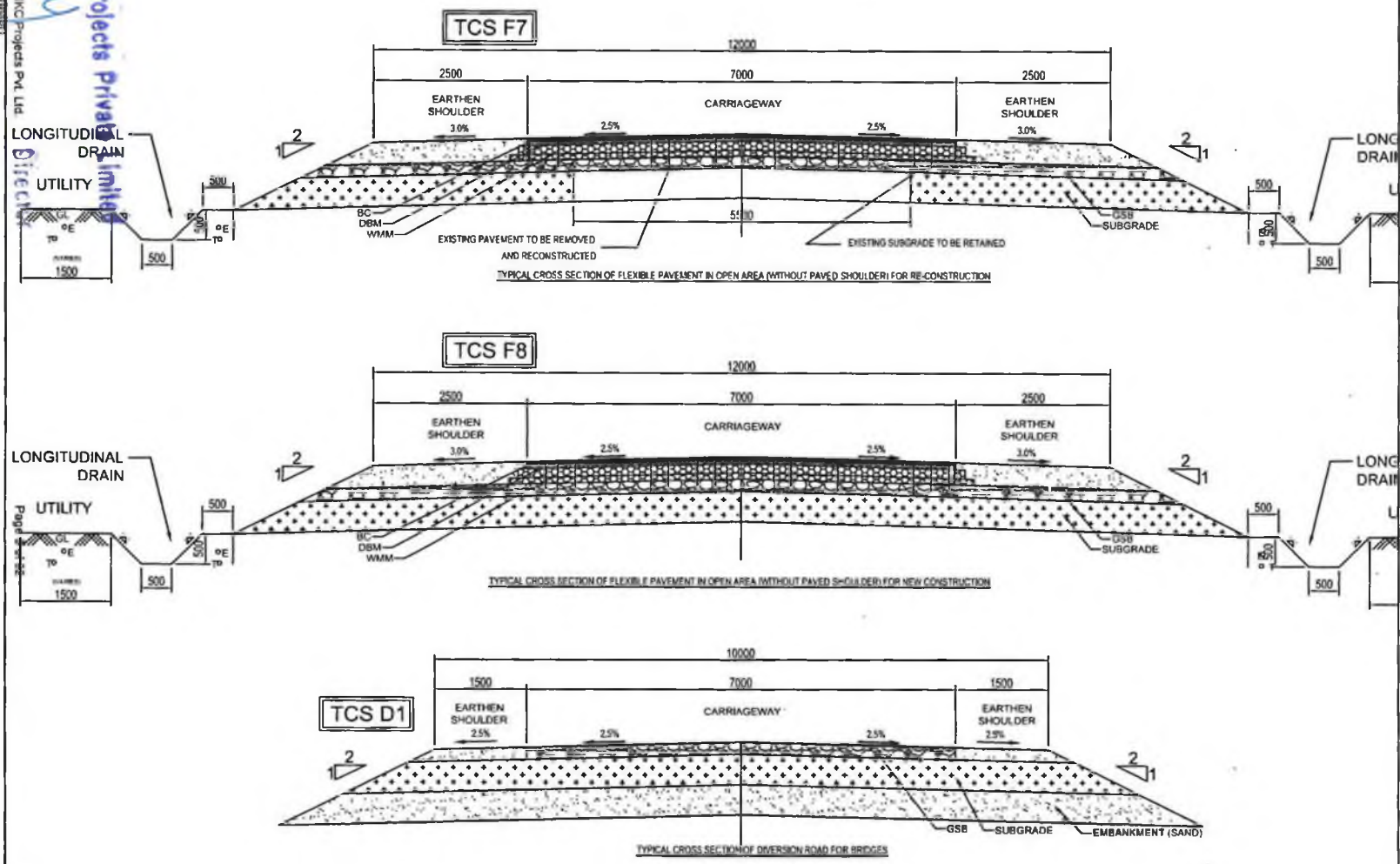
SCALE :
 N.T.S.

DRAWING TITLE :
TYPICAL CROSS SECTION - F4, F5 & F6
 (SHEET 2 OF 9)
 DWD. NUMBER : OSRP/CEG/SH09/P02B/TCS/02 REV : 01

Volume-IV, Drawings

OSRP-CW-ICB-P02B

For NKC Projects Private Limited
 M/s NKC Projects Pvt. Ltd.
 (Company Seal)
 Director



LEGENDS

- | | | | |
|--------------|--|-------------------------|--|
| 1) BC | | 9) EMBANKMENT | |
| 2) DBM | | 10) PC | |
| 3) WMM | | 11) BM | |
| 4) GSB | | 12) E-Electrical Cable | |
| 5) SUBGRADE | | 13) T-Telecom Cable | |
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| 8) EARTHFILL | | 16) S-Sewer | |

NOTES:

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- FOR LAYER THICKNESS DETAILS REFER SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS
- THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO.OSRP/CEG/RIGID 02.
- FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSRP/CEG/OD
- PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
- IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2015	SECOND REVISION	LASA		RAJU MATHUR	NAR MEHRA (SE)	S.P. PATEL (SE)
01	JAN-2015	FIRST REVISION	OND VIKRAT	PK.MISHRA (AC)	NAR MEHRA (SE)	NAR MEHRA (SE)	NAR MEHRA (SE)
	JUNE 2008	ORIGINAL	OND				

DPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJI COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginfol.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd, India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :

 ODISHA WORKS DEPARTMENT

PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S

DRAWING TITLE :
 TYPICAL CROSS SECTION - F7, F8 & D1
 (SHEET 3 OF 3)

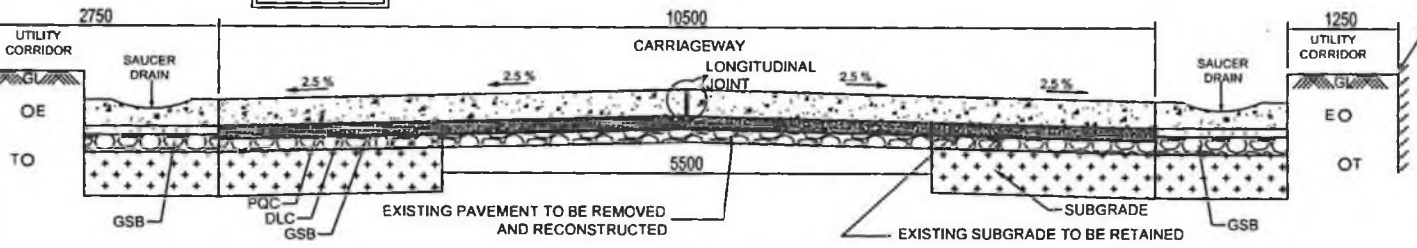
DWG. NUMBER : OSRP/CEG/SH09/P02B/TCS/03
 REV. NO.

For NIT Projects Private Limited
 Director

Page 6 of 92

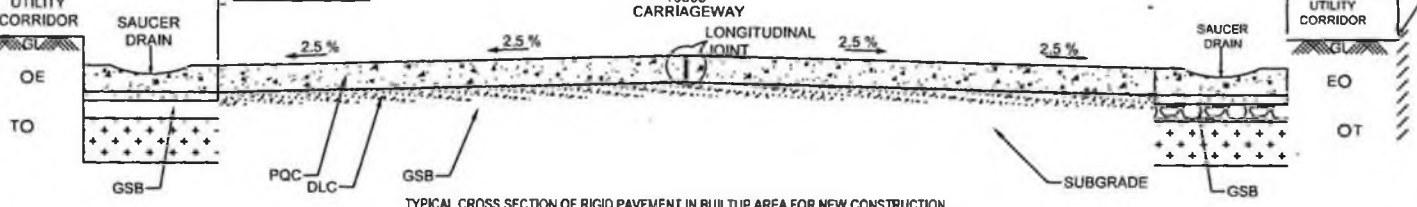
Chief Engineer,
 ODISHA WORKS DEPARTMENT
 (Employer)

TCS R1



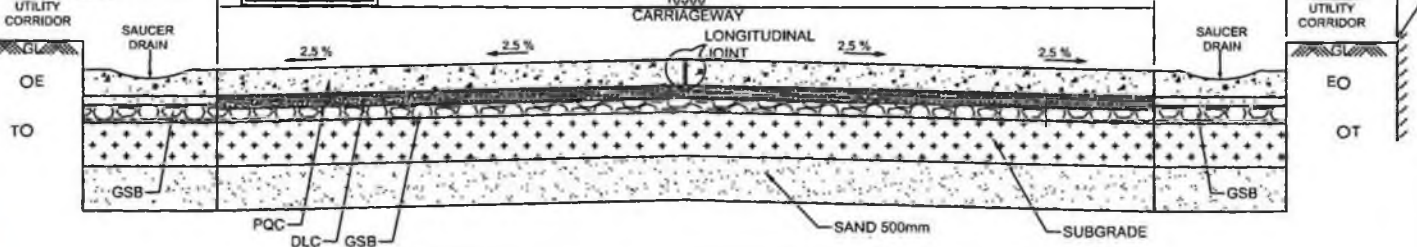
TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILTUP AREA FOR RE-CONSTRUCTION

TCS R2



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILTUP AREA FOR NEW CONSTRUCTION

TCS R3



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILTUP AREA FOR NEW CONSTRUCTION OVER EXPANSIVE CLAYS

LEGENDS

- | | | | |
|--------------|--|-------------------------|--|
| 1) BC | | 9) EMBANKMENT | |
| 2) DBM | | 10) PC | |
| 3) WMM | | 11) BM | |
| 4) GSB | | 12) E-Electrical Cable | |
| 5) SUBGRADE | | 13) T-Telecom Cable | |
| 6) DLC | | 14) W-Water Supply Line | |
| 7) PCC | | 15) G-Gas Line | |
| 8) EARTHFILL | | 16) S-Sewer | |

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS
- FOR DRAIN DETAILS REFER DRAWING NO.OSRP/CEG/DR
- FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
- THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO.OSRP/CEG/RIGID 02.
- FOR PAVEMENT EDGE DETAILS REFER DRAWING NO. OSRP/CEG/OD
- PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
- IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
R2	SEP-2019	SECOND REVISION	JASA		RAJU MATHUR	RAJ MEHRA (EE)	G.P. PATIL (EO)
R1	JAN-2013	FIRST REVISION	OND	VINAY	PRANDEVA (AE)	RAJ MEHRA (EE)	RAJ PRADHAN (EO)
	JUNE 2008	ORIGINAL	OND				

OPR CONSULTANT :
CEC
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOH COLONY, MALVIYA NAGAR
 JAIPUR-17 Tel: +91-141-2520899, 2521889, 2520558 Fax: 2521348, e-mail: ceg@ceginia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd, India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

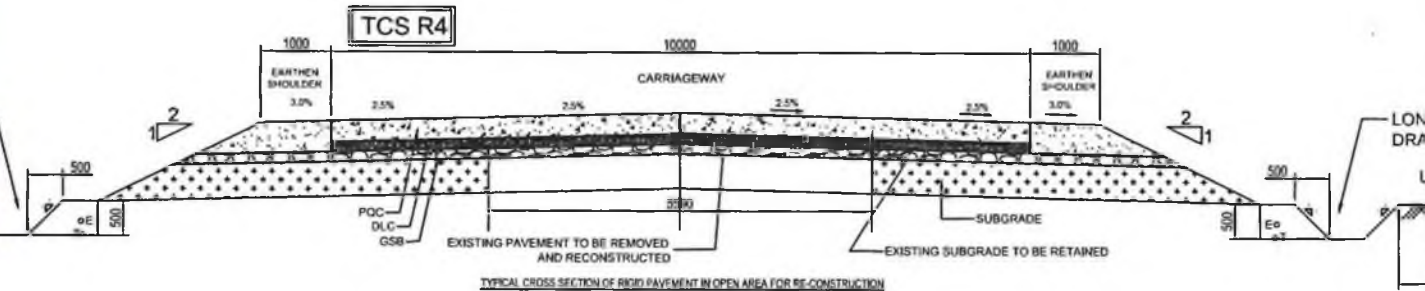
SCALE :
 N.T.S

DRAWING TITLE :
TYPICAL CROSS SECTION - R1, R2 & R3
 (SHEET 4 OF 5)
 DRL NUMBER : OSRP/CEG/SH09/P02B/TCS/04 REV R2

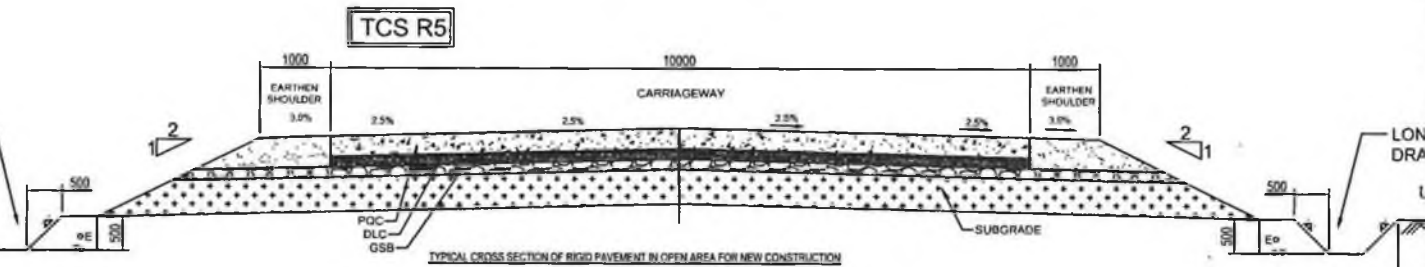
Volume-V Drawings

OSRP-CM/ICB-P02B

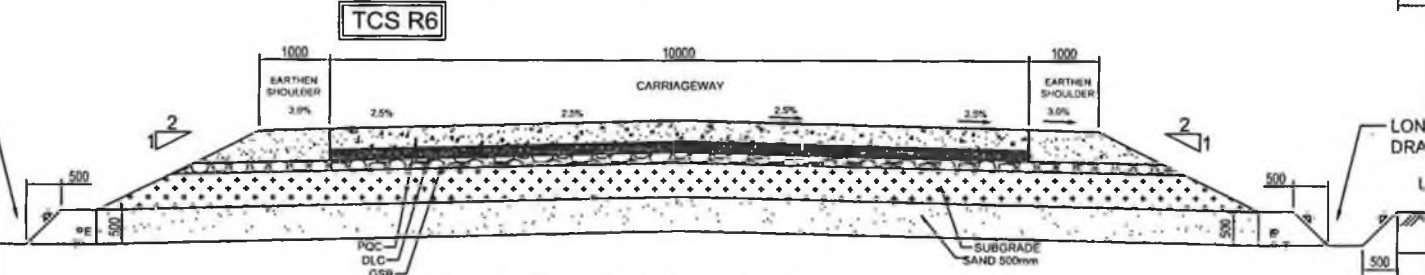
For NKC Projects Private Limited.
 Mis NKC Projects Pvt. Ltd.
 Director
 1500



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN OPEN AREA FOR RE-CONSTRUCTION



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN OPEN AREA FOR NEW CONSTRUCTION



TYPICAL CROSS SECTION OF RIGID PAVEMENT IN OPEN AREA FOR NEW CONSTRUCTION OVER EXPANSIVE CLAYS

LEGENDS

- | | | | |
|--------------|--|-------------------------|--|
| 1) BC | | 9) EMBANKMENT | |
| 2) DBM | | 10) PC | |
| 3) WMM | | 11) BM | |
| 4) GSB | | 12) E-Electrical Cable | |
| 5) SUBGRADE | | 13) T-Telecom Cable | |
| 6) DLC | | 14) W-Water Supply Line | |
| 7) PCC | | 15) G-Gas Line | |
| 8) EARTHFILL | | 16) S-Sewer | |

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS
- FOR DRAIN DETAILS REFER DRAWING NO.OSR/PC/EG/DR
- FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'
- THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO.OSR/PC/EG/RIGID G2.
- FOR PAVEMENT EDGE DETAILS REFER DRAWING NO.OSR/PC/EG/OD
- PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLYING LAYER ABOVE IT.
- IN CASE THE UTILITIES/TREES OBSTRUCTING THE LONGITUDINAL DRAINS, THE DRAINS MAY BE DIVERTED AS PER ENGINEERS DIRECTIONS

Page 7 of 92

Chief Engineer,
 O&S
 (Emlover)

REVISIONS: R2 2019-2018 SECOND REVISION JCS R1 JAN-2013 FIRST REVISION OVD VHSAT - JUNE 2008 ORIGINAL OVD			GPR CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. C-12,MOJJI COLONY,MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899,2521899,2520556 Fax: 2521346, e-mail: ceg@ceginfa.com			SPECIAL DESIGN CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd, India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .			CLIENT : ODISHA WORKS DEPARTMENT			PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - PO2B			SCALE : N.T.S			DRAWING TITLE : TYPICAL CROSS SECTION - R4, R5 & R6 (SHEET 5 OF 5) DRL NUMBER : OSR/PC/EG/SH09/PO2B/TCS/05 REV: 02		
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Volume IV Drawings

OSR/PC/ICB/PO2B

For NKC Projects Private Limited

HORIZONTAL CURVE DETAILS

ORISSA STATE ROAD PROJECT (SH-9) BHADRAK TO CHANDBALI KM 0/000 TO 45/000

Table with columns: Curve No., Curve Direction, HIP Details (Chainage, Easting, Northing), Total Deflection Angle, Total Deviation Angle, Design Speed (Km/Hr), Curve Radius (m.), Transition Length (m.), Deviation Angle of Transition Curve, Circular Curve Length (m.), Tangent Distance (m.), Shift, Straight Distance from TP to PC, Superelevation (%), Transition Start Chainage, Circular Start Chainage, Circular End Chainage. Rows 48-92.

Revision table with columns: NO., DATE, REVISION, BY, DRAWN, PREPARED, CHECKED, APPROVED.

SPR CONSULTANT: CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, JALMAYA NAGAR, JAMPUR-17, Tel: +91-141-2520899, 2521899, 2520956 Fax: 2521348, e-mail: ceg@cegin.co.in

CLIENT: ODISHA WORKS DEPARTMENT. PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - PO2B

SCALE: H.T.S. DRAWING FILE: HORIZONTAL CURVE DETAILS. SHEET NO: OSRP/CEG/PO2B/STR/3

VERTICAL CURVE DETAILS

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	27600	7.551	60	242.405	27570	7.555	27630	7.623	-0.011	0.237	-0.248	
2	Summit	27875.155	8.203	60	187.501	27845.155	8.132	27905.155	8.178	0.237	-0.083	0.320	
3	Valley	28120	8	60	722.282	28090	8.025	28150	8	-0.083	0	-0.083	
4	Valley	28300	8	60	1200	28270	8	28330	8.015	0	0.05	-0.050	
5	Summit	28700	8.2	60	372.61	28670	8.185	28730	8.167	0.05	-0.111	0.161	
6	Valley	29066.58	7.793	60	240.012	29036.58	7.826	29096.58	7.835	-0.111	0.139	-0.250	
7	Summit	29254.492	8.054	60	205.907	29224.492	8.012	29284.492	8.008	0.139	-0.152	0.291	
8	Valley	29710	7.36	60	250.347	29680	7.406	29740	7.386	-0.152	0.087	-0.239	
9	Summit	30100	7.7	60	687.798	30070	7.674	30130	7.7	0.087	0	0.087	
10	Summit	30400	7.7	60	767.909	30370	7.7	30430	7.77	0	-0.078	0.078	
11	Valley	30779.924	7.403	60	136.297	30749.924	7.427	30809.924	7.512	-0.078	0.362	-0.440	
12	Summit	31000	8.2	60	165.709	30970	8.091	31030	8.2	0.362	0	0.362	
13	Summit	31675.068	8.2	60	412.397	31645.068	8.2	31705.068	8.156	0	-0.145	0.145	
14	Valley	31950	7.8	60	412.397	31920	7.844	31980	7.8	-0.145	0	-0.145	
15	Valley	32193.389	7.8	60	4032.77	32163.389	7.8	32223.389	7.804	0	0.015	-0.015	
16	Valley	32935.451	7.91	60	1765.39	32905.451	7.906	32965.451	7.925	0.015	0.049	-0.034	
17	Valley	33218.804	8.049	60	1417.25	33188.804	8.034	33248.804	8.076	0.049	0.091	-0.042	
18	Summit	33494.171	8.3	60	657.893	33464.171	8.273	33524.171	8.3	0.091	0	0.091	
19	Summit	34070.173	8.3	60	719.657	34040.173	8.3	34100.173	8.275	0	-0.083	0.083	
20	Valley	34493.145	7.947	60	281.85	34463.145	7.972	34523.145	7.986	-0.083	0.13	-0.213	
21	Summit	34750	8.28	60	463.298	34720	8.241	34780	8.28	0.13	0	0.130	
22	Valley	35050	8.28	60	985.714	35020	8.28	35080	8.298	0	0.061	-0.061	
23	Summit	35740	8.7	60	985.714	35710	8.682	35770	8.7	0.061	0	0.061	
24	Summit	35900	8.7	60	391.722	35870	8.7	35930	8.654	0	-0.153	0.153	
25	Valley	36357.009	8	60	159.651	36327.009	8.046	36387.009	8.067	-0.153	0.223	-0.376	
26	Summit	36779.355	8.94	75	212.864	36741.855	8.857	36816.855	8.892	0.223	-0.13	0.353	
27	Valley	37273.118	8.3	60	910.46	37243.118	8.339	37303.118	8.281	-0.13	-0.064	-0.066	
28	Valley	37686.66	8.036	60	102.754	37656.66	8.055	37716.66	8.192	-0.064	0.52	-0.584	
29	Summit	37902.719	9.16	80	153.808	37862.719	8.952	37942.719	9.16	0.52	0	0.520	
30	Summit	38400	9.16	60	206.626	38370	9.16	38430	9.073	0	-0.29	0.290	
31	Valley	38644.507	8.45	60	174.903	38614.507	8.537	38674.507	8.466	-0.29	0.053	-0.343	
32	Valley	38834.38	8.55	60	265.457	38804.38	8.534	38864.38	8.634	0.053	0.279	-0.226	
33	Summit	39099.52	9.289	70	150.994	39064.52	9.191	39134.52	9.224	0.279	-0.185	0.464	
34	Valley	39418.027	8.7	60	162.716	39388.027	8.755	39448.027	8.755	-0.185	0.184	-0.369	
35	Summit	39635.608	9.1	60	207.377	39605.608	9.045	39665.608	9.068	0.184	-0.105	0.289	
36	Valley	39813.196	8.913	60	335.356	39783.196	8.944	39843.196	8.935	-0.105	0.073	-0.178	
37	Summit	40068.333	9.1	60	166.169	40038.333	9.078	40098.333	9.014	0.073	-0.288	0.361	
38	Valley	40343.464	8.309	60	145.171	40313.464	8.395	40373.464	8.346	-0.288	0.126	-0.414	
39	Valley	40672.888	8.723	60	2873.78	40642.888	8.685	40702.888	8.766	0.126	0.147	-0.021	
40	Summit	41124.316	9.384	60	291.044	41094.316	9.34	41154.316	9.366	0.147	-0.060	0.207	
41	Valley	41682.832	9.051	60	375.976	41652.832	9.069	41712.832	9.081	-0.060	0.100	-0.160	
42	Summit	42156.724	9.525	60	190.085	42126.724	9.495	42186.724	9.46	0.100	-0.216	0.316	
43	Valley	42400	9	60	278.182	42370	9.065	42430	9	-0.216	0.000	-0.216	
44	Summit	42570	9	60	2685.07	42540	9	42600	8.993	0.000	-0.022	0.022	
45	Valley	42913.013	8.923	60	2154.46	42883.013	8.93	42943.013	8.925	-0.022	0.006	-0.028	
46	Valley	43271.962	8.943	60	397.343	43241.962	8.941	43301.962	8.99	0.006	0.157	-0.151	
47	Summit	43500	9.3	60	383.371	43470	9.253	43530	9.3	0.157	0.000	0.157	
48	Summit	43650	9.3	60	140.013	43620	9.3	43680	9.171	0.000	-0.429	0.429	
49	Valley	43860.02	8.4	60	196.884	43830.02	8.529	43890.02	8.363	-0.429	-0.124	-0.305	
50	Valley	44160.493	8.028	60	406.47	44130.493	8.065	44190.493	8.035	-0.124	0.024	-0.148	
51	Valley	44432.373	8.093	60	296.611	44402.373	8.086	44462.373	8.161	0.024	0.226	-0.202	
52	Summit	44833.564	9	70	167.356	44798.564	8.921	44868.564	8.933	0.226	-0.192	0.418	
53	Valley	45197.852	8.3	60	412.544	45167.852	8.358	45227.852	8.286	-0.192	-0.047	-0.145	

NO	DATE	REVISION	BY	DRN	PREPARED	CHECKED	APPROVED
01	2018-08-01	ISSUED FOR TENDER	RAJU NAGAR	RAJU NAGAR	RAJU NAGAR	RAJU NAGAR	RAJU NAGAR
02	2018-08-01	REVISED	RAJU NAGAR	RAJU NAGAR	RAJU NAGAR	RAJU NAGAR	RAJU NAGAR

CONSULTING ENGINEERS GROUP LTD.

E-12, MOJ COLONY, MALVIYA NAGAR, JAIPUR-302017

+91-141-2520899, 2521869, 2520358 Fax: 2521348, e-mail: ceo@cegindia.com

ODISHA WORKS DEPARTMENT

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

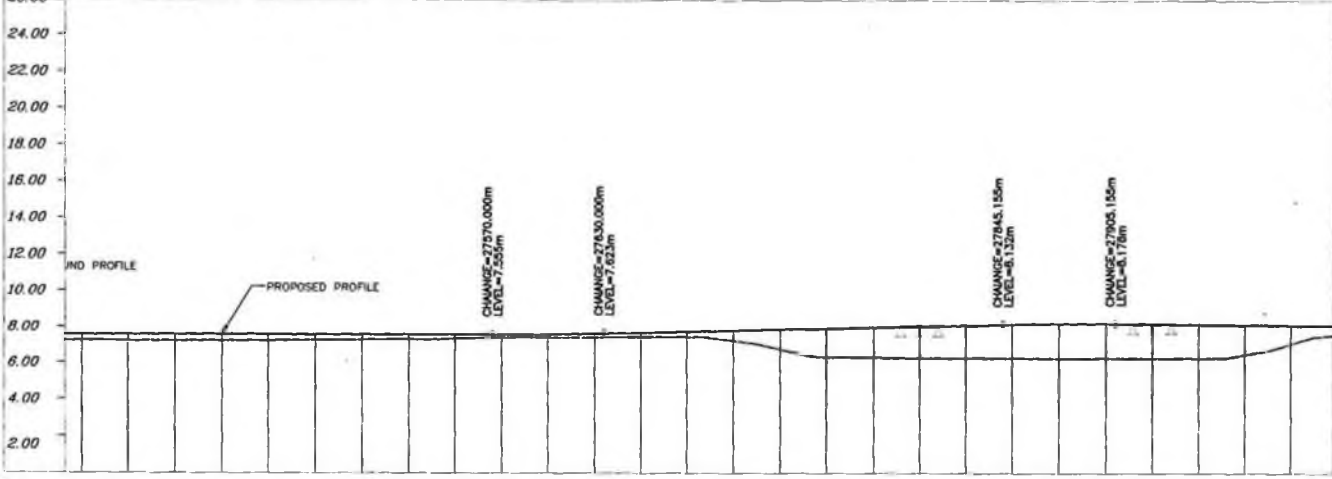
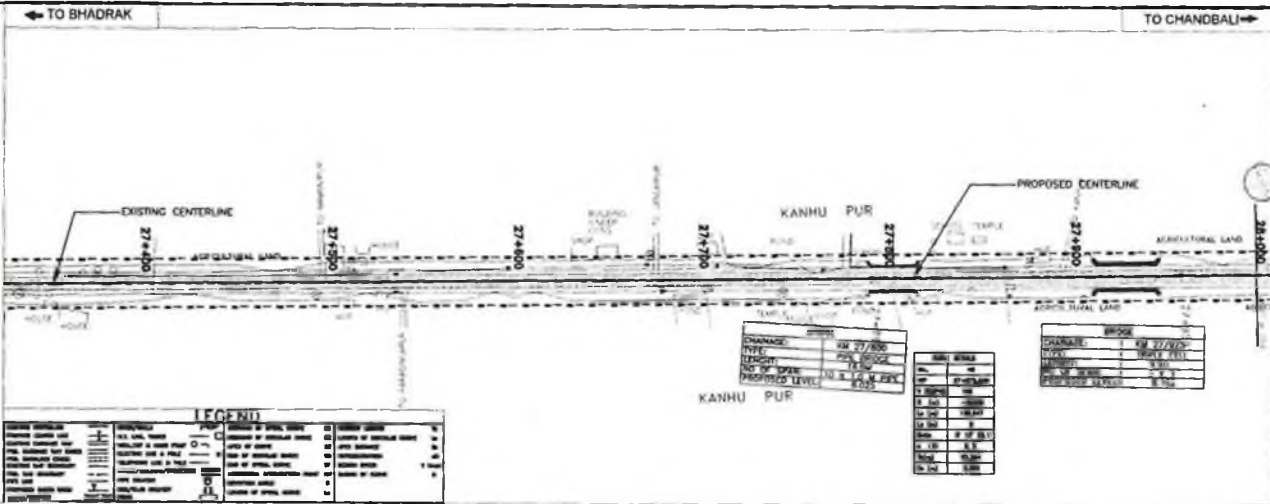
VERTICAL CURVE DETAILS

SCALE: N.T.S.

DRAWING TITLE

PROJECT: 1 OF 1

PROJ. NUMBER: OSRP/CEG/P02B/STR/3



DATUM = 0.00	
PROPOSED ROAD LEVEL (m)	7.578, 7.575, 7.573, 7.570, 7.567, 7.565, 7.562, 7.558, 7.557, 7.555, 7.570, 7.611, 7.670, 7.729, 7.788, 7.848, 7.907, 7.966, 8.025, 8.085, 8.143, 8.178, 8.182, 8.162, 8.141, 8.120, 8.100
EXISTING LEVEL (m)	7.254, 7.225, 7.210, 7.215, 7.219, 7.237, 7.266, 7.305, 7.330, 7.393, 7.386, 7.400, 7.430, 7.418, 7.208, 6.741, 6.313, 6.315, 6.251, 6.285, 6.252, 6.239, 6.244, 6.237, 6.256, 6.459, 7.050
HORIZONTAL ALIGNMENT	L=804.354m, B=36000.000m, L=188.647m
VERTICAL PROFILE	L=327.86m, G=-0.011, L=60.000m, G=-0.011, L=215.155m, L=60.000m, L=184.845m, G=-0.083
SUPERELEVATION / CROSSFALL	Q=2.500
CHAINAGE	27350.000, 27375.000, 27400.000, 27425.000, 27450.000, 27475.000, 27500.000, 27525.000, 27550.000, 27575.000, 27600.000, 27625.000, 27650.000, 27675.000, 27700.000, 27725.000, 27750.000, 27775.000, 27800.000, 27825.000, 27850.000, 27875.000, 27900.000, 27925.000, 27950.000, 27975.000, 28000.000

<p>NO. 202-2013 SECOND REVISION</p> <p>BY: JANA</p> <p>DATE: 2013-01-15</p> <p>REVISION: ORIGINAL</p> <p>DATE: 2013-01-15</p>	<p>NO. 202-2013 FIRST REVISION</p> <p>BY: WHAY</p> <p>DATE: 2013-01-15</p> <p>REVISION: ORIGINAL</p> <p>DATE: 2013-01-15</p>	<p>NO. 202-2013</p> <p>BY: JANA</p> <p>DATE: 2013-01-15</p> <p>REVISION: ORIGINAL</p> <p>DATE: 2013-01-15</p>	<p>DR. S. K. PATIL (CO)</p> <p>DR. P. K. PATIL (CO)</p> <p>DR. S. K. PATIL (CO)</p> <p>DR. P. K. PATIL (CO)</p>	<p>CONSULTANT:</p> <p>CEC</p> <p>CONSULTING ENGINEERS GROUP LTD.</p> <p>E-12, 40th COLONY MALVIYA NAGAR</p> <p>JALPAIGURI-73</p> <p>+91-141-2520599, 2521899, 2520558 Fax: 2521348, e-mail: ceg@cegidc.com</p>	<p>CLIENT:</p> <p>ODISHA WORKS DEPARTMENT</p>	<p>PROJECT:</p> <p>CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B</p>	<p>SCALE:</p> <p>N.T.S.</p>	<p>DRAWING TITLE:</p> <p>PLAN AND LONGITUDINAL SECTION (SH-9) KM 27/500 TO KM 28/000</p>	<p>DRG. NUMBER:</p> <p>OSRP/CEG/SH9/P02B/P&P/1</p>	<p>(SHEET 1 OF 18)</p> <p>REV. NO.</p>
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M/s NKC Projects Pvt. Ltd. (Contractor)

Director

Page 10 of 92

Chief Engineer, P&R, Odisha (Employer)

For NKC Projects Private Limited

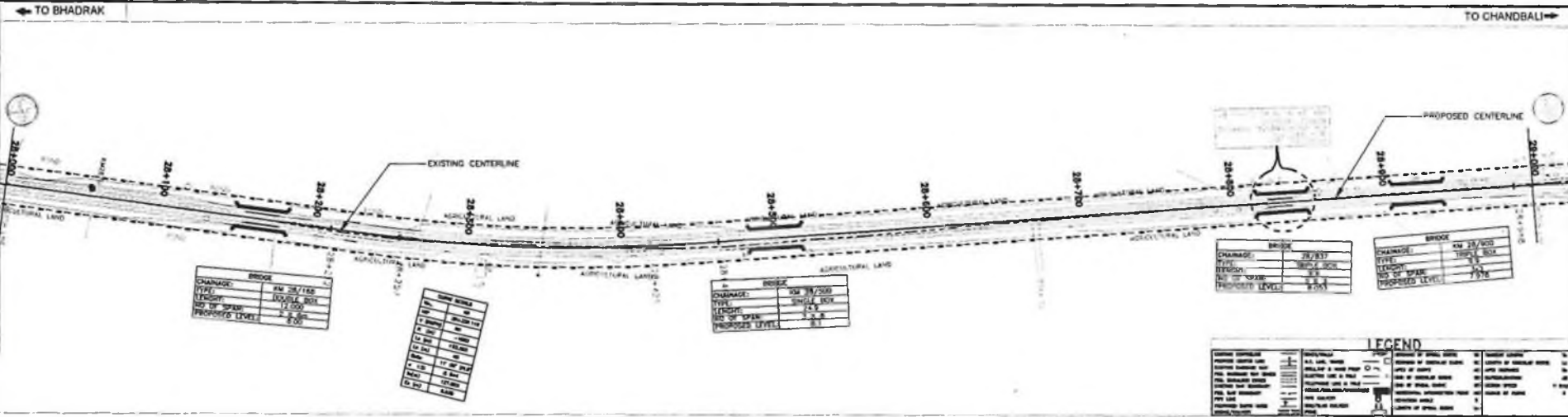
M/s NKC Projects Pvt. Ltd
(Contractor)

Director

Page 11 of 92

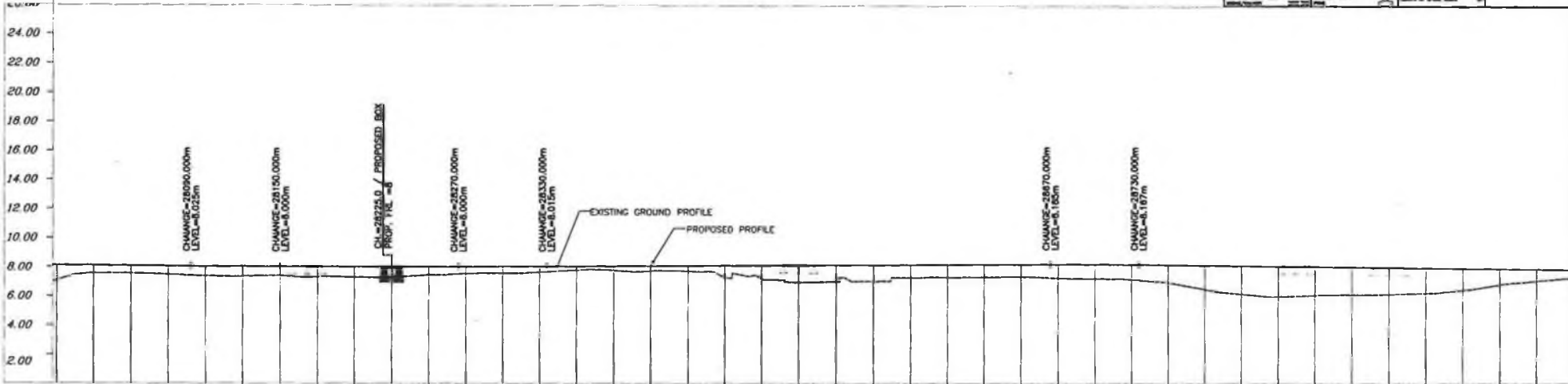
Chief Engineer
P&S, Road, Odisha
(Employer)

For NKC Projects Private Limited



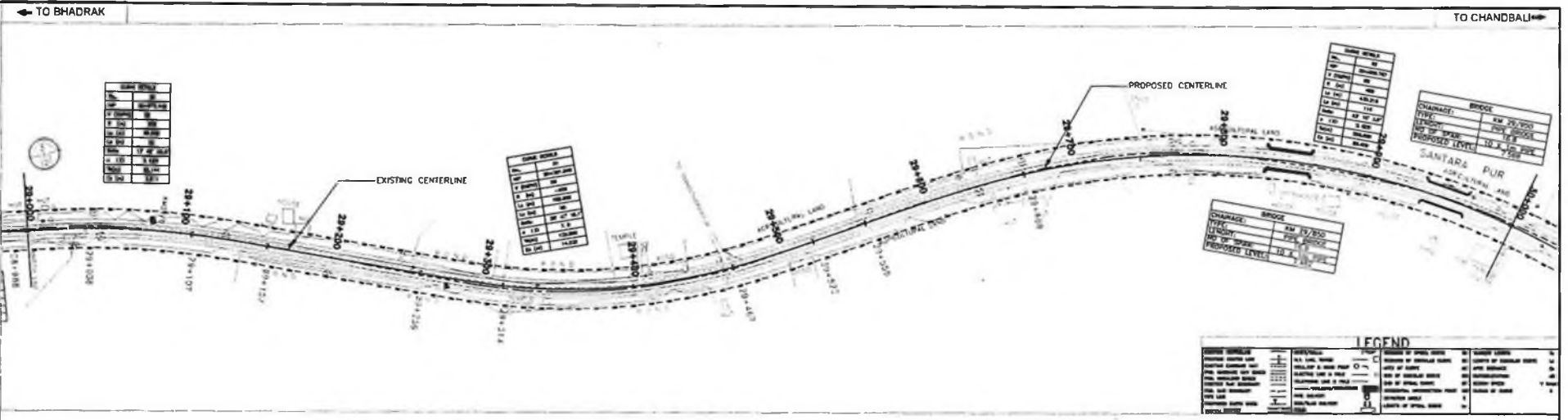
BRIDGE	
CHAINAGE	28/837
TYPE	STEEL GIRDER
LENGTH	11.00
NO. OF SPANS	1
PROPOSED LEVEL	8.75

BRIDGE	
CHAINAGE	28/1000
TYPE	STEEL GIRDER
LENGTH	11.00
NO. OF SPANS	1
PROPOSED LEVEL	7.75



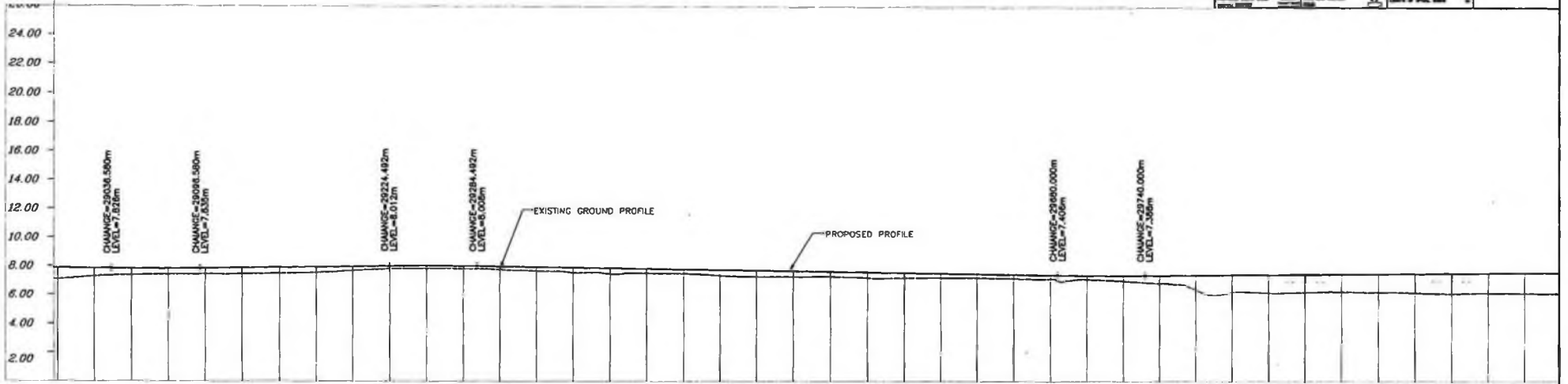
DATUM = 0.00	
PROPOSED ROAD LEVEL (m)	7.850, 7.529, 7.530, 7.449, 7.346, 7.336, 7.380, 7.291, 7.266, 7.253, 7.415, 7.508, 7.533, 7.610, 7.763, 7.746, 7.705, 7.674, 7.252, 7.176, 6.919, 6.954, 6.995, 7.237, 7.265, 7.285, 7.327, 7.224, 7.187, 7.129, 6.917, 6.449, 6.125, 5.948, 6.037, 6.084, 6.116, 6.174, 6.403, 6.793, 7.057
EXISTING LEVEL (m)	7.850, 7.529, 7.530, 7.449, 7.346, 7.336, 7.380, 7.291, 7.266, 7.253, 7.415, 7.508, 7.533, 7.610, 7.763, 7.746, 7.705, 7.674, 7.252, 7.176, 6.919, 6.954, 6.995, 7.237, 7.265, 7.285, 7.327, 7.224, 7.187, 7.129, 6.917, 6.449, 6.125, 5.948, 6.037, 6.084, 6.116, 6.174, 6.403, 6.793, 7.057
HORIZONTAL ALIGNMENT	L=253.091m, L=45.000m, R=1000.000m, L=163.393m, L=45.000m, L=521.921m, L=50.000
VERTICAL PROFILE	G=0.050, L=120.000m, L=60.000m, G=0.050, L=340.000m, G=2.840, L=60.000m, G=2.500, L=306.500m, G=-0.111
SUPERELEVATION /CROSSFALL	Q=2.840, Q=2.500
CHAINAGE	00000.000, 8000.000, 8025.000, 8050.000, 8075.000, 8100.000, 8125.000, 8150.000, 8175.000, 8200.000, 8225.000, 8250.000, 8275.000, 8300.000, 8325.000, 8350.000, 8375.000, 8400.000, 8425.000, 8450.000, 8475.000, 8500.000, 8525.000, 8550.000, 8575.000, 8600.000, 8625.000, 8650.000, 8675.000, 8700.000, 8725.000, 8750.000, 8775.000, 28000.000, 28250.000, 28500.000, 28750.000, 28900.000, 28925.000, 28950.000, 28975.000, 29000.000

REVISIONS: NO. DATE REVISION BY DRAWN PREPARED I CHECKED APPROVED		DPM CONSULTANT: CEC CONSULTING ENGINEERS GROUP LTD. E-12, MALA COLONY, MALVIYA NAGAR JAIPUR-17, INDIA +91-141-2570899, 2521808, 2520258 Fax: 2521348, e-mail: cec@cegindia.com		DESIGN REVIEW CONSULTANT: LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.		CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: PLAN AND LONGITUDINAL SECTION (SH-9) KM 28/000 TO KM 29/000	
ONE NUMBER: OSRP/ICEG/SH9/P02B/P&P/2										SHEET 2 OF 18			



LEGEND

PROPOSED ROAD	EXISTING ROAD	PROPOSED CENTERLINE	EXISTING CENTERLINE
PROPOSED PROFILE	EXISTING GROUND PROFILE	PROPOSED GRADE	EXISTING GRADE
PROPOSED SUPERELEVATION	EXISTING SUPERELEVATION	PROPOSED CROSSFALL	EXISTING CROSSFALL
PROPOSED CHAINAGE	EXISTING CHAINAGE	PROPOSED BRIDGE	EXISTING BRIDGE
PROPOSED TIE-UP	EXISTING TIE-UP	PROPOSED SIDEWALK	EXISTING SIDEWALK
PROPOSED DRAINAGE	EXISTING DRAINAGE	PROPOSED LANDSCAPE	EXISTING LANDSCAPE



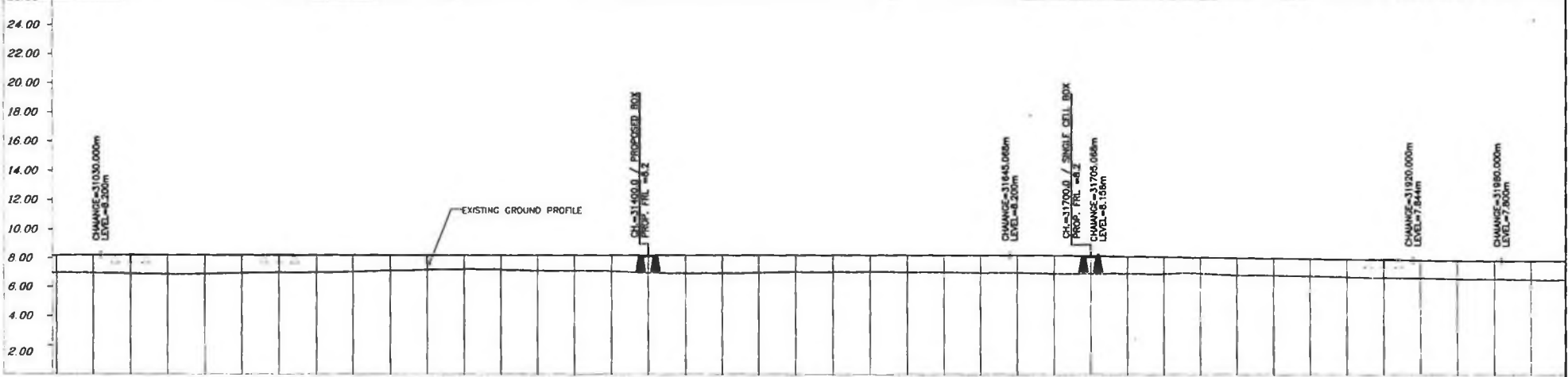
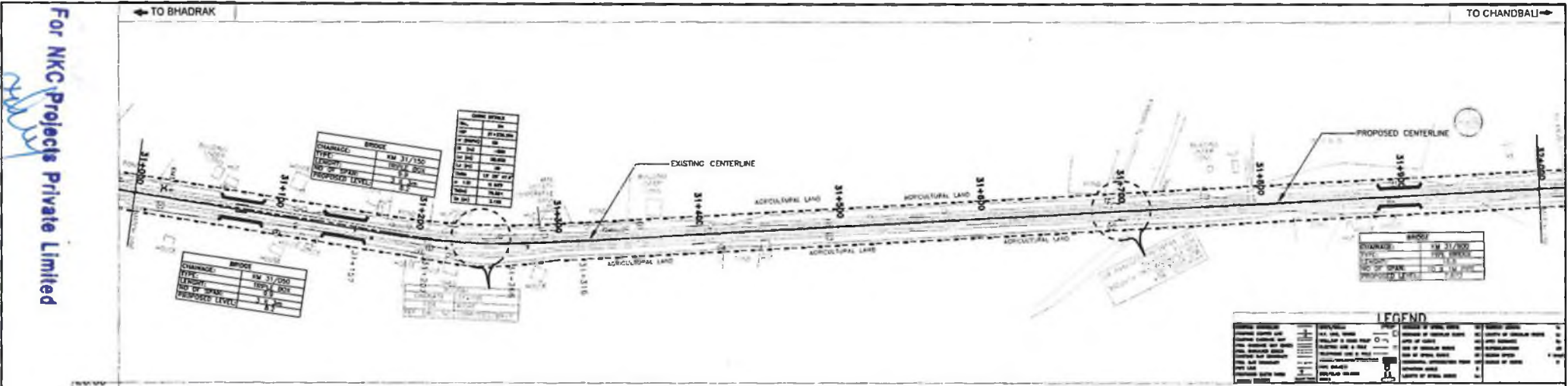
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PROPOSED ROAD LEVEL (m)	7.967	7.839	7.815	7.814	7.839	7.874	7.909	7.944	7.978	8.013	8.032	8.021	7.985	7.947	7.909	7.870	7.832	7.794	7.756	7.718	7.680	7.642	7.604	7.566	7.527	7.489	7.451	7.413	7.383	7.377	7.395	7.416	7.438	7.460	7.482	7.504	7.526	7.547	7.569	7.591	7.613									
EXISTING LEVEL (m)	7.057	7.271	7.379	7.411	7.439	7.451	7.490	7.547	7.687	7.817	7.841	7.819	7.771	7.670	7.552	7.484	7.519	7.483	7.480	7.360	7.272	7.285	7.285	7.202	7.196	7.223	7.199	7.163	7.142	7.112	7.383	7.006	6.845	6.392	6.190	6.171	7.460	6.218	7.482	6.259	7.504	6.237	7.526	6.184	7.547	6.114	7.569	6.162	7.591	6.156
HORIZONTAL ALIGNMENT	L=60.000m		R=500.000m L=89.668m		L=50.000m		L=102.193m		L=55.000m		R=400.000m L=132.958m		L=55.000m		L=36.331m		L=110.000m		R=490.000m L=430.218m																															
VERTICAL PROFILE	L=60.000m G=-0.133 L=127.912m		L=60.000m		L=395.508m G=-0.152		L=60.000m		L=60.000m		G=-0.087 L=330.000m																																							
SUPERELEVATION / CROSSFALL	Q=5.890		Q=2.500		Q=7.000		Q=2.500		Q=5.800																																									
CHAINAGE	28000.000	29025.000	29050.000	29075.000	29100.000	29125.000	29150.000	29175.000	29200.000	29225.000	29250.000	29275.000	29300.000	29325.000	29350.000	29375.000	29400.000	29425.000	29450.000	29475.000	29500.000	29525.000	29550.000	29575.000	29600.000	29625.000	29650.000	29675.000	29700.000	29725.000	29750.000	29775.000	29800.000	29825.000	29850.000	29875.000	29900.000	29925.000	29950.000	29975.000	30000.000									

REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				CLIENT ODISHA WORKS DEPARTMENT				PROJECT CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE H.T.S				DRAWING TITLE PLAN AND LONGITUDINAL SECTION (SH-9) KM 29/000 TO KM 30/000			
CONTRACTOR M/s NKC Projects Pvt. Ltd. (Contractor)				CONSULTANT OCE CONSULTANTS CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR, JAIPUR-31. Tel: +91-141-2520909, 2521608, 2520908 Fax: 2521348, e-mail: ceo@cegroupindia.com				DESIGN ENGINEER LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				DWG. NUMBER OSRP/CEG/SH09/P02B/P&P/3				(SHEET 3 OF 18) REV NO.			

M/s NKC Projects Pvt. Ltd
(Contractor)

Director

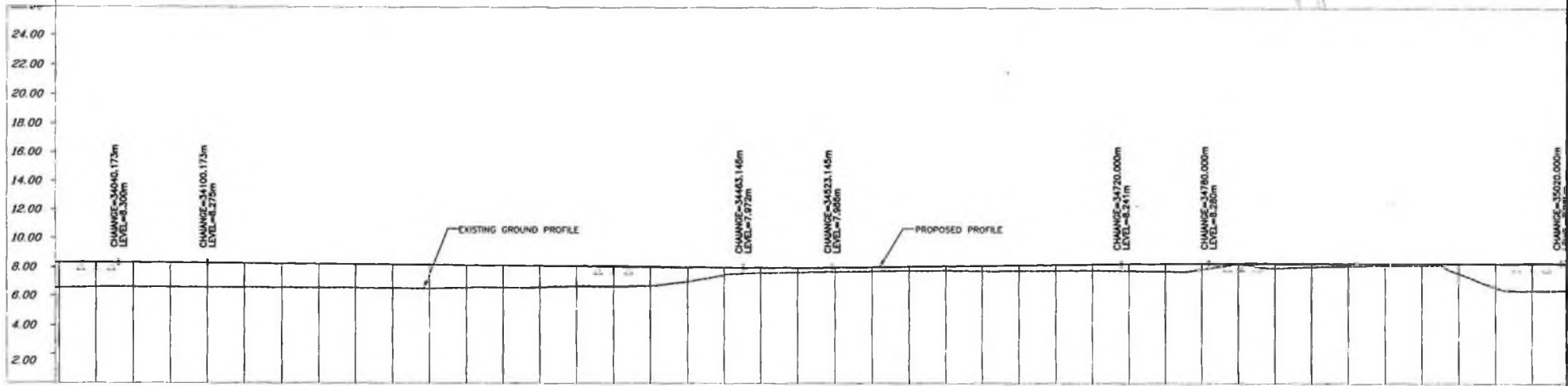
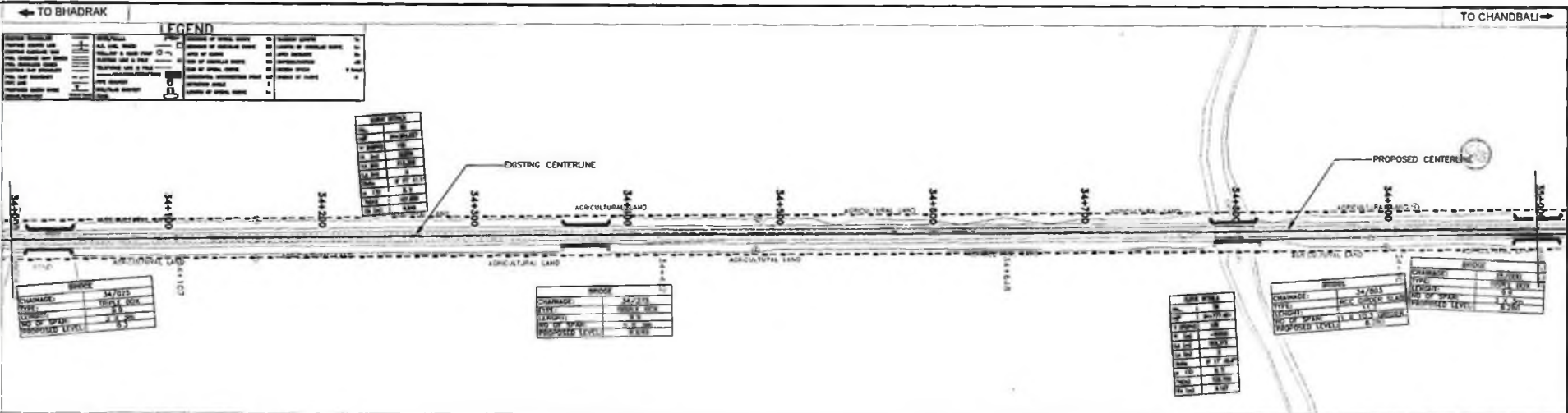
For NKC Projects Private Limited



DATUM = 0.00									
PROPOSED ROAD LEVEL (m)									
EXISTING LEVEL (m)									
HORIZONTAL ALIGNMENT									
VERTICAL PROFILE									
SUPERELEVATION / CROSSFALL									
CHAINAGE									

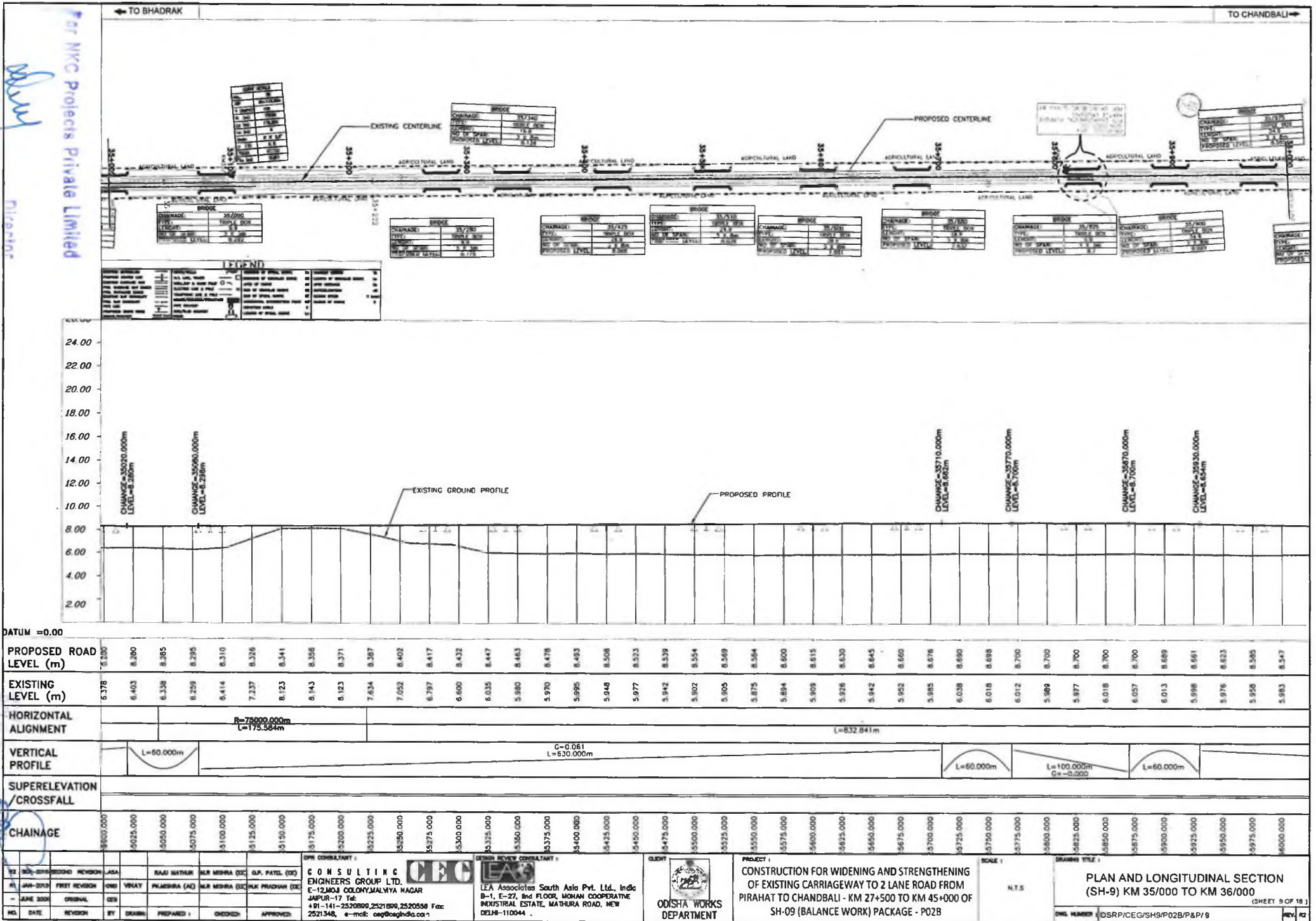
For NKC Projects Private Limited
 M/S NKC Projects Pvt. Ltd. (Contractor)
 Director
 Page 14 of 82
 Chief Engineer, Dpt & Roads, Odisha (Employer)

REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			DPT CONSULTANT CEG CONSULTING ENGINEERS GROUP LTD. E-12, MDJ COLONY, MALVIYA NAGAR JAPPUR-17 Tel: +91-141-2520609, 2521809, 2520558 Fax: 2521348, e-mail: ceg@cegindia.com			DESIGN REVIEW CONSULTANT LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044			CLIENT ODISHA WORKS DEPARTMENT			PROJECT CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B			SCALE N.T.S.			DRAWING TITLE PLAN AND LONGITUDINAL SECTION (SH-9) KM 31/000 TO KM 32/000 (SHEET 5 OF 19)		
OWN. NUMBER OSRP/CEG/SH9/P02B/P&P/5										REV. NO.										



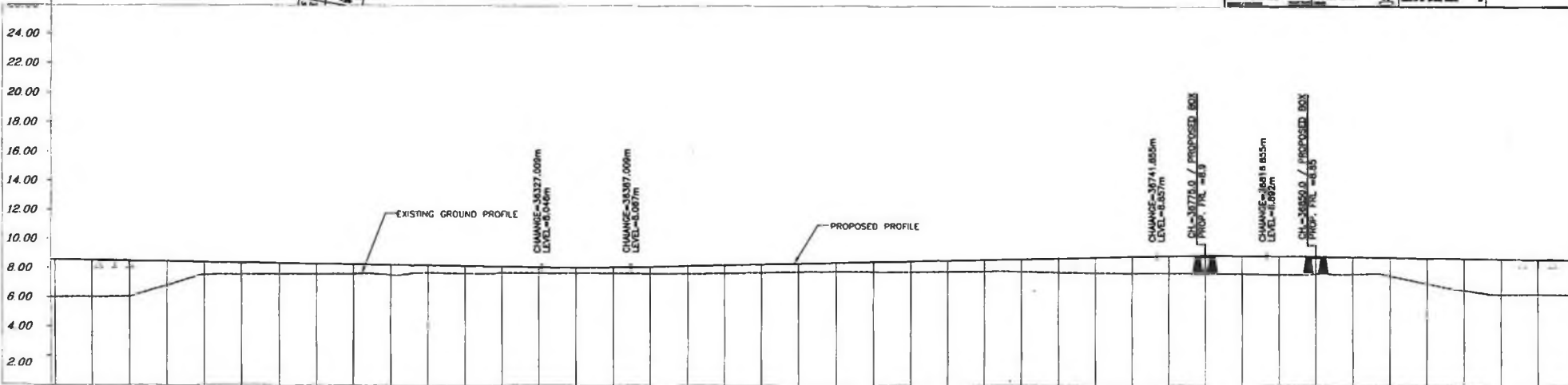
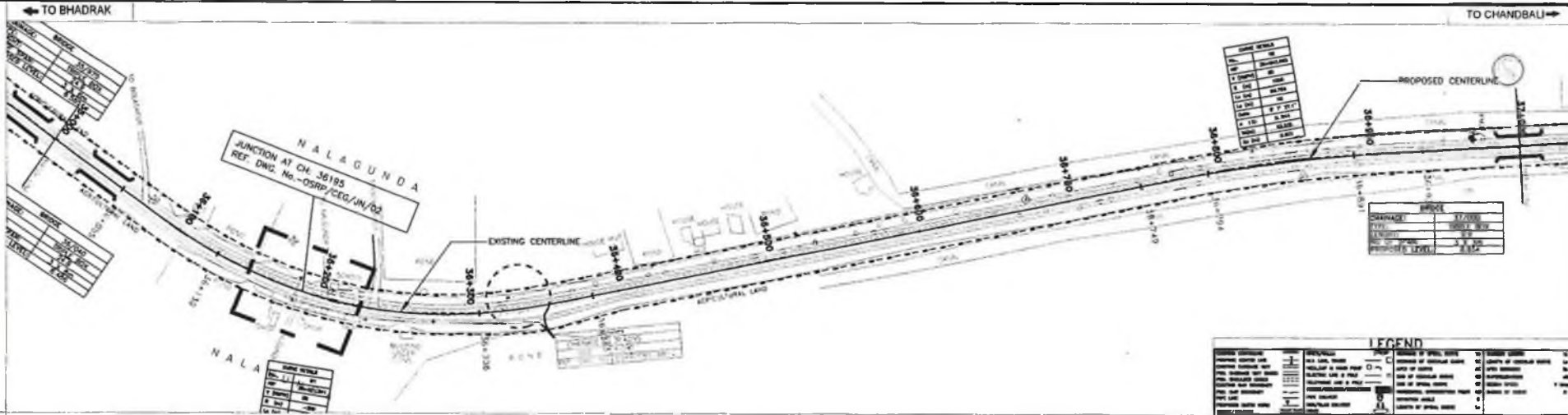
DATUM = 0.00	
PROPOSED ROAD LEVEL (m)	8.280, 8.300, 8.399, 8.292, 8.275, 8.254, 8.233, 8.213, 8.192, 8.171, 8.150, 8.129, 8.108, 8.088, 8.067, 8.046, 8.025, 8.004, 7.983, 7.965, 7.966, 7.969, 7.981, 8.021, 8.053, 8.096, 8.116, 8.150, 8.183, 8.215, 8.247, 8.270, 8.280, 8.280, 8.280, 8.280, 8.280, 8.280, 8.280, 8.280, 8.280
EXISTING LEVEL (m)	6.521, 6.575, 6.588, 6.566, 6.555, 6.555, 6.540, 6.534, 6.526, 6.502, 6.478, 6.551, 6.551, 6.569, 6.637, 6.633, 6.669, 6.977, 7.443, 7.601, 7.642, 7.685, 7.721, 7.759, 7.771, 7.752, 7.798, 7.773, 7.787, 7.760, 7.734, 7.875, 8.267, 7.961, 8.044, 8.106, 8.145, 8.141, 7.992, 6.629, 6.378
HORIZONTAL ALIGNMENT	R=50000.000m L=315.39m, L=225.911m, R=50000.000m L=258.372m, L=139.505m
VERTICAL PROFILE	L=60.000m, L=362.971m G=-0.083, L=60.000m, G=0.130 L=196.85m, L=60.000m, G=0.000 L=240.000m
SUPERELEVATION / CROSSFALL	
CHAINAGE	0+000.000, 4+023.000, 4+050.000, 4+075.000, 4+100.000, 4+125.000, 4+150.000, 4+175.000, 4+200.000, 4+225.000, 4+250.000, 4+275.000, 4+300.000, 4+325.000, 4+350.000, 4+375.000, 4+400.000, 4+425.000, 4+450.000, 4+475.000, 4+500.000, 4+525.000, 4+550.000, 4+575.000, 4+600.000, 4+625.000, 4+650.000, 4+675.000, 4+700.000, 4+725.000, 4+750.000, 4+775.000, 4+800.000, 4+825.000, 4+850.000, 4+875.000, 4+900.000, 4+925.000, 4+950.000, 4+975.000, 5+000.000

FOR MKC Projects Private Limited Director Mis MKC Projects Pvt. Ltd. (Contractor)				CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MEERA COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520888, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginia.com				CLIENT : ODISHA WORKS DEPARTMENT				PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE : H.T.S.		DRAWING TITLE : PLAN AND LONGITUDINAL SECTION (SH-9) KM 34/000 TO KM 35/000 (SHEET 6 OF 10)	
REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DWG NUMBER: OSRP/CEG/SH9/P02B/P&P/8				REV: 02											



REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DATE CONSULTANT CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR-17 Tel: 491-141-2520899, 2521898, 2520558 Fax: 2521348, e-mail: ceag@ceagindia.co.in				DATE DESIGNER CONSULTANT LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT ODISHA WORKS DEPARTMENT				PROJECT CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE N.T.S.				DRAWING TITLE PLAN AND LONGITUDINAL SECTION (SH-9) KM 35/000 TO KM 36/000 (SHEET 9 OF 18.)			
CIVIL NUMBER : OSRP/ICEG/SH9/P02B/P&P/9												REV: 02															

For NKC Projects Private Limited



DATUM = 0.00																																																																																																																																												
PROPOSED ROAD LEVEL (m)	8.547	8.509	8.470	8.432	8.394	8.355	8.317	8.279	8.240	8.202	8.164	8.126	8.087	8.049	8.011	7.973	7.935	7.897	7.859	7.821	7.783	7.745	7.707	7.669	7.631	7.593	7.555	7.517	7.479	7.441	7.403	7.365	7.327	7.289	7.251	7.213	7.175	7.137	7.099	7.061	7.023	6.985	6.947	6.909	6.871	6.833	6.795	6.757	6.719	6.681	6.643	6.605	6.567	6.529	6.491	6.453	6.415	6.377	6.339	6.301	6.263	6.225	6.187	6.149	6.111	6.073	6.035	6.000																																																																								
EXISTING LEVEL (m)	5.983	6.000	6.027	6.055	6.084	6.113	6.142	6.171	6.200	6.229	6.258	6.287	6.316	6.345	6.374	6.403	6.432	6.461	6.490	6.519	6.548	6.577	6.606	6.635	6.664	6.693	6.722	6.751	6.780	6.809	6.838	6.867	6.896	6.925	6.954	6.983	7.012	7.041	7.070	7.099	7.128	7.157	7.186	7.215	7.244	7.273	7.302	7.331	7.360	7.389	7.418	7.447	7.476	7.505	7.534	7.563	7.592	7.621	7.650	7.679	7.708	7.737	7.766	7.795	7.824	7.853	7.882	7.911	7.940	7.969	7.998	8.027	8.056	8.085	8.114	8.143	8.172	8.201	8.230	8.259	8.288	8.317	8.346	8.375	8.404	8.433	8.462	8.491	8.520	8.549	8.578	8.607	8.636	8.665	8.694	8.723	8.752	8.781	8.810	8.839	8.868	8.897	8.926	8.955	8.984	9.013	9.042	9.071	9.100	9.129	9.158	9.187	9.216	9.245	9.274	9.303	9.332	9.361	9.390	9.419	9.448	9.477	9.506	9.535	9.564	9.593	9.622	9.651	9.680	9.709	9.738	9.767	9.796	9.825	9.854	9.883	9.912	9.941	9.970	10.000
HORIZONTAL ALIGNMENT	L=75.000m		R=300.000m										L=75.000m		L=366.695m										L=45.000m		R=1000.000m					L=95.794m		L=45.000m		L=15.000m																																																																																																								
VERTICAL PROFILE	L=397.000m G=-0.153										L=60.000m		G=0.223 L=354.845m										L=75.000m		L=45.000m		L=15.000m																																																																																																																	
SUPERELEVATION /CROSSFALL	Q=7.000										Q=2.500										Q=2.840					Q=0		Q=0																																																																																																																
CHAINAGE	36000.000	36025.000	36050.000	36075.000	36100.000	36125.000	36150.000	36175.000	36200.000	36225.000	36250.000	36275.000	36300.000	36325.000	36350.000	36375.000	36400.000	36425.000	36450.000	36475.000	36500.000	36525.000	36550.000	36575.000	36600.000	36625.000	36650.000	36675.000	36700.000	36725.000	36750.000	36775.000	36800.000	36825.000	36850.000	36875.000	36900.000	36925.000	36950.000	36975.000	37000.000																																																																																																			

LEGEND

SYMBOL	DESCRIPTION
(Symbol)	Proposed Road Level
(Symbol)	Existing Ground Profile
(Symbol)	Proposed Centerline
(Symbol)	Existing Centerline
(Symbol)	Right of Way
(Symbol)	Water
(Symbol)	Drainage
(Symbol)	Structure
(Symbol)	Spot Level
(Symbol)	Proposed Profile
(Symbol)	Vertical Curve
(Symbol)	Horizontal Curve
(Symbol)	Superelevation
(Symbol)	Crossfall
(Symbol)	Chainage

Chief Engineer,
DPI & Roads, Odisha
(Employer)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
1	2018-01-15	SECOND REVISION	ASA	RAJU MATHUR	SAHUSRI (DC)	G.P. PATEL (DC)	
2	2018-01-15	FIRST REVISION	CRD	VRNAT	PRADHANA (AE)	SAR MISHRA (DC)	RAJ PRADHAN (DC)
3	2018-01-15	ORIGINAL	CRD				

ODISHA CONSULTANT
CONSULTING ENGINEERS GROUP LTD.
E-12, MOJI COLONY, MALVIYA NAGAR
JAPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521348, e-mail: ceeg@cegltd.com

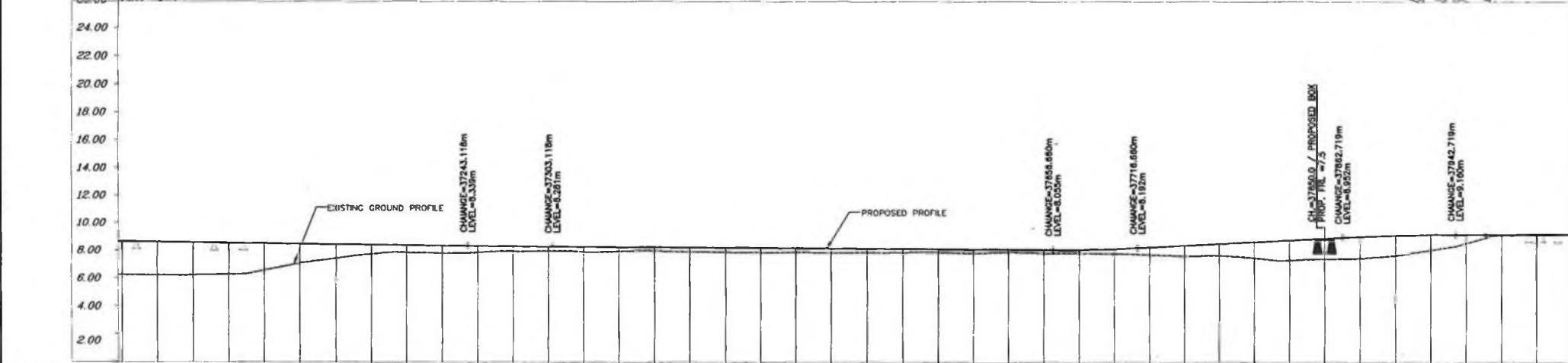
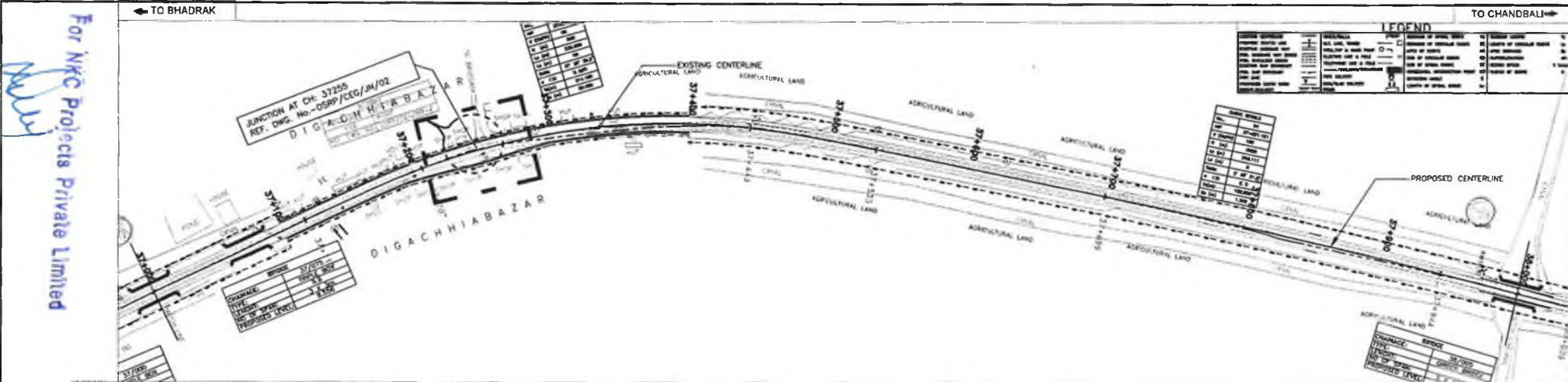
ODISHA REVIEW CONSULTANT
LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT
ODISHA WORKS DEPARTMENT

PROJECT
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

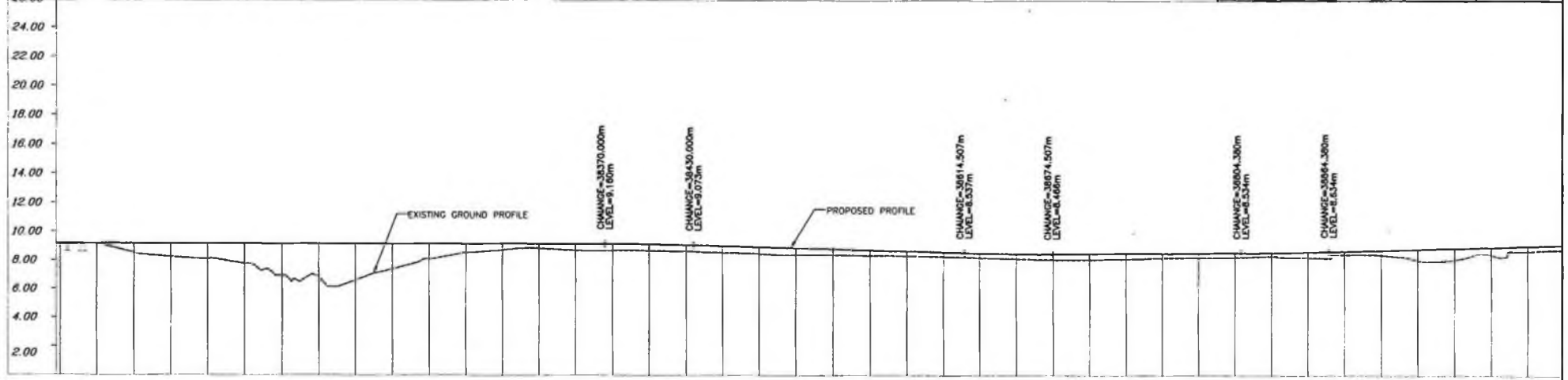
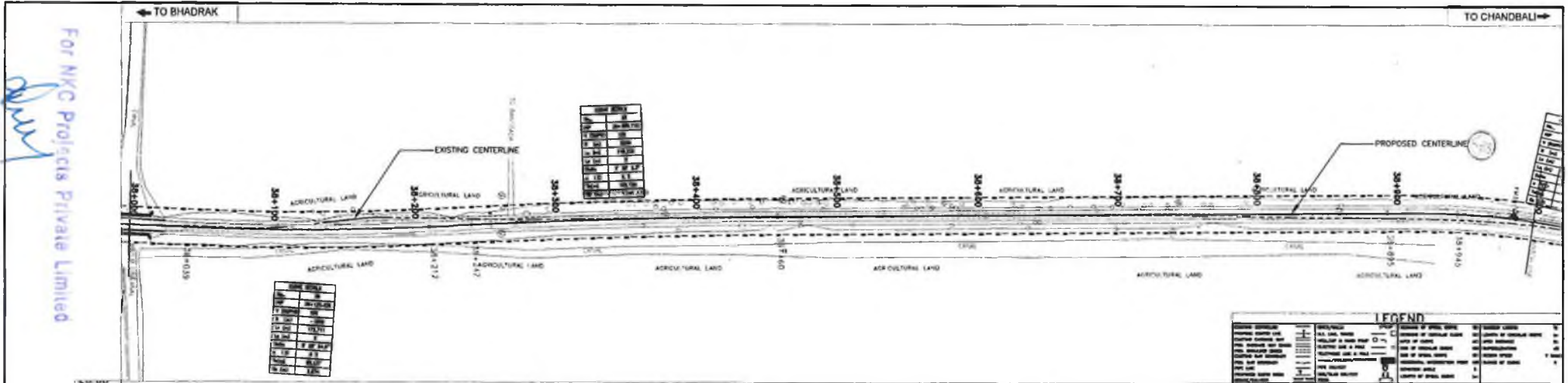
SCALE
H.T.S

DRAWING TITLE
PLAN AND LONGITUDINAL SECTION (SH-9) KM 36/000 TO KM 37/000
DPI NUMBER: OSRP/CEG/SH9/P02B/P&P/10
REV: 10 OF 18



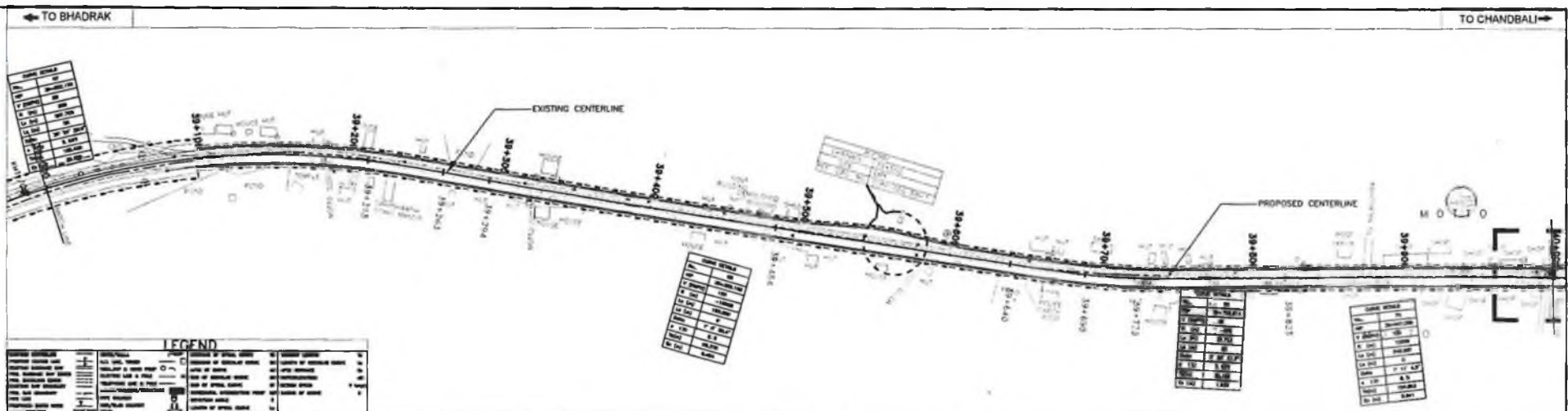
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PROPOSED ROAD LEVEL (m)	9.248, 6.824, 6.336, 6.287, 6.377, 6.492, 7.440, 7.752, 7.857, 7.803, 7.881, 7.954, 7.969, 7.899, 7.942, 7.978, 7.902, 7.864, 7.847, 7.868, 7.831, 7.836, 7.857, 7.845, 7.786, 7.786, 7.865, 7.803, 7.785, 7.766, 7.701, 7.597, 7.626, 7.476, 7.304, 7.402, 7.458, 9.011, 9.101, 9.150, 8.036, 8.530, 9.140, 9.161
EXISTING LEVEL (m)	9.248, 6.824, 6.336, 6.287, 6.377, 6.492, 7.440, 7.752, 7.857, 7.803, 7.881, 7.954, 7.969, 7.899, 7.942, 7.978, 7.902, 7.864, 7.847, 7.868, 7.831, 7.836, 7.857, 7.845, 7.786, 7.786, 7.865, 7.803, 7.785, 7.766, 7.701, 7.597, 7.626, 7.476, 7.304, 7.402, 7.458, 9.011, 9.101, 9.150, 8.036, 8.530, 9.140, 9.161
HORIZONTAL ALIGNMENT	L=181.244m, L=90.000m, R=500.000m, L=235.890m, L=90.000m, L=165.425m, R=5000.000m, L=245.111m, L=95.316m
VERTICAL PROFILE	L=426.263m, G=-0.130, L=60.000m, G=5.690, L=393.542m, G=-0.064, L=60.000m, G=0.520, L=146.039m, L=80.000m
SUPERELEVATION / CROSSFALL	Q=2.500, Q=5.690
CHAINAGE	7000.000, 7025.000, 7050.000, 7075.000, 7100.000, 7125.000, 7150.000, 7175.000, 7200.000, 7225.000, 7250.000, 7275.000, 7300.000, 7325.000, 7350.000, 7375.000, 7400.000, 7425.000, 7450.000, 7475.000, 7500.000, 7525.000, 7550.000, 7575.000, 7600.000, 7625.000, 7650.000, 7675.000, 7700.000, 7725.000, 7750.000, 7775.000, 7800.000, 7825.000, 7850.000, 7875.000, 7900.000, 7925.000, 7950.000, 7975.000, 8000.000

<p>DATE: 20/01/2019</p> <p>REVISION: 01</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 02</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 03</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 04</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 05</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 06</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 07</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 08</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 09</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 10</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 11</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 12</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 13</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 14</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 15</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 16</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 17</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 18</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 19</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 20</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 21</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 22</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 23</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 24</p> <p>BY: [Signature]</p>	<p>DATE: 20/01/2019</p> <p>REVISION: 25</p> <p>BY: [Signature]</p> <p>DATE: 20/01/2019</p> <p>REVISION: 26</p> <p>BY: [Signature]</p>
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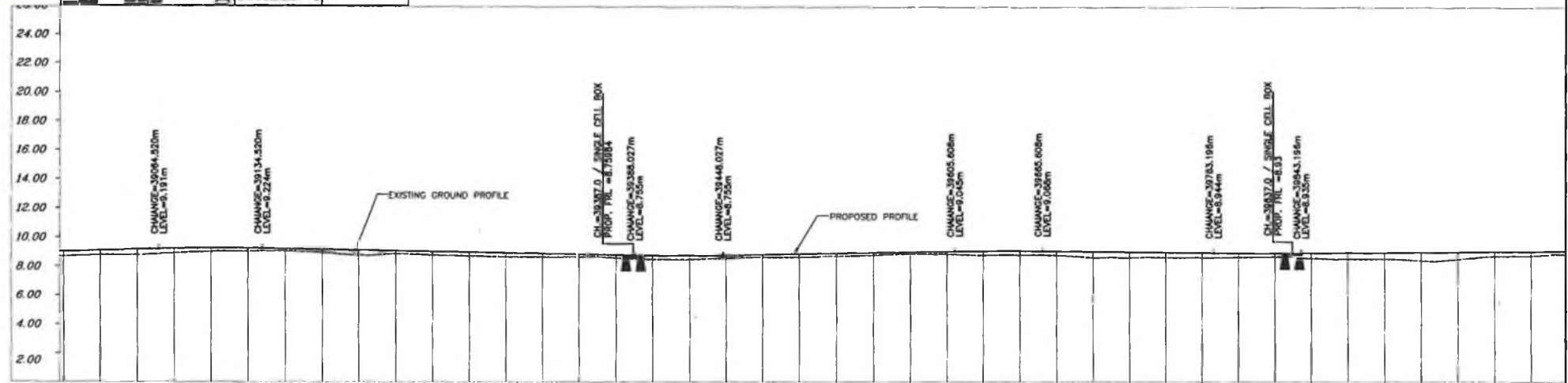
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PROPOSED ROAD LEVEL (m)	9.160, 9.160, 9.160, 9.160, 9.160, 9.160, 9.160, 9.160, 9.160, 9.160, 9.160, 9.159, 9.138, 9.087, 9.015, 8.942, 8.870, 8.797, 8.724, 8.652, 8.579, 8.510, 8.470, 8.466, 8.425, 8.479, 8.492, 8.506, 8.519, 8.532, 8.553, 8.597, 8.663, 8.733, 8.803, 8.872, 8.942, 9.012
EXISTING LEVEL (m)	8.181, 8.157, 8.539, 8.246, 8.096, 7.763, 6.913, 6.863, 6.588, 7.371, 8.124, 8.545, 8.727, 8.847, 8.720, 6.698, 6.663, 6.638, 8.547, 8.472, 8.379, 8.371, 8.351, 8.319, 8.253, 8.184, 8.107, 8.063, 8.025, 8.103, 8.177, 8.207, 8.217, 8.316, 8.199, 8.434, 8.402, 8.034, 8.060, 8.402, 8.651
HORIZONTAL ALIGNMENT	5m, R=1800.000m L=172.741m, L, R=5000.000m L=218.222m, L=435.190m, L=50.000m
VERTICAL PROFILE	L=427.281m G=-0.000, L=60.000m, L=184.507m G=-0.290, L=60.000m, G=0.053 L=129.873m, L=60.000m, G=0.279 L=200.140m
SUPERELEVATION / CROSSFALL	Q=2.500
CHAINAGE	82000.000, 82050.000, 82100.000, 82150.000, 82200.000, 82250.000, 82300.000, 82350.000, 82400.000, 82450.000, 82500.000, 82550.000, 82600.000, 82650.000, 82700.000, 82750.000, 82800.000, 82850.000, 82900.000, 82950.000, 83000.000, 83050.000, 83100.000, 83150.000, 83200.000, 83250.000, 83300.000, 83350.000, 83400.000, 83450.000, 83500.000, 83550.000, 83600.000, 83650.000, 83700.000, 83750.000, 83800.000, 83850.000, 83900.000, 83950.000, 84000.000, 84050.000, 84100.000, 84150.000, 84200.000, 84250.000, 84300.000, 84350.000, 84400.000, 84450.000, 84500.000, 84550.000, 84600.000, 84650.000, 84700.000, 84750.000, 84800.000, 84850.000, 84900.000, 84950.000, 85000.000, 85050.000, 85100.000, 85150.000, 85200.000, 85250.000, 85300.000, 85350.000, 85400.000, 85450.000, 85500.000, 85550.000, 85600.000, 85650.000, 85700.000, 85750.000, 85800.000, 85850.000, 85900.000, 85950.000, 86000.000, 86050.000, 86100.000, 86150.000, 86200.000, 86250.000, 86300.000, 86350.000, 86400.000, 86450.000, 86500.000, 86550.000, 86600.000, 86650.000, 86700.000, 86750.000, 86800.000, 86850.000, 86900.000, 86950.000, 87000.000, 87050.000, 87100.000, 87150.000, 87200.000, 87250.000, 87300.000, 87350.000, 87400.000, 87450.000, 87500.000, 87550.000, 87600.000, 87650.000, 87700.000, 87750.000, 87800.000, 87850.000, 87900.000, 87950.000, 88000.000, 88050.000, 88100.000, 88150.000, 88200.000, 88250.000, 88300.000, 88350.000, 88400.000, 88450.000, 88500.000, 88550.000, 88600.000, 88650.000, 88700.000, 88750.000, 88800.000, 88850.000, 88900.000, 88950.000, 89000.000, 89050.000, 89100.000, 89150.000, 89200.000, 89250.000, 89300.000, 89350.000, 89400.000, 89450.000, 89500.000, 89550.000, 89600.000, 89650.000, 89700.000, 89750.000, 89800.000, 89850.000, 89900.000, 89950.000, 90000.000, 90050.000, 90100.000, 90150.000, 90200.000, 90250.000, 90300.000, 90350.000, 90400.000, 90450.000, 90500.000, 90550.000, 90600.000, 90650.000, 90700.000, 90750.000, 90800.000, 90850.000, 90900.000, 90950.000, 91000.000, 91050.000, 91100.000, 91150.000, 91200.000, 91250.000, 91300.000, 91350.000, 91400.000, 91450.000, 91500.000, 91550.000, 91600.000, 91650.000, 91700.000, 91750.000, 91800.000, 91850.000, 91900.000, 91950.000, 92000.000, 92050.000, 92100.000, 92150.000, 92200.000, 92250.000, 92300.000, 92350.000, 92400.000, 92450.000, 92500.000, 92550.000, 92600.000, 92650.000, 92700.000, 92750.000, 92800.000, 92850.000, 92900.000, 92950.000, 93000.000, 93050.000, 93100.000, 93150.000, 93200.000, 93250.000, 93300.000, 93350.000, 93400.000, 93450.000, 93500.000, 93550.000, 93600.000, 93650.000, 93700.000, 93750.000, 93800.000, 93850.000, 93900.000, 93950.000, 94000.000, 94050.000, 94100.000, 94150.000, 94200.000, 94250.000, 94300.000, 94350.000, 94400.000, 94450.000, 94500.000, 94550.000, 94600.000, 94650.000, 94700.000, 94750.000, 94800.000, 94850.000, 94900.000, 94950.000, 95000.000, 95050.000, 95100.000, 95150.000, 95200.000, 95250.000, 95300.000, 95350.000, 95400.000, 95450.000, 95500.000, 95550.000, 95600.000, 95650.000, 95700.000, 95750.000, 95800.000, 95850.000, 95900.000, 95950.000, 96000.000, 96050.000, 96100.000, 96150.000, 96200.000, 96250.000, 96300.000, 96350.000, 96400.000, 96450.000, 96500.000, 96550.000, 96600.000, 96650.000, 96700.000, 96750.000, 96800.000, 96850.000, 96900.000, 96950.000, 97000.000, 97050.000, 97100.000, 97150.000, 97200.000, 97250.000, 97300.000, 97350.000, 97400.000, 97450.000, 97500.000, 97550.000, 97600.000, 97650.000, 97700.000, 97750.000, 97800.000, 97850.000, 97900.000, 97950.000, 98000.000, 98050.000, 98100.000, 98150.000, 98200.000, 98250.000, 98300.000, 98350.000, 98400.000, 98450.000, 98500.000, 98550.000, 98600.000, 98650.000, 98700.000, 98750.000, 98800.000, 98850.000, 98900.000, 98950.000, 99000.000, 99050.000, 99100.000, 99150.000, 99200.000, 99250.000, 99300.000, 99350.000, 99400.000, 99450.000, 99500.000, 99550.000, 99600.000, 99650.000, 99700.000, 99750.000, 99800.000, 99850.000, 99900.000, 99950.000, 100000.000

SPB CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOU COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520889, 2521889, 2520558 Fax: 2521345, e-mail: ceg@cegltds.com		DESIGN REVIEW CONSULTANT : LEA Associates South Asia Pvt. Ltd., India 9-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S.		DRAWING TITLE : PLAN AND LONGITUDINAL SECTION (SH-9) KM 38/000 TO KM 39/000	
NO. DATE REVISION BY R1 2018-07-20 SECOND REVISION JASA R2 2018-07-20 FIRST REVISION OND WHAT R3 2018-07-20 ORIGINAL CES		PREPARED : RAJU MATHUR NAR MEHRA (JC) NAR MEHRA (JC)		CHECKED : S.P. PATEL (CE) N.K. PRADHAN (JC)		APPROVED : S.P. PATEL (CE)		SHEET NO. : OSRP/CEG/SH9/P02B/P&P/12		(SHEET 12 OF 18) REV. NO.	



LEGEND

EXISTING CENTERLINE	PROPOSED CENTERLINE
EXISTING GROUND PROFILE	PROPOSED PROFILE
UTILITY LINES	STRUCTURES
...	...



DATUM = 0.00	9.012	9.081	9.151	9.217	9.249	9.229	9.196	9.149	9.103	9.011	8.964	8.918	8.872	8.826	8.780	8.738	8.729	8.759	8.805	8.851	8.897	8.943	8.989	9.035	9.071	9.078	9.058	9.032	9.013	9.006	8.979	8.953	8.931	8.926	8.940	8.958	8.976	8.995	9.013	9.031	9.050
PROPOSED ROAD LEVEL (m)	6.651	8.795	8.773	8.888	9.002	9.028	9.045	9.029	8.769	8.858	8.770	8.703	8.646	8.630	8.647	8.572	8.472	8.488	8.567	8.635	8.636	8.705	8.780	8.855	8.851	8.792	8.799	8.780	8.813	8.810	8.817	8.821	8.839	8.881	8.570	8.516	8.530	8.412	8.509	8.714	8.733
EXISTING LEVEL (m)	R=500.000m L=287.700m		R=10000 L=190.550m		L=70.000m		L=253.507m G=-0.185		L=60.000m		G=0.184 L=157.581m		L=60.000m		L=117.588m G=-0.100		L=60.000m		R=13000.000m L=248.097m																						
HORIZONTAL ALIGNMENT	Q=5.690		Q=2.500		Q=5.690																																				
VERTICAL PROFILE	Q=5.690		Q=2.500		Q=5.690																																				
SUPERELEVATION / CROSSFALL	0.00000000		0.00000000		0.00000000		0.00000000		0.00000000		0.00000000		0.00000000		0.00000000		0.00000000		0.00000000																						
CHAINAGE	38000.000	38025.000	38050.000	38075.000	38100.000	38125.000	38150.000	38175.000	38200.000	38225.000	38250.000	38275.000	38300.000	38325.000	38350.000	38375.000	38400.000	38425.000	38450.000	38475.000	38500.000	38525.000	38550.000	38575.000	38600.000	38625.000	38650.000	38675.000	38700.000	38725.000	38750.000	38775.000	38800.000	38825.000	38850.000	38875.000	38900.000	38925.000	38950.000	38975.000	39000.000

REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				SPR CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12/MDA COLONY, MALVIYA NAGAR JALPETH-17 +91-141-2520899, 2521898, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com				CLIENT: ODISHA WORKS DEPARTMENT				PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE : N.T.S.		DRAWING TITLE : PLAN AND LONGITUDINAL SECTION (SH-9) KM 39/000 TO KM 40/000		DRWG NUMBER : OSRP/CEG/SH9/P02B/P&P/13		REV. NO.	
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M/s NKC Projects Pvt. Ltd. (Contractor)

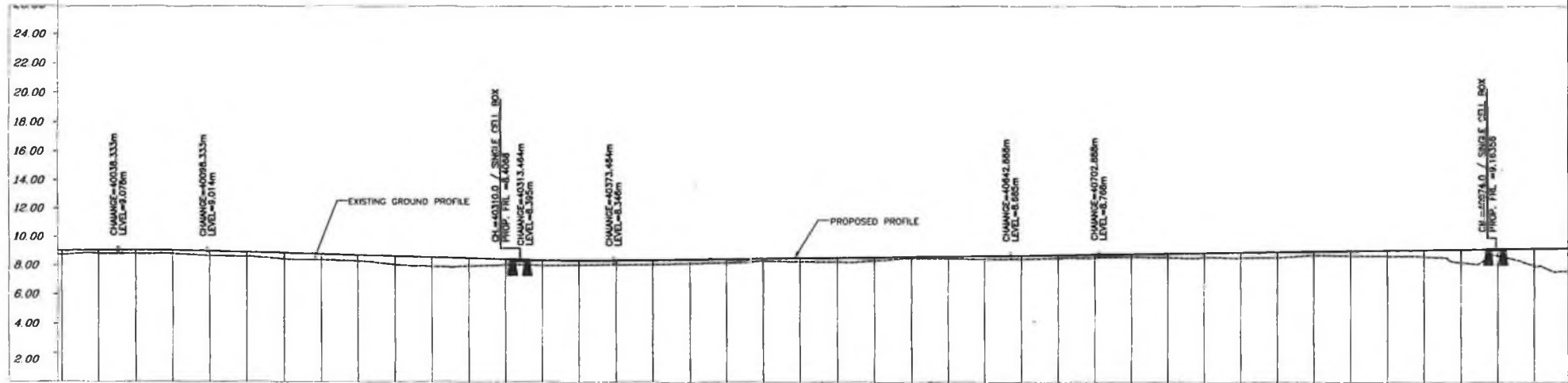
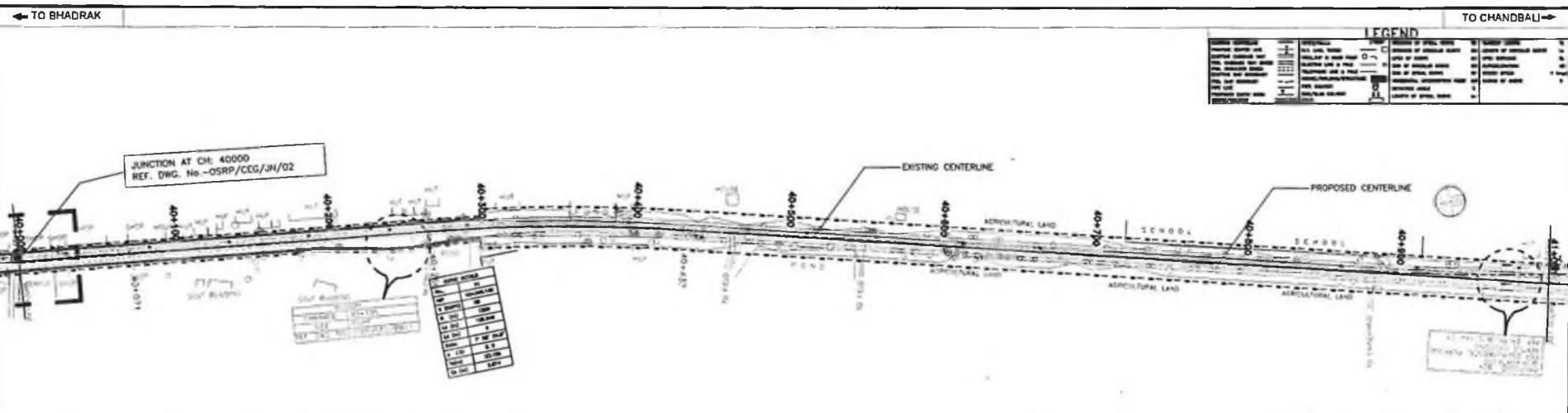
Director

Page 22 of 92

Chief Engineer, Deptt. of Road, Odisha (Employee)

For NKC Projects Private Limited

[Signature]



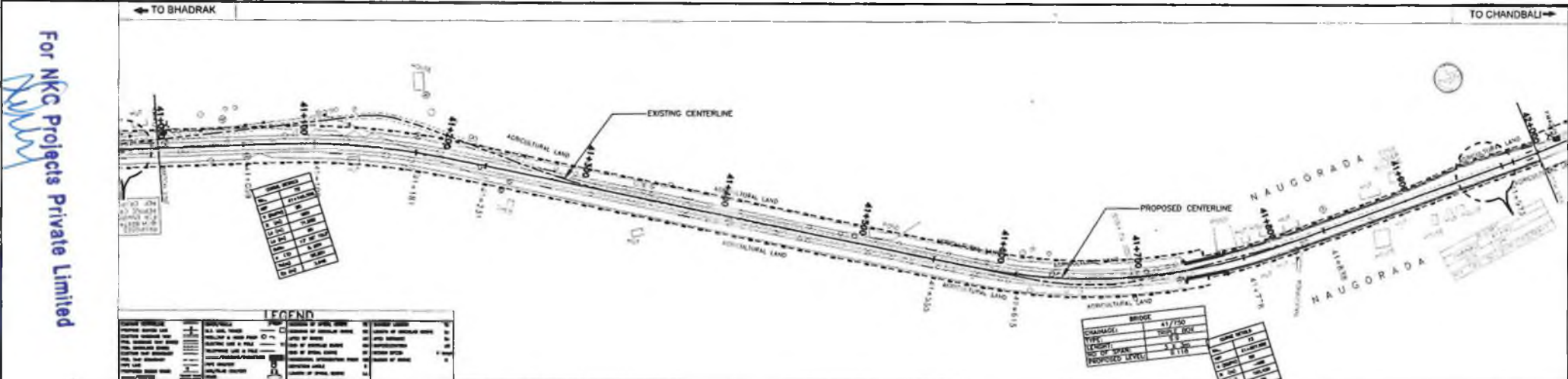
JATUM = 0.00	
PROPOSED ROAD LEVEL (m)	8.733 9.050 9.068 9.082 9.064 9.009 8.937 8.865 8.793 8.721 8.649 8.577 8.506 8.434 8.366 8.336 8.348 8.360 8.411 8.442 8.474 8.505 8.537 8.568 8.600 8.631 8.662 8.694 8.727 8.762 8.799 8.838 8.872 8.909 8.945 8.982 9.019 9.055 9.092 9.129 9.165 9.202
EXISTING LEVEL (m)	8.733 8.831 8.818 8.813 8.687 8.630 8.441 8.387 8.299 8.061 7.943 7.941 8.028 8.008 8.019 8.040 8.070 8.124 8.189 8.318 8.238 8.244 8.332 8.488 8.477 8.441 8.446 8.501 8.538 8.594 8.550 8.569 8.533 8.562 8.705 8.682 8.653 8.616 8.220 8.718 8.010
HORIZONTAL ALIGNMENT	L=194.702m R=1200.000m L=185.946m L=627.313m
VERTICAL PROFILE	L=60.000m L=215.131m G=-0.288 L=60.000m G=0.126 L=269.423m L=60.000m C=0.147 L=391.428m
SUPERELEVATION / CROSSFALL	Q=2.500
CHAINAGE	0000.000 0000.000 0005.000 0010.000 0015.000 0020.000 0025.000 0030.000 0035.000 0040.000 0045.000 0050.000 0055.000 0060.000 0065.000 0070.000 0075.000 0080.000 0085.000 0090.000 0095.000 0100.000 0105.000 0110.000 0115.000 0120.000 0125.000 0130.000 0135.000 0140.000 0145.000 0150.000 0155.000 0160.000 0165.000 0170.000 0175.000 0180.000 0185.000 0190.000 0195.000 0200.000 0205.000 0210.000 0215.000 0220.000 0225.000 0230.000 0235.000 0240.000 0245.000 0250.000 0255.000 0260.000 0265.000 0270.000 0275.000 0280.000 0285.000 0290.000 0295.000 0300.000 0305.000 0310.000 0315.000 0320.000 0325.000 0330.000 0335.000 0340.000 0345.000 0350.000 0355.000 0360.000 0365.000 0370.000 0375.000 0380.000 0385.000 0390.000 0395.000 0400.000 0405.000 0410.000

DPR CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAJPUR-17 Tel: 491-141-2520889, 2521889, 2520558 Fax: 2521348, e-mail: ceg@cegin.co.in		DESIGN REVIEW CONSULTANT : CEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S.		DRAWING TITLE : PLAN AND LONGITUDINAL SECTION (SH-9) KM 40/000 TO KM 41/000	
NO. 01-2019 SECOND REVISION DATE 01/05/2019 BY VIKRANT PRADHAN (AE) CHECKED:		NO. 01-2019 FIRST REVISION DATE 01/05/2019 BY VIKRANT PRADHAN (AE) CHECKED:		NO. 01-2019 ORIGINAL DATE 01/05/2019 BY VIKRANT PRADHAN (AE) CHECKED:		NO. 01-2019 ORIGINAL DATE 01/05/2019 BY VIKRANT PRADHAN (AE) CHECKED:		NO. 01-2019 ORIGINAL DATE 01/05/2019 BY VIKRANT PRADHAN (AE) CHECKED:		NO. 01-2019 ORIGINAL DATE 01/05/2019 BY VIKRANT PRADHAN (AE) CHECKED:	

For NKC Projects Private Limited
 Director
 MNC Projects Pvt. Ltd
 (Contractor)

DPI & R...
 DPI & R...
 Chief Engineer
 Odisha Works Department

LEGEND	
[Symbol]	Proposed Centerline
[Symbol]	Existing Centerline
[Symbol]	Agricultural Land
[Symbol]	School
[Symbol]	Water Body
[Symbol]	Setback Line
[Symbol]	Right of Way Line
[Symbol]	Utility Pole
[Symbol]	Manhole
[Symbol]	Drainage Channel
[Symbol]	Proposed Road
[Symbol]	Existing Road
[Symbol]	Proposed Footpath
[Symbol]	Existing Footpath
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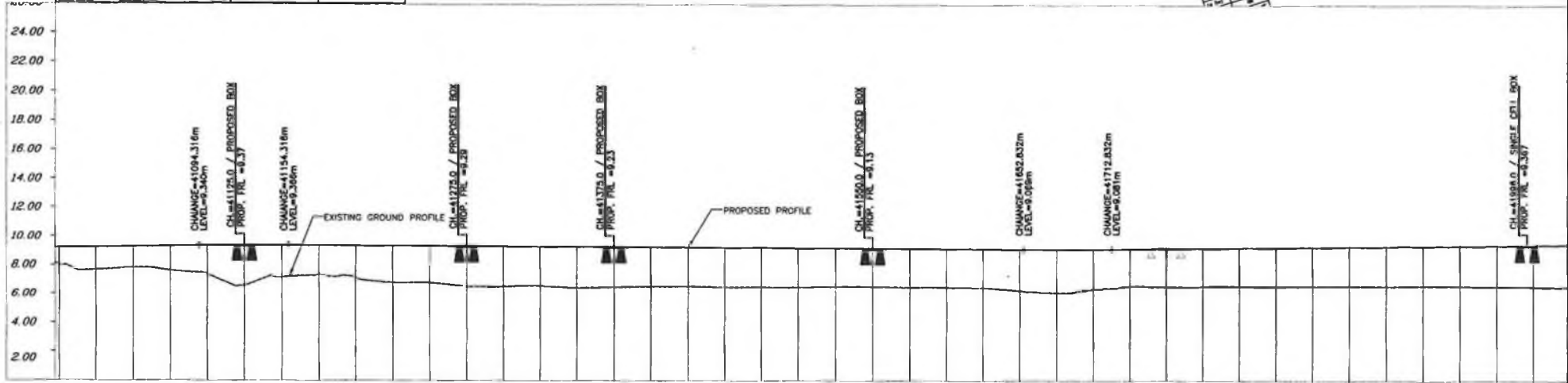


LEGEND

—	EXISTING CENTERLINE
- - -	PROPOSED CENTERLINE
...	EXISTING GROUND PROFILE
—	PROPOSED PROFILE
...	AGRICULTURAL LAND
...	RURAL LAND

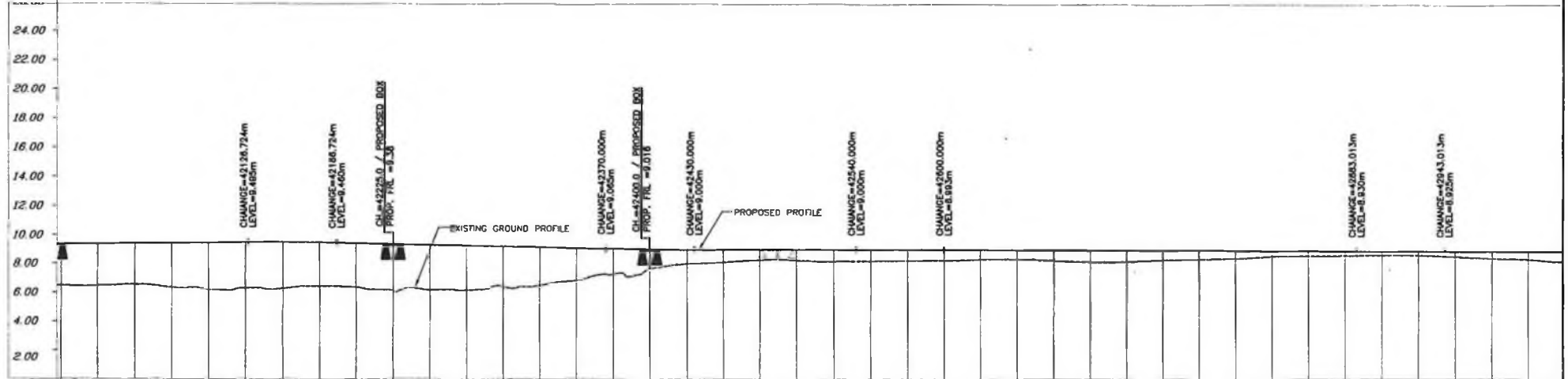
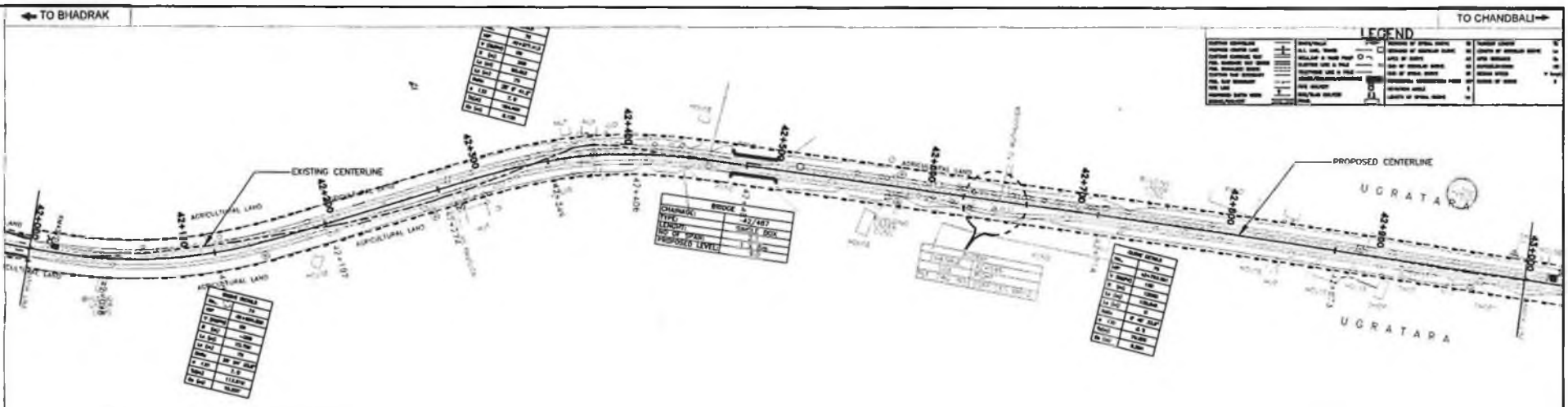
BRIDGE

CHANGING	41/750
TYPE	TRUSS BOX
HEIGHT	3.75
PROPOSED LEVEL	8.118



DATUM = 0.00											
PROPOSED ROAD LEVEL (m)	9.202, 9.238, 9.275, 9.312, 9.348, 9.389, 9.368, 9.368, 9.354, 9.339, 9.324, 9.309, 9.294, 9.279, 9.264, 9.249, 9.235, 9.220, 9.205, 9.190, 9.175, 9.160, 9.145, 9.130, 9.115, 9.100, 9.085, 9.071, 9.062, 9.070, 9.093, 9.118, 9.143, 9.168, 9.193, 9.218, 9.243, 9.268, 9.293, 9.318, 9.343, 9.368										
EXISTING LEVEL (m)	8.010, 7.680, 7.601, 7.619, 7.348, 6.579, 7.120, 7.351, 7.144, 6.779, 6.768, 6.497, 6.494, 6.537, 6.411, 6.449, 6.493, 6.495, 6.439, 6.440, 6.448, 6.474, 6.475, 6.434, 6.445, 6.384, 6.197, 6.068, 6.293, 6.517, 6.487, 6.485, 6.512, 6.502, 6.512, 6.521, 6.516, 6.530, 6.526, 6.505, 6.478										
HORIZONTAL ALIGNMENT	<table border="1"> <tr> <td>R=500.000m</td> <td>L=50.000m</td> <td>L=71.906m</td> <td>L=400.000m</td> <td>L=373.625m</td> <td>L=60.000m</td> <td>L=163.420m</td> <td>L=60.000m</td> <td>L=134.520m</td> <td>L=75.000m</td> </tr> </table>	R=500.000m	L=50.000m	L=71.906m	L=400.000m	L=373.625m	L=60.000m	L=163.420m	L=60.000m	L=134.520m	L=75.000m
R=500.000m	L=50.000m	L=71.906m	L=400.000m	L=373.625m	L=60.000m	L=163.420m	L=60.000m	L=134.520m	L=75.000m		
VERTICAL PROFILE	<table border="1"> <tr> <td>L=60.000m</td> <td>L=498.516m</td> <td>L=60.000m</td> <td>G=0.100</td> <td>L=413.892m</td> </tr> <tr> <td colspan="2">G=-0.050</td> <td colspan="3">G=2.500</td> </tr> </table>	L=60.000m	L=498.516m	L=60.000m	G=0.100	L=413.892m	G=-0.050		G=2.500		
L=60.000m	L=498.516m	L=60.000m	G=0.100	L=413.892m							
G=-0.050		G=2.500									
SUPERELEVATION / CROSSFALL	<table border="1"> <tr> <td>Q=5.890</td> <td>Q=2.500</td> <td>Q=7.000</td> <td>Q=2.500</td> </tr> </table>	Q=5.890	Q=2.500	Q=7.000	Q=2.500						
Q=5.890	Q=2.500	Q=7.000	Q=2.500								
CHAINAGE	000.000.000, 1025.000, 1050.000, 1075.000, 1100.000, 1125.000, 1150.000, 1175.000, 1200.000, 1225.000, 1250.000, 1275.000, 1300.000, 1325.000, 1350.000, 1375.000, 1400.000, 1425.000, 1450.000, 1475.000, 1500.000, 1525.000, 1550.000, 1575.000, 1600.000, 1625.000, 1650.000, 1675.000, 1700.000, 1725.000, 1750.000, 1775.000, 1800.000, 1825.000, 1850.000, 1875.000, 1900.000, 1925.000, 1950.000, 1975.000, 2000.000										

FOR NKC Projects Private Limited (Contractor)				Director				Chief Engineer, DPI & Roads, Odisha (Employer)															
DSR CONSULTANT : CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOH COLONY, MALVIYA NAGAR JAPUR-17 Tel. 491-141-2520899, 2521899, 2520556 Fax 2521348, e-mail: ceg@cegindia.com				DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1 st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATMURA ROAD, NEW DELHI-110044				CLIENT : ODISHA WORKS DEPARTMENT				PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE : N.T.S.				DRAWING TITLE : PLAN AND LONGITUDINAL SECTION (SH-9) KM 41/000 TO KM 42/000 (SHEET 15 OF 18)			
DRG. NO. : OSRP/CEG/SH9/P02B/P/15				REV. NO. :																			



DATUM = 0.00

PROPOSED ROAD LEVEL (m)	9.365	9.393	9.418	9.443	9.468	9.493	9.504	9.482	9.431	9.377	9.324	9.270	9.216	9.162	9.108	9.054	9.016	9.000	9.000	9.000	9.000	9.000	9.000	8.998	8.993	8.986	8.982	8.977	8.971	8.965	8.960	8.954	8.949	8.943	8.937	8.932	8.927	8.925	8.925	8.927	8.928
EXISTING LEVEL (m)	6.479	6.481	6.543	6.341	6.196	6.302	6.270	6.428	6.356	6.122	6.181	6.157	6.377	6.487	6.877	7.304	7.722	8.019	8.120	8.259	8.248	8.179	8.201	8.224	8.243	8.325	8.343	8.252	8.168	8.179	8.287	8.330	8.412	8.555	8.596	8.625	8.659	8.654	8.558	8.434	8.378
HORIZONTAL ALIGNMENT	R=300.000m		L=75.000m		L=75.000m		L=77.571m		L=75.000m		R=300.000m		L=75.000m		L=56.485m		L=75.000m		L=233.555m		R=12000.000m		L=159.049m		L=187.747m																
VERTICAL PROFILE	L=60.000m		L=183.276m G=-0.216		L=60.000m		G=0.000 L=110.000m		L=60.000m		L=283.013m G=-0.022		L=60.000m																												
SUPERELEVATION / CROSSFALL	Q=7.000		Q=2.500		Q=7.000		Q=2.500		Q=2.500		Q=2.500		Q=2.500																												
CHAINAGE	2000.000	2025.000	2050.000	2075.000	2100.000	2125.000	2150.000	2175.000	2200.000	2225.000	2250.000	2275.000	2300.000	2325.000	2350.000	2375.000	2400.000	2425.000	2450.000	2475.000	2500.000	2525.000	2550.000	2575.000	2600.000	2625.000	2650.000	2675.000	2700.000	2725.000	2750.000	2775.000	2800.000	2825.000	2850.000	2875.000	2900.000	2925.000	2950.000	2975.000	3000.000

REVISIONS: NO. DATE REVISION BY 01 JAN-2013 SECOND REVISION JASA 02 JAN-2013 FIRST REVISION ODB VHAJ 03 JUNE 2008 ORIGINAL ODB		PREPARED: ODB CHECKED: ODB APPROVED: ODB		DESIGN CONSULTANT: CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOU COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520809, 2521809, 2520555 Fax: 2521345, e-mail: ceg@cegroup.com		DESIGN CONSULTANT: LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 8th FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURBA ROAD, NEW DELHI-110044		CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: PLAN AND LONGITUDINAL SECTION (SH-9) KM 42/000 TO KM 43/000	
SHEET NUMBER: OSRP/CEG/SH/9/P02B/P&P/16										(SHEET 18 OF 18)		REV: 03			

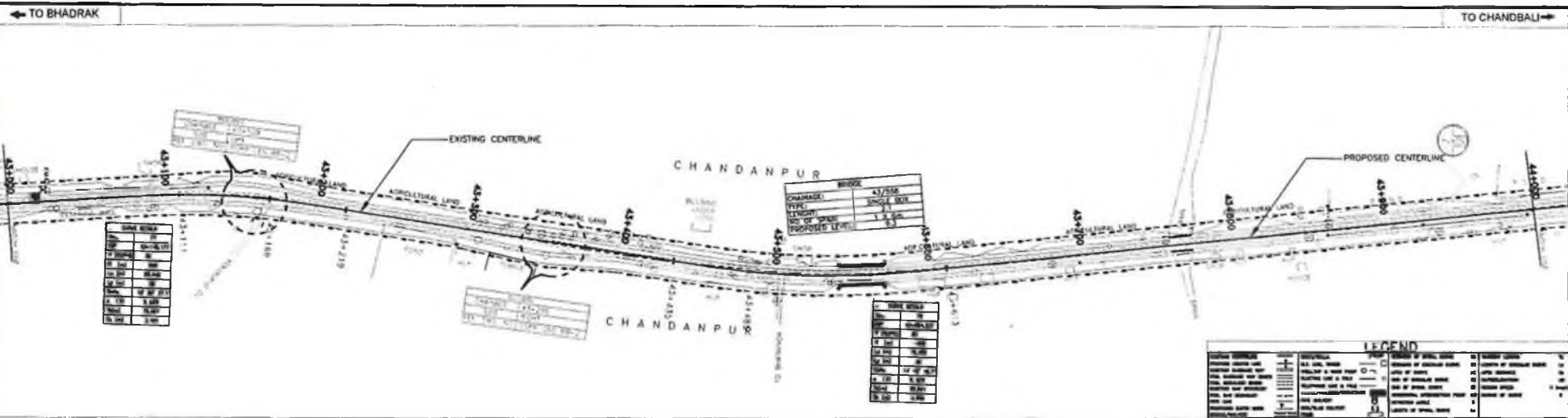
M/s NKC Projects Pvt. Ltd
(Contractor)

Director

Page 25 of 92

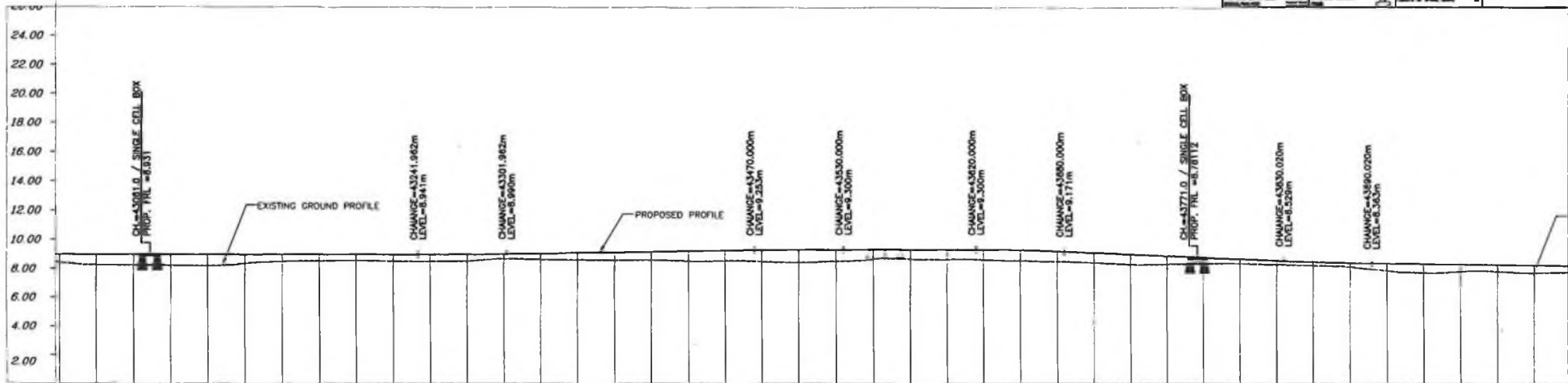
For NKC Projects Private Limited

Chief Engineer,
DPI & Roads, Odisha
(Employer)



LEGEND

Proposed Road	Existing Road	Proposed Centerline	Existing Centerline
Right of Way	Right of Way	Right of Way	Right of Way
Right of Way	Right of Way	Right of Way	Right of Way
Right of Way	Right of Way	Right of Way	Right of Way
Right of Way	Right of Way	Right of Way	Right of Way



DATUM = 0.00	
PROPOSED ROAD LEVEL (m)	8.928 8.930 8.931 8.932 8.934 8.935 8.936 8.938 8.941 8.943 8.957 8.987 9.028 9.085 9.104 9.143 9.183 9.222 9.261 9.288 9.300 9.300 9.300 9.300 9.299 9.288 9.192 9.086 8.979 8.871 8.764 8.657 8.550 8.453 8.387 8.351 8.320 8.289 8.258 8.227
EXISTING LEVEL (m)	8.378 8.216 8.198 8.172 8.138 8.308 8.458 8.496 8.519 8.539 8.480 8.470 8.498 8.687 8.619 8.574 8.555 8.580 8.486 8.517 8.478 8.415 8.499 8.641 8.649 8.613 8.603 8.519 8.476 8.382 8.263 8.284 8.335 8.325 8.260 8.208 8.110 8.387 7.843 7.700 7.786 7.784 7.687
HORIZONTAL ALIGNMENT	R=500.000m L=50.000m L=58.446m L=90.000m L=215.888m L=50.000m R=500.000m L=78.402m L=50.000m L=749.096m
VERTICAL PROFILE	G=0.008 L=298.949m L=60.000m G=0.157 L=168.038m L=60.000m G=0.000 L=90.000m L=60.000m L=150.020m G=-0.429 L=60.000m L=240.473 G=-0.12
SUPERELEVATION / CROSSFALL	Q=5.690 Q=2.500 Q=5.690 Q=2.500
CHAINAGE	3000.000 3025.000 3050.000 3075.000 3100.000 3125.000 3150.000 3175.000 3200.000 3225.000 3250.000 3275.000 3300.000 3325.000 3350.000 3375.000 3400.000 3425.000 3450.000 3475.000 3500.000 3525.000 3550.000 3575.000 3600.000 3625.000 3650.000 3675.000 3700.000 3725.000 3750.000 3775.000 3800.000 3825.000 3850.000 3875.000 3900.000 3925.000 3950.000 3975.000 4000.000

<p>REVISIONS:</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>CHKD.</th> <th>APPVED.</th> </tr> <tr> <td>1</td> <td>JAN-2013</td> <td>ISSUE FOR TENDER</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>2</td> <td>JUNE 2008</td> <td>ORIGINAL</td> <td>...</td> <td>...</td> <td>...</td> </tr> </table>	NO.	DATE	REVISION	BY	CHKD.	APPVED.	1	JAN-2013	ISSUE FOR TENDER	2	JUNE 2008	ORIGINAL	<p>DPR CONSULTANT:</p> <p>CBC</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 +91-141-2520899, 2521899, 2520558 Fax: 2521348, e-mail: ceg@ceginfo.com</p>	<p>DESIGN REVIEW CONSULTANT:</p> <p>LEA</p> <p>LEA Associates South Aola Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044</p>	<p>CLIENT:</p> <p>ODISHA WORKS DEPARTMENT</p>	<p>PROJECT:</p> <p>CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B</p>	<p>SCALE:</p> <p>N.T.S.</p>	<p>DRAWING TITLE:</p> <p>PLAN AND LONGITUDINAL SECTION (SH-9) KM 43/000 TO KM 44/000</p>
NO.	DATE	REVISION	BY	CHKD.	APPVED.																			
1	JAN-2013	ISSUE FOR TENDER																			
2	JUNE 2008	ORIGINAL																			

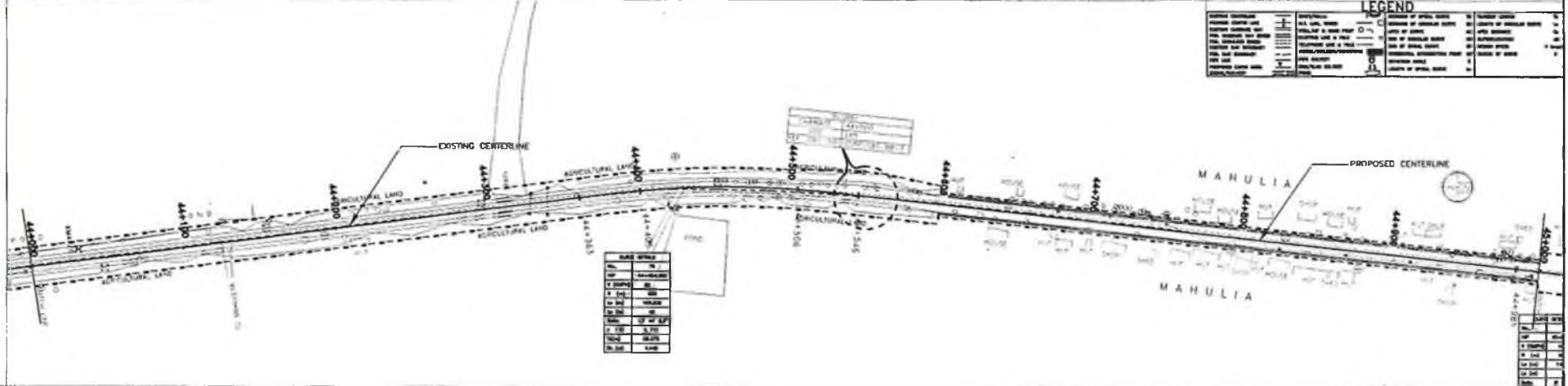
For NKC Projects Private Limited
Director
MVK Projects Pvt. Ltd. (Contractor)

Chief Engineer, DPI & Roads, Odisha (Employer)

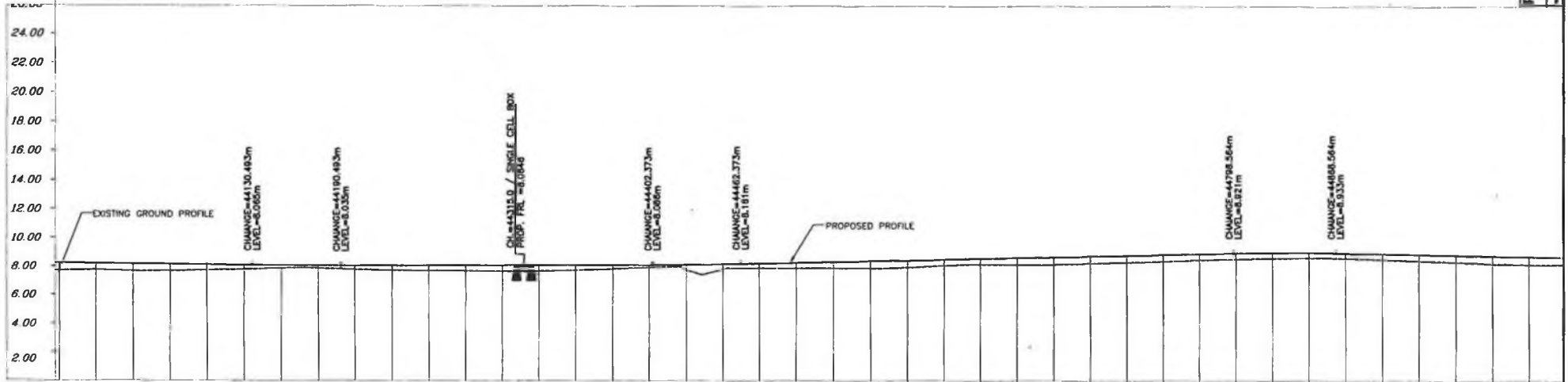
← TO BHADRAK

TO CHANDBALI →

LEGEND			
	Proposed Road Level		Existing Ground Profile
	Horizontal Alignment		Vertical Profile
	Super-elevation		Chainage
	Right of Way		Agricultural Land
	Building		Canal
	Road		Drainage
	Boundary		Survey Station
	Level Marker		Spot Height
	Proposed Centerline		Existing Centerline



ROAD WIDTH	
1.00	1.00
2.00	2.00
3.00	3.00
4.00	4.00
5.00	5.00
6.00	6.00
7.00	7.00
8.00	8.00
9.00	9.00
10.00	10.00



DATUM = 0.00	
PROPOSED ROAD LEVEL (m)	7.827 8.196 8.165 8.134 8.103 8.072 8.046 8.034 8.037 8.043 8.049 8.055 8.061 8.067 8.073 8.079 8.085 8.100 8.135 8.189 8.246 8.302 8.359 8.415 8.472 8.528 8.585 8.641 8.698 8.755 8.811 8.868 8.924 8.980 8.958 8.920 8.872 8.824 8.776 8.728 8.680
EXISTING LEVEL (m)	7.687 7.738 7.657 7.668 7.714 7.769 7.839 7.892 7.765 7.706 7.673 7.681 7.642 7.658 7.720 7.806 7.912 7.739 7.767 7.850 7.856 7.864 7.848 7.925 8.048 8.131 8.112 8.133 8.192 8.278 8.390 8.440 8.507 8.559 8.584 8.554 8.479 8.388 8.294 8.188 8.128
HORIZONTAL ALIGNMENT	6m L=40.000m R=600.000m L=40.000m L=103.832m L=438.536m
VERTICAL PROFILE	240.473m G=-0.124 L=60.000m G=0.024 L=211.850m L=60.000m G=0.238 L=336.191m L=70.000m L=299.2 G=0
SUPERELEVATION /CROSSFALL	S=2.500 Q=6.740
CHAINAGE	4000.000 4025.000 4050.000 4075.000 4100.000 4125.000 4150.000 4175.000 4200.000 4225.000 4250.000 4275.000 4300.000 4325.000 4350.000 4375.000 4400.000 4425.000 4450.000 4475.000 4500.000 4525.000 4550.000 4575.000 4600.000 4625.000 4650.000 4675.000 4700.000 4725.000 4750.000 4775.000 4800.000 4825.000 4850.000 4875.000 4900.000 4925.000 4950.000 4975.000 5000.000

<p>REVISIONS:</p> <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>DRWG.</th> <th>PREPARED</th> <th>CHECKED</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>JAN-2013</td> <td>ISSUED FOR TENDER</td> <td>RAJU MATHUR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>JUNE 2008</td> <td>ORIGINAL</td> <td>RAJU MATHUR</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				NO.	DATE	REVISION	BY	DRWG.	PREPARED	CHECKED	APPROVED	01	JAN-2013	ISSUED FOR TENDER	RAJU MATHUR					02	JUNE 2008	ORIGINAL	RAJU MATHUR					<p>DPI CONSULTANT :</p> <p>CBC</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAJPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521348, e-mail: ceg@ceginfoc.com</p>				<p>DPI CONSULTANT :</p> <p>LEA</p> <p>LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044</p>				<p>CLIENT :</p> <p>ODISHA WORKS DEPARTMENT</p>				<p>PROJECT :</p> <p>CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B</p>				<p>SCALE :</p> <p>N.T.S.</p>				<p>DRAWING TITLE :</p> <p>PLAN AND LONGITUDINAL SECTION (SH-9) KM 44/000 TO KM 45/000</p>			
NO.	DATE	REVISION	BY	DRWG.	PREPARED	CHECKED	APPROVED																																												
01	JAN-2013	ISSUED FOR TENDER	RAJU MATHUR																																																
02	JUNE 2008	ORIGINAL	RAJU MATHUR																																																
<p>DPI NUMBER : OSRP/CEG/SH9/P02B/P&P/18</p>												<p>(SHEET 18 OF 18)</p>																																							

SCHEDULE OF ROAD DELINEATORS AT CURVES UPTO 300m

ARC		RADIUS	ARC LENGTH
START	END		
30+490.993	30+642.449	350	235.815
36+131.547	36+309.543	300	832.841
42+049.777	42+123.527	300	134.52
42+351.098	42+407.581	300	77.571

SCHEDULE OF ROAD HUMPS

SL NO	CHAINAGE	TYPE OF JUNCTION	LHS/RHS
1	33126	T-Type	RHS
2	36195	T-Type	RHS
3	37255	T-Type	LHS
4	40000	T-Type	RHS

SL NO	CHAINAGE	REMARKS
1	27770	SCHOOL ZONE
2	27830	SCHOOL ZONE
3	36175	SCHOOL ZONE
4	36260	SCHOOL ZONE
5	47770	SCHOOL ZONE
6	47900	SCHOOL ZONE

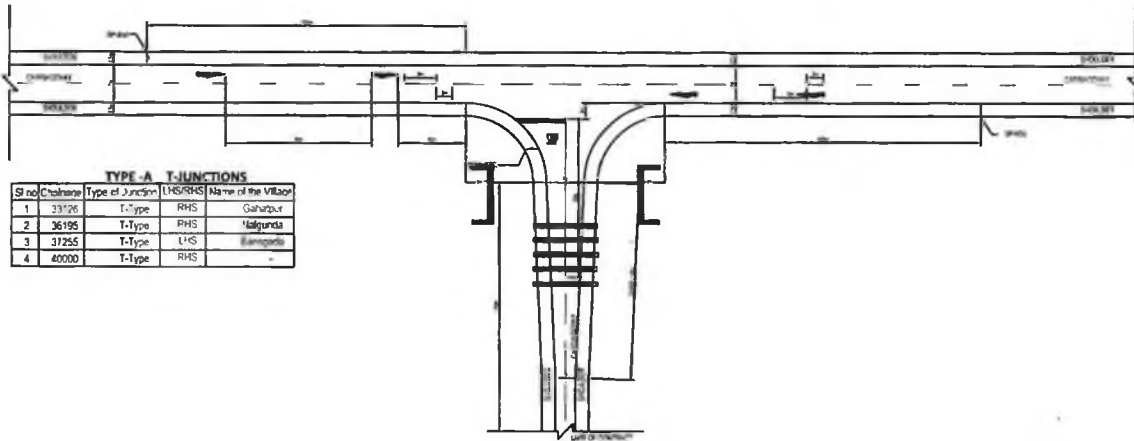
BUILTUP AREA

CHAINAGE		LENGTH
FROM	TO	
30300	30500	200
32900	33200	300
37100	37400	300
39100	40300	1200
44600	45000	400

NOTE:

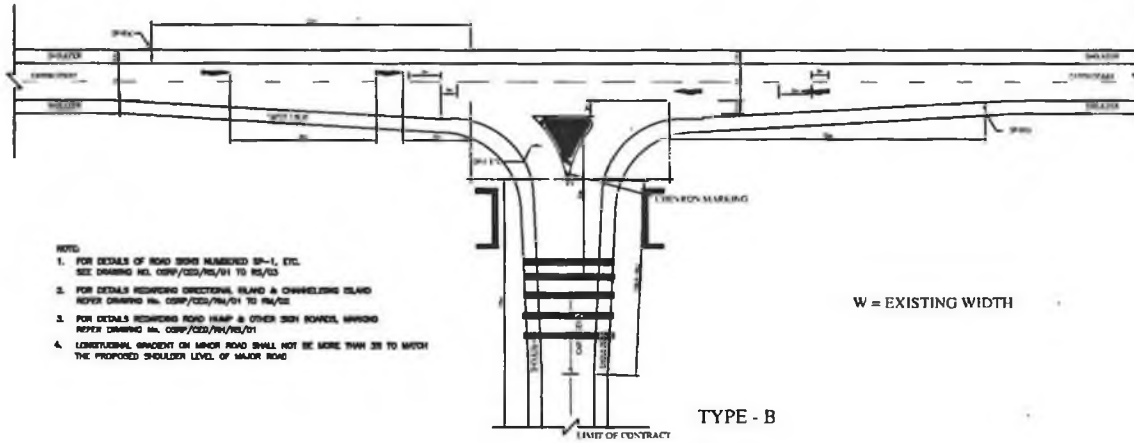
- JUNCTION SHALL BE IMPROVED AS PER THE DRAWING NO OSRP/CEG/JN/01 TO 03
- ALL OTHER JUNCTIONS WITH WBM CROSS ROAD, CEMENT, EARTHEN SHALL BE IMPROVED AS PER THE STANDARD DRAWINGS
- PROPOER SIGNAGE SHALL BE PROVIDED FOR THE SAFETY OF THE TRAFFIC MOVEMENT AT THESE JUNCTIONS

RQ SEP-2010 SECOND REVISION LASA RAJU MATHEW MR MISHRA (CE) D.P. PATEL (CE) PT JAN-2011 FIRST REVISION ORD VINAY KUMAR (AO) MR MISHRA (CE) MR PRADHAN (CE) = SAME 2008 ORIGINAL ORD		CONSOLE TANK : CONSULTING CEG ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520899, 2521890, 2520558 Fax: 2521348, e-mail: ceg@cegrdca.com		DESIGN REVIEW CONSULTANT : LEAS L&A Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT :  ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S		DRAWING TITLE : SCHEDULE OF RRPMS, ROAD HUMPS & RUMBLE STRIP (SHEET 1 OF 1)	
NO	DATE	REVISION	BY	DRAWING	PREPARED :	CHECKED:	APPROVED:	DWG. NUMBER :	OSRP/CEG/SH9/P02B/SCB/		REV.	RD	



TYPE - A T-JUNCTIONS			
Sl no	Chalane	Type of Junction	LHS/RHS Name of the Village
1	23126	T-Type	RHS Gaharpur
2	36195	T-Type	RHS Nalgunda
3	37255	T-Type	LHS Bampada
4	40000	T-Type	RHS

TYPE - A



W = EXISTING WIDTH

TYPE - B

- NOTE
1. FOR DETAILS OF ROAD SIGNS NUMBERED SP-1, ETC. SEE DRAWING NO. OSRP/CD/PA/01 TO 05/02
 2. FOR DETAILS REGARDING DIRECTIONAL ISLAND & CHANNELIZED ISLAND REFER DRAWING NO. OSRP/CD/PA/01 TO 04/02
 3. FOR DETAILS REGARDING ROAD HAUP & OTHER SIGN BOARD, MARKING REFER DRAWING NO. OSRP/CD/PA/01
 4. LONGITUDINAL GRADIENT ON MINOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD

For NKC Projects Private Limited
 Director

Chief Engineer
 DPT & NCC
 Civil Engineer
 Chief Engineer
 (Employer)

REVISION R2 SEP-2015 SECOND REVISION JSA R1 JAN-2013 FIRST REVISION OMD VIKAT PULAKHRA (AO) SAR MESHA (DE) SANK PRADHAN (CC) - JUNE 2008 ORIGINAL OMD NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			DPR CONSULTANT : CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520889, 2521899, 2520558 Fax: 2521348, e-mail: cec@cegindia.com			DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044			CLIENT : ODISHA WORKS DEPARTMENT			PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B			SCALE : N.T.S.			DRAWING TITLE : STANDARD DRAWINGS TYPICAL T-JUNCTION WITH SINGLE LANE BT ROAD (SHEET 1 OF 1)			DWG. NUMBER : OSRP/CEG/SH9/P02B/ 3 REV. NO.		
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SCHEDULE OF SIGN POSTS

For MCA Projects Private Limited

SIGN POST ID	DESCRIPTION OF SIGN BOARD	CHAINAGE	LOCATION				REMARKS
			LL	LR	CR (L)	CR (R)	
SP-1	STOP	33126					
		36195				✓	
		37255				✓	
		40000				✓	
SP-6	SCHOOL ZONE	27780	✓				
		27880		✓			
		36210	✓				
		36310		✓			
SP-9 A	RIGHT SIDE ROAD	37135	✓				
		33236		✓			
SP-9 B	LEFT SIDE ROAD	36305		✓			
		40110	✓				
SP-10 A	RIGHT HAND CURVE	30391	✓				
		36410	✓				
		42224	✓				
		42251	✓				
SP-10 B	LEFT HAND CURVE	36032		✓			
		41950	✓				
		30742		✓			
		42508	✓				
SP-12	PEDESTRIAN CROSSING	27730	✓				
		27830		✓			
		31158	✓				
		31258		✓			
		39442	✓				
		39542		✓			
		40158	✓				
		40258		✓			
		40830	✓				
		40930		✓			
		41842	✓				
		41942		✓			
		44442	✓				
		44542		✓			
SP-14 B	Y-INTERSECTION	48900	✓				
SP-16 A	HUMP OR ROUGH ROAD	37255				✓	

SIGN POST ID	DESCRIPTION OF SIGN BOARD	CHAINAGE	LOCATION				REMARKS
			LL	LR	CR (L)	CR (R)	
SP-16 A	HUMP OR ROUGH ROAD	33126					
		36195				✓	
		40000				✓	
SP-20	REASSURANCE SIGN MARKER SIGN	34000	✓				
				✓			
ENVIRONMENTAL SIGNAGE							
SP-40	ENVIRONMENTAL SIGNAGE	28787	✓				
		28887		✓			
		30104	✓				
		30204		✓			
		31650	✓				
		31750		✓			
		35775	✓				
		35875		✓			
		40924	✓				
		41024		✓			
SP-49	ENVIRONMENTAL SIGNAGE	45152	✓				
		45252		✓			
		28807	✓				
		28867		✓			
		30124	✓				
		30184		✓			
		31670	✓				
		31730		✓			
		35795	✓				
		35855		✓			
SIGNAGE AT NH JN		0	✓	✓	✓	✓	
		15	✓	✓	✓	✓	
		0	✓	✓	✓	✓	
		15	✓	✓	✓	✓	
		25	✓	✓	✓	✓	
50	✓	✓	✓	✓			
SP-1	STOP Sign	0	✓	✓	✓	✓	
SP-2	Compulsory Keep Left	15	✓	✓	✓	✓	
SP-3	Give Way	0	✓	✓	✓	✓	
SP-13(d)	Major Road Ahead	15	✓	✓	✓	✓	
SP-15(b)	Dual Carriageway Begins	25	✓	✓	✓	✓	
SP-15(c)	Dual Carriageway Ends	50	✓	✓	✓	✓	

NOTE :

1. LL = LEFT LANE
2. RL = RIGHT LANE
3. CR(L) = CROSS ROAD LEFT
4. CR(R) = CROSS ROAD RIGHT
5. SIGN POST SHALL BE INSTALLED AT AN OFFSET DISTANCE OF 2M FROM THE EDGE OF CARRIAGE WAY
6. FOR DETAILS OF ROAD SIGNS REFER DWG. IN STANDARD DRAWINGS

<p>NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED</p>	<p>UPR CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAJPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com</p>	<p>CLIENT : ODISHA WORKS DEPARTMENT</p>	<p>PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B</p>	<p>SCALE : N.T.S.</p>	<p>DRAWING TITLE : SCHEDULE OF SIGN POSTS</p> <p>(SHEET 1 OF 11)</p> <p>DWG. NUMBER : OSRP/CEG/SH9/P02B/SCB/ REV. NR</p>
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Director

Page 31 of 92

Volume-IV, Drawings

OSRP-CW/ICB-P02B

SCHEDULE OF PEDESTRIAN CROSSING

SCHEDULE OF PEDESTRIAN CROSSING			
SCHOOL ZOZE	HOSPITAL ZONE	BUS BAYS	
CHAINAGE			
27830	-	39542	31258
40930	-	41942	40258
	-	44542	46238
	-	48942	49718

NOTE:-

1. FOR DETAILS OF PEDESTRAIN CROSSING REFER ROAD MARKINGS
2. FOR DETAILS OF RPMs AT PEDESTRAIN CROSSING REFER STANDARD DRAWINGS
2. THE LOCATION OF THE PEDESTARIAN CROSSING ARE TENTATIVE ONLY. THE EXACT LOCATION SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

SCHEDULE OF EXTRA WIDENNING

SL NO	CURVE START	CURVE END	RADIUS	CURVE LENGTH	TRANSITION	EXTRA WIDENNING
1	36+131.547	36+309.543	300	832.841	75	0.6 M
2	42+049.777	42+123.527	300	134.52	75	0.6 M
3	42+351.098	42+407.581	300	77.571	75	0.6 M

NOTE:

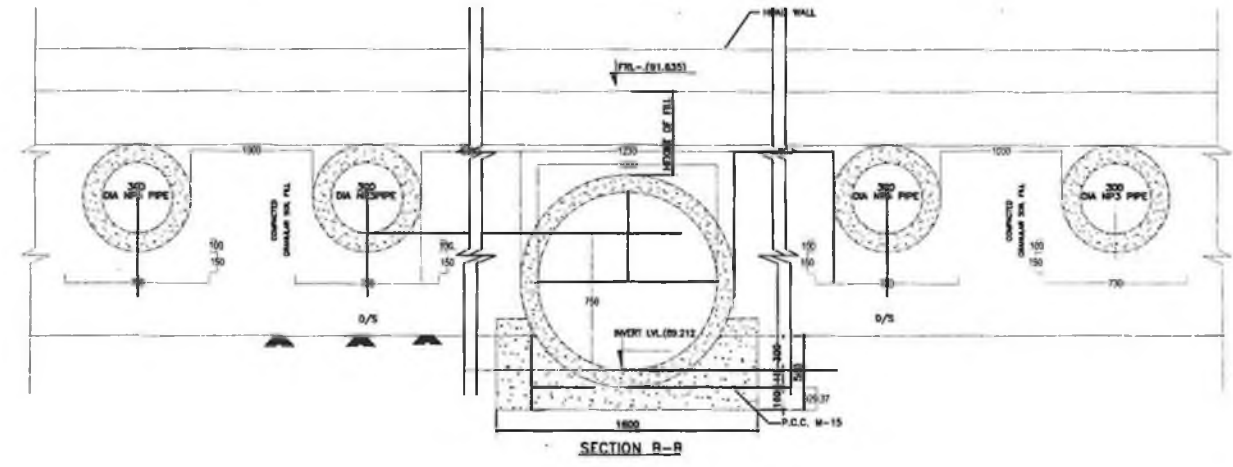
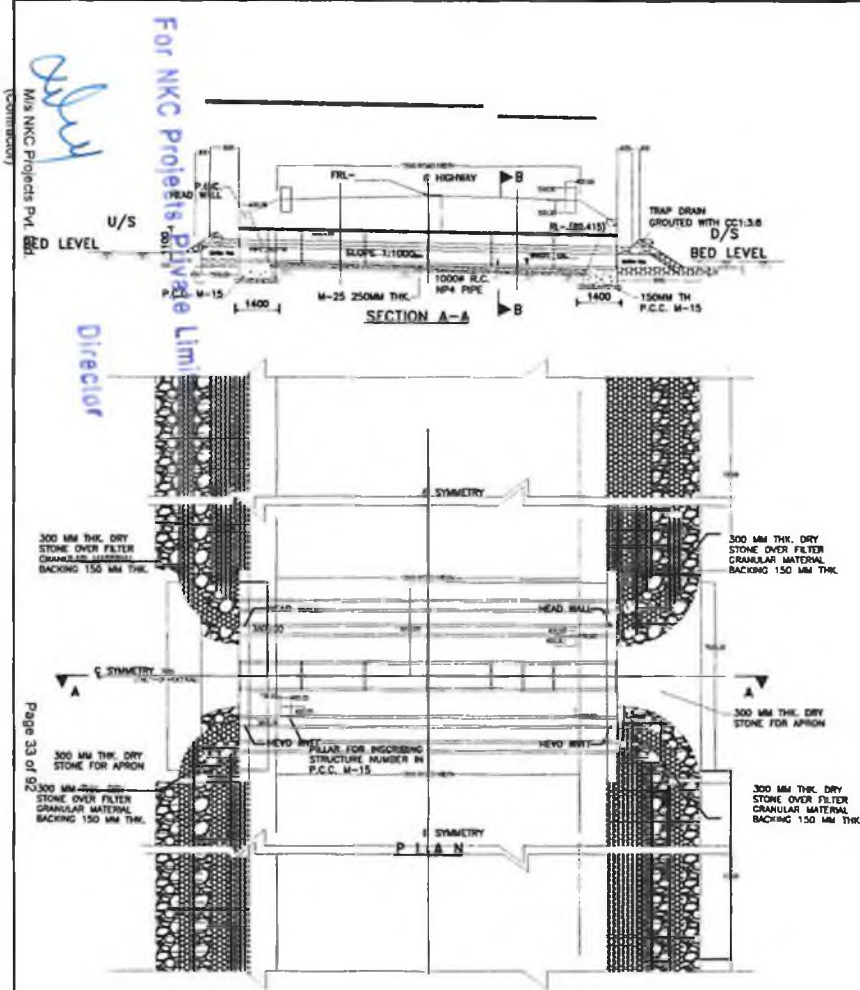
1. EXTRA WIDENNING HAS BEEN DONE AS PER THE GUIDLINES DETAILED IN IRC:73-1980
2. WIDENNING SHALL BE DONE EQUALLY ON BOTH THE INNER AND OUTER CURVES
3. THE SLOPE OF THE CARRIAGEWAY SHALL EXTEND IN TH WIDENING SECTIONS

For NKC Projects Private Limited
 M/s NKC Projects Pvt Ltd
 (Contractor)
 Director

Chief Engineer,
 Dpt & Roads, Odisha
 (Employer)

SDR CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAPUR - 17 Tel: +91-141-2520899, 2521880, 2520558 Fax: 2521348, e-mail: ceg@cegindia.com		DESIGN & EXECUTION CONTRACTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S		DRAWING TITLE : SCHEDULE OF GUARD POSTS, PEDESTRIAN - CROSSING & EXTRA WIDENNING (SHEET 1 OF 1)	
NO	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	DRW. NUMBER	OSRP/CEG/SH9/P02B/SCH/3	REV. NO	

REPTILE UNDER PASS



SCHEDULE	
Sl. No	Proposed Chainage
1	40+974

Chief Engineer
OP & R
Director
OSRP-CM-ICB-P02B
(Employer)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
R2	SEP-2016	SECOND REVISION	LASA		RAJESH MATHUR	MR. MISHRA (EC)	G.P. PATEL (CE)
R1	JAN-2013	FIRST REVISION	OSD	VINAY	P.K. MISHRA (AC)	MR. MISHRA (EC)	MR. PRADHAN (CE)
-	JUNE 2009	ORIGINAL	CEG				

DPR CONSULTANT :
CEG
CONSULTING ENGINEERS GROUP LTD.
E-12, MOJI COLONY, MALVIYA NAGAR
JAIPUR-17 Tel:
+91-141-2520899, 2521899, 2520556 Fax:
2521348, e-mail: ceg@cegltda.com

DESIGN REVIEW CONSULTANT :
LEA
LEA Associates South Asia Pvt. Ltd, India
B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE
INDUSTRIAL ESTATE, MATHURA ROAD, NEW
DELHI-110044

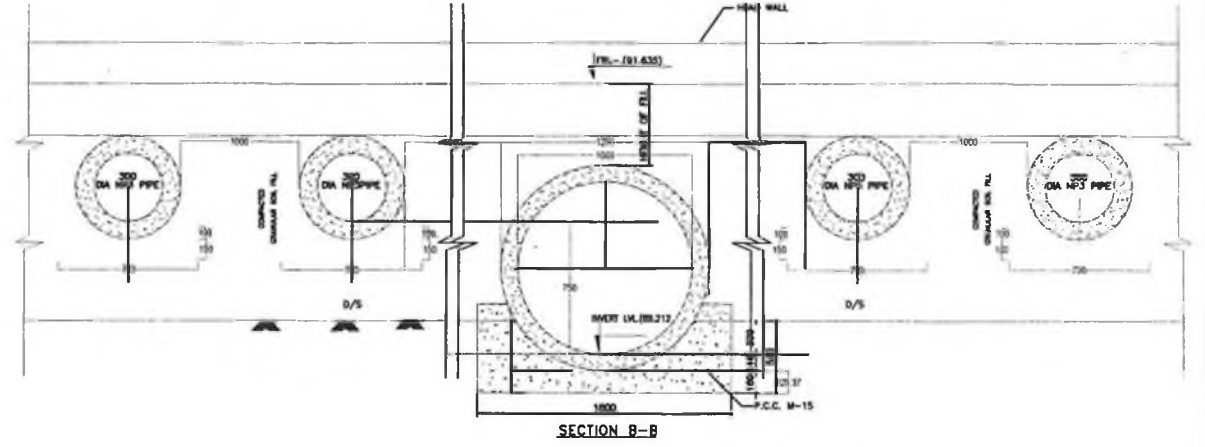
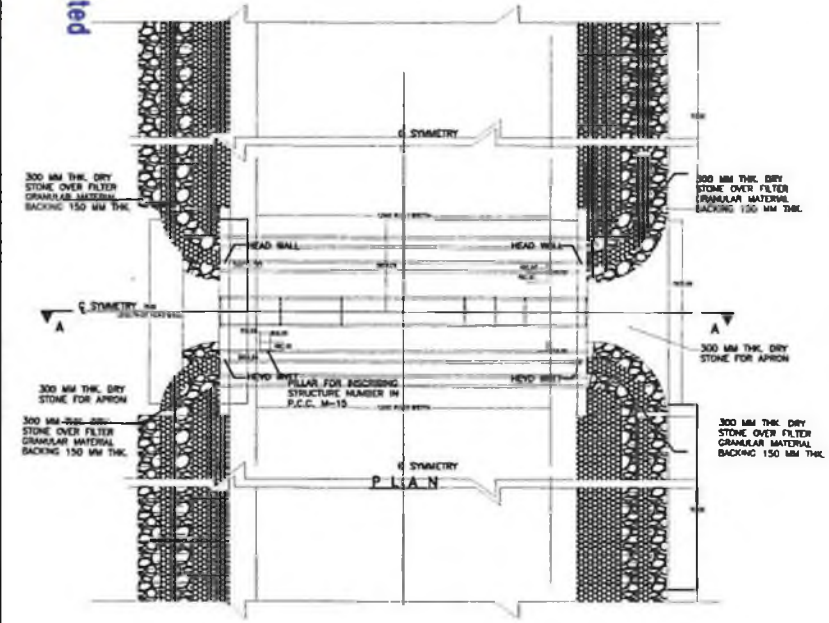
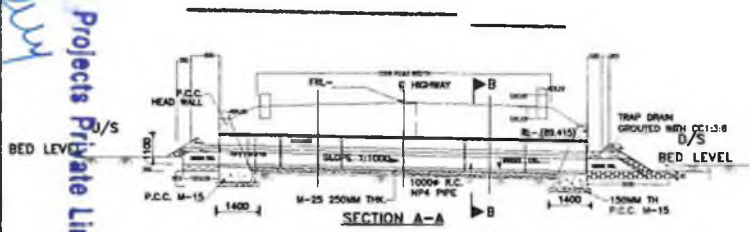
CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
N.T.S

DRAWING TITLE :
REPTILE UNDER PASS+PIPE CULVERT (GEN.)
DWR NUMBER : OSRP/CEG/SH9/P02B/EN9/
(SHEET 1 OF 1)

REPTILE UNDER PASS



SCHEDULE

Sl. No	Proposed Chainage
1	40+974

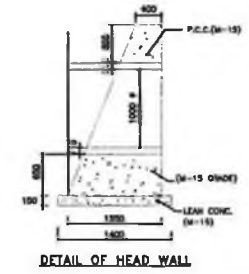
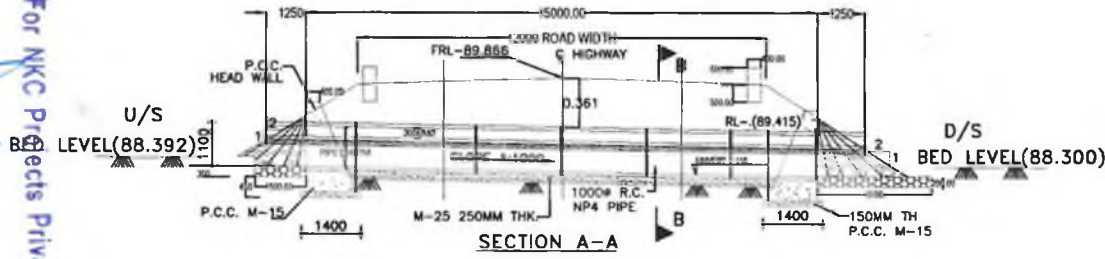
For NKC Projects Private Limited
 (Contractor)
 Director

Page 34 of 92

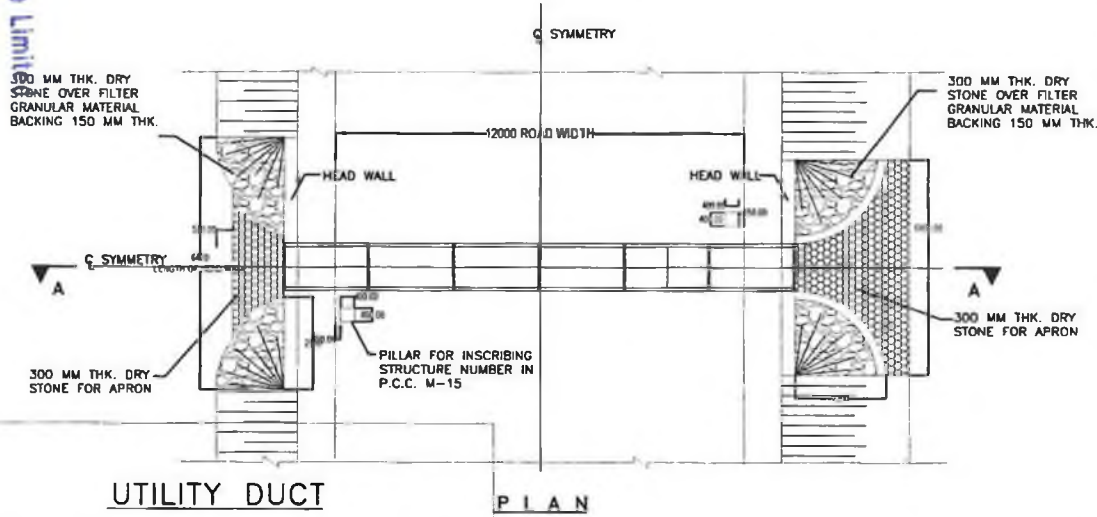
Chief Engineer,
 Dir & Road, Odisha
 (Employer)

REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED		DSR CONSULTANT : CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOH COLONY, MALVIYA NAGAR JAJPUR-17 Tel: +91-141-2520809, 2521809, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com	DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1 st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S.	DRAWING TITLE : REPTILE UNDER PASS+PIPE CULVERT (GEN.)
						(SHEET 1 OF 1) Dwg. NUMBER : OSRP/CEG/SHS/P02B/ENG/ REV. No	

For NKC Projects Private Limited

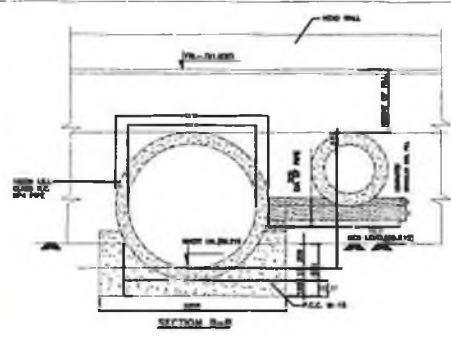


- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
 3. LOOSE / UNSUITABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
 4. CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE.
 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 4.0 M.
 8. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.



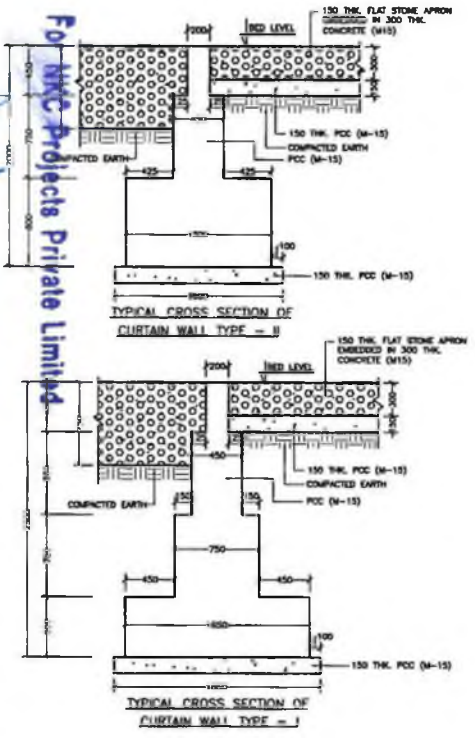
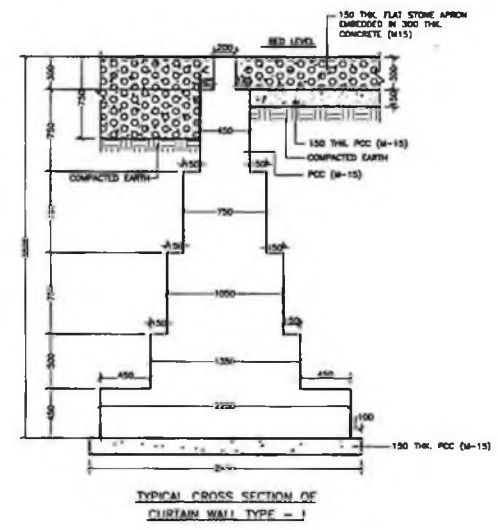
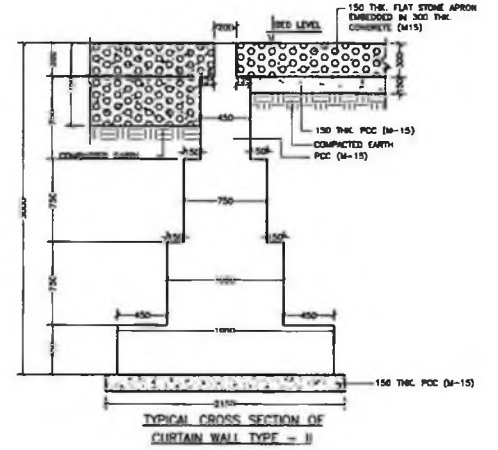
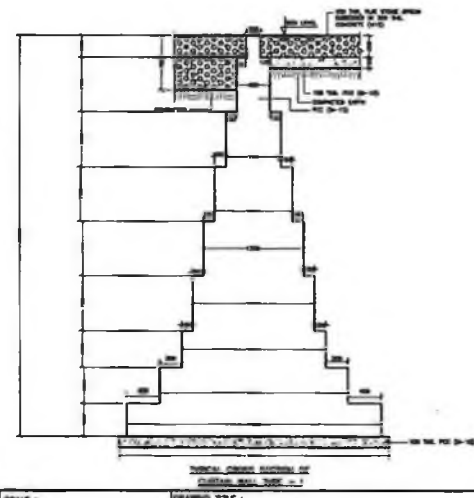
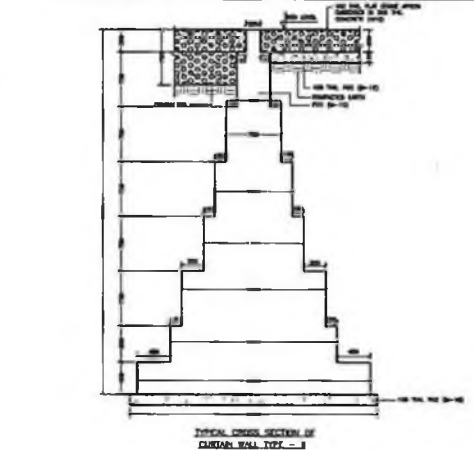
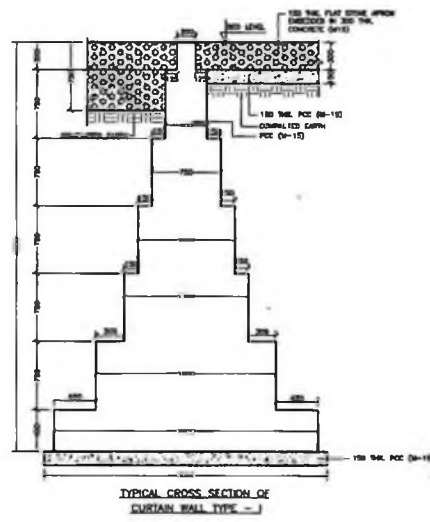
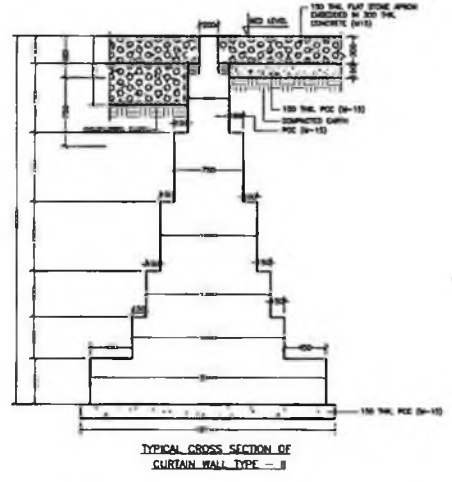
SCHEDULE OF UTILITY DUCT

Sl. No.	Chainage	Sl. No.	Chainage
1	30+250	6	39+050
2	30+550	7	40+375
3	32+850	8	42+050
4	33+250	9	44+550
5	37+450	10	45+025



<p>REVISIONS:</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>DESIGN</th> <th>PREPARED</th> <th>CHECKED</th> <th>APPROVED</th> </tr> <tr> <td>01</td> <td>SEP-2018</td> <td>SECOND REVISION</td> <td>JADA</td> <td>RAJU SATHAN</td> <td>ALK MISHRA (EC)</td> <td>D.P. PAREL (CC)</td> <td></td> </tr> <tr> <td>02</td> <td>JUN-2019</td> <td>FIRST REVISION</td> <td>OND</td> <td>VINAY</td> <td>PRANISHA (AC)</td> <td>ALK MISHRA (CC)</td> <td>ALK PRADHAN (CC)</td> </tr> <tr> <td>03</td> <td>MAR-2020</td> <td>ORIGINAL</td> <td>CEB</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				NO.	DATE	REVISION	BY	DESIGN	PREPARED	CHECKED	APPROVED	01	SEP-2018	SECOND REVISION	JADA	RAJU SATHAN	ALK MISHRA (EC)	D.P. PAREL (CC)		02	JUN-2019	FIRST REVISION	OND	VINAY	PRANISHA (AC)	ALK MISHRA (CC)	ALK PRADHAN (CC)	03	MAR-2020	ORIGINAL	CEB					<p>DPR CONSULTANT:</p> <p>CCEC</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JALPUR-17 Tel: +91-141-2520699, 2521899, 2520656 Fax: 2521348, e-mail: ceg@cegindia.com</p>		<p>DESIGN REVIEW CONSULTANT:</p> <p>LEA</p> <p>LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.</p>		<p>CLIENT:</p> <p>ODISHA WORKS DEPARTMENT</p>		<p>PROJECT:</p> <p>CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - PO2B</p>		<p>SCALE:</p> <p>N.T.S.</p>		<p>DRAWING TITLE:</p> <p>UTILITY DUCT+CULVERT (GEN.)</p>	
NO.	DATE	REVISION	BY	DESIGN	PREPARED	CHECKED	APPROVED																																								
01	SEP-2018	SECOND REVISION	JADA	RAJU SATHAN	ALK MISHRA (EC)	D.P. PAREL (CC)																																									
02	JUN-2019	FIRST REVISION	OND	VINAY	PRANISHA (AC)	ALK MISHRA (CC)	ALK PRADHAN (CC)																																								
03	MAR-2020	ORIGINAL	CEB																																												
<p>DRW. NUMBER: OSRP/CEG/SH9/PO2B/EN9/</p>																																															

- 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-9/BR/FPW/01
- | | |
|--------------------------------|----------------------------------|
| 1. OSRP/CEG/SH-9/BR/1+005/01 | 13. OSRP/CEG/SH-9/BR/32+100/01 |
| 2. OSRP/CEG/SH-9/BR/1+800/01 | 14. OSRP/CEG/SH-9/BR/33+500/01 |
| 3. OSRP/CEG/SH-9/BR/3+200/01 | 15. OSRP/CEG/SH-9/BR/33+900/01 |
| 4. OSRP/CEG/SH-9/BR/3+900/01 | 16. OSRP/CEG/SH-9/BR/34+700/01 |
| 5. OSRP/CEG/SH-9/BR/8+050/01 | 17. OSRP/CEG/SH-9/BR/38+005/01 |
| 6. OSRP/CEG/SH-9/BR/9+200/01 | 18. OSRP/CEG/SH-9/BR/38+100/01 |
| 7. OSRP/CEG/SH-9/BR/9+300/01 | 19. OSRP/CEG/SH-9/BR/42+400/01 |
| 8. OSRP/CEG/SH-9/BR/13+500/01 | 20. OSRP/CEG/SH-9/BR/43+500/01 |
| 9. OSRP/CEG/SH-9/BR/28+100/01 | 21. OSRP/CEG/SH-9/BR/48+700/01 |
| 10. OSRP/CEG/SH-9/BR/28+800/01 | 22. OSRP/CEG/SH-9/TRIPLE CELL/01 |
| 11. OSRP/CEG/SH-9/BR/30+050/01 | 23. OSRP/CEG/SH-9/TRIPLE BOX/01 |
| 12. OSRP/CEG/SH-9/BR/30+200/01 | |



REVISIONS: R2 SEP-2018 SECOND REVISION LAGA RAJU NATHUR NLR MEHRA (CC) G.P. PATIL (CC) R1 JAN-2013 FIRST REVISION ERD VIKRAY P.K. SINGH (CC) NLR MEHRA (CC) NLR PRASANN (CC) - JUNE 2009 ORIGINAL CSD		DPM CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR, JAIPUR-17 Tel: 0141-241-2610/2611/2612/2613/2614		DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110028		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P028		SCALE : N.T.S.		DRAWING TITLE : TYPICAL SECTIONS OF CURTAIN WALL	
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	2521344	e-mail: ceg@cegindia.com	DESIGNER	DATE	NO.	

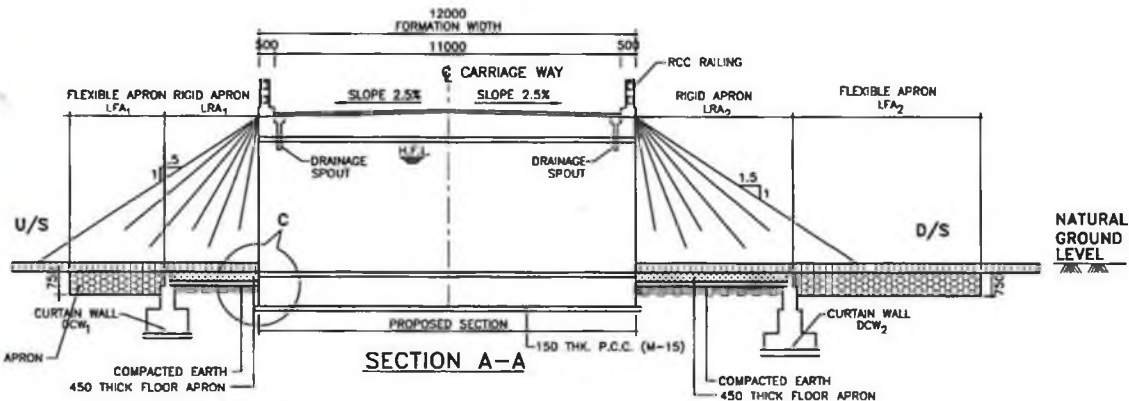
M/s. N.A. Associates Pvt. Ltd. (Contractor)

Director

Page 36 of 92

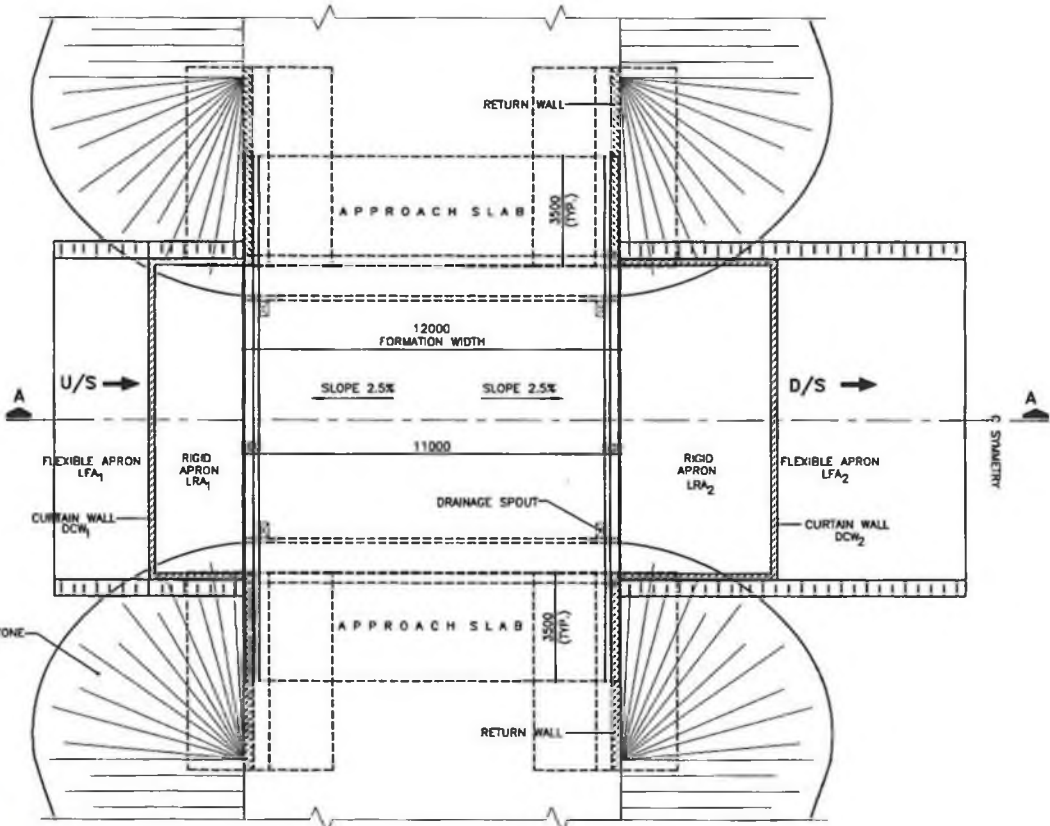
Chief Engineer, DPI & Roads, Odisha (Emtlover)

For MNC Projects Private Limited

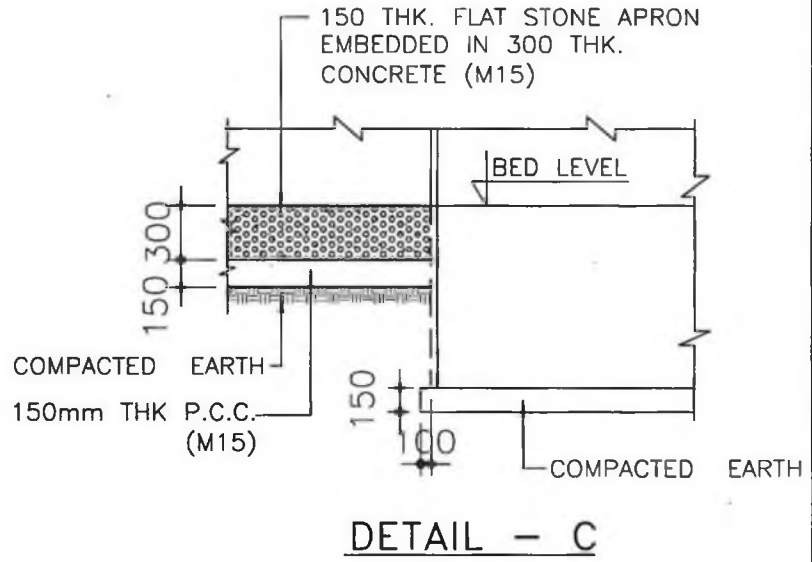


SECTION A-A

- NOTES:**
1. ALL DIMENSIONS ARE IN MM.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DO NOT SCALE THE DIMENSIONS.
 3. THE LENGTHS OF RIGID AND FLEXIBLE APRONS SHALL BE AS PER AVAILABILITY OF LAND AND DECISION OF THE ENGINEER.
- REFERENCE DRAWING:-**
- | | |
|--------------------------------|----------------------------------|
| 1. OSRP/CEG/SH-9/BR/1+005/D1 | 13. OSRP/CEG/SH-9/BR/32+100/D1 |
| 2. OSRP/CEG/SH-9/BR/1+800/D1 | 14. OSRP/CEG/SH-9/BR/33+500/D1 |
| 3. OSRP/CEG/SH-9/BR/3+200/D1 | 15. OSRP/CEG/SH-9/BR/33+900/D1 |
| 4. OSRP/CEG/SH-9/BR/3+900/D1 | 16. OSRP/CEG/SH-9/BR/34+700/D1 |
| 5. OSRP/CEG/SH-9/BR/8+050/D1 | 17. OSRP/CEG/SH-9/BR/34+005/D1 |
| 6. OSRP/CEG/SH-9/BR/9+200/D1 | 18. OSRP/CEG/SH-9/BR/36+100/D1 |
| 7. OSRP/CEG/SH-9/BR/9+300/D1 | 19. OSRP/CEG/SH-9/BR/42+400/D1 |
| 8. OSRP/CEG/SH-9/BR/13+800/D1 | 20. OSRP/CEG/SH-9/BR/43+500/D1 |
| 9. OSRP/CEG/SH-9/BR/28+100/D1 | 21. OSRP/CEG/SH-9/BR/48+700/D1 |
| 10. OSRP/CEG/SH-9/BR/28+800/D1 | 22. OSRP/CEG/SH-9/TRIPLE CELL/D1 |
| 11. OSRP/CEG/SH-9/BR/30+050/D1 | 23. OSRP/CEG/SH-9/TRIPLE BOX/D1 |
| 12. OSRP/CEG/SH-9/BR/30+200/D1 | |

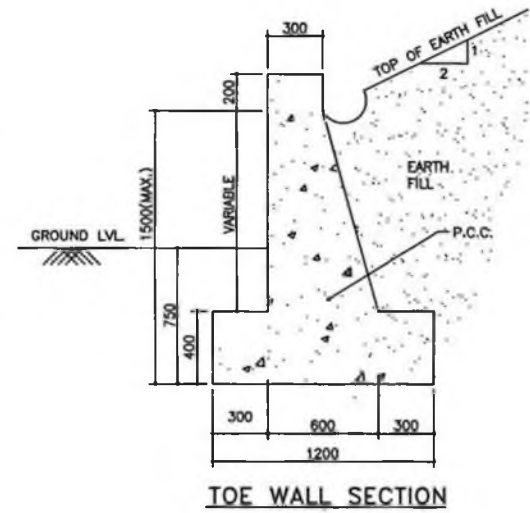
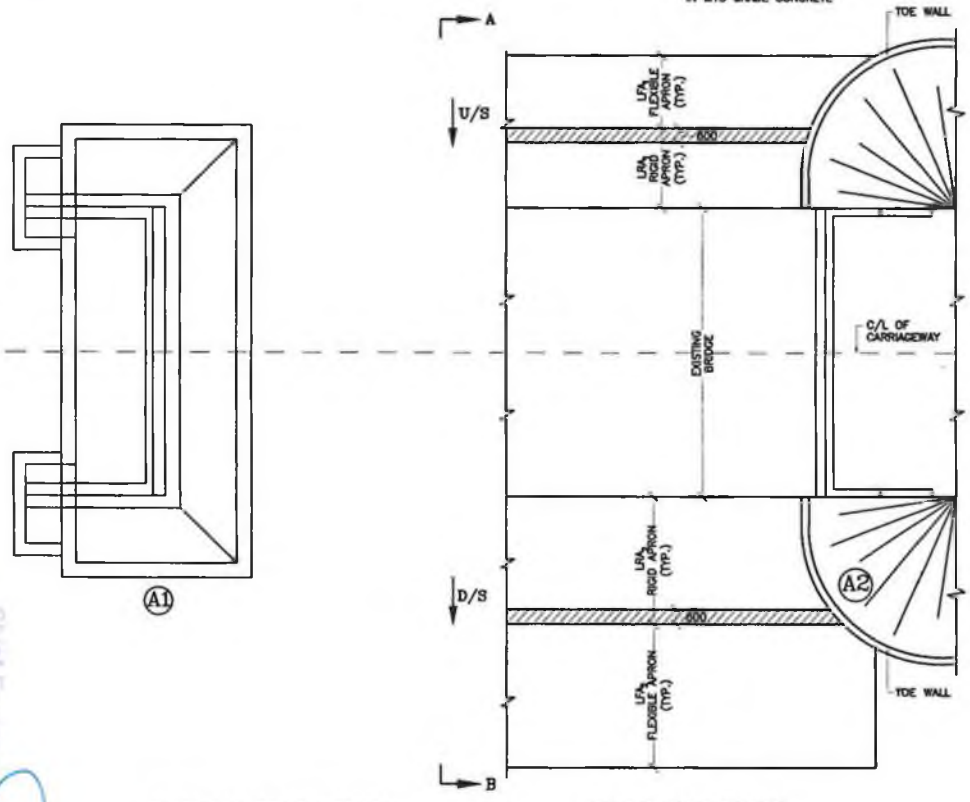
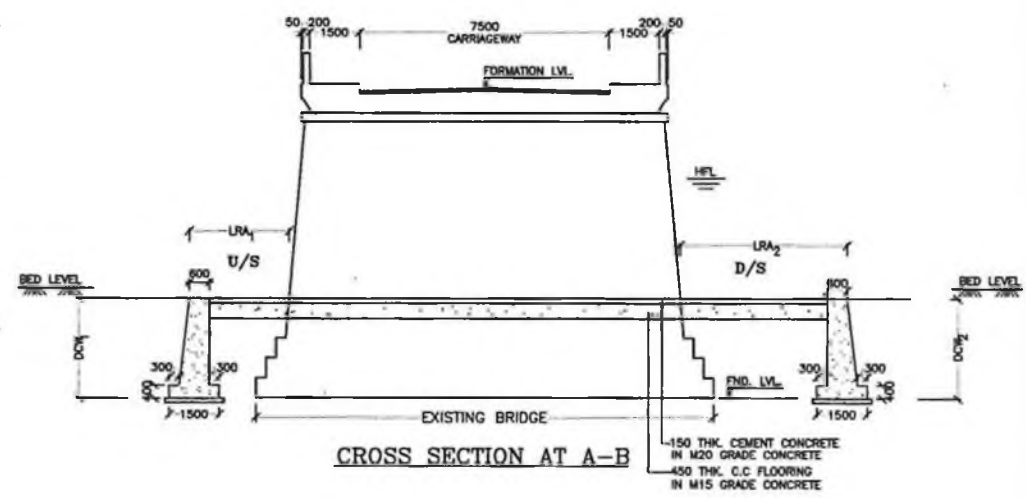
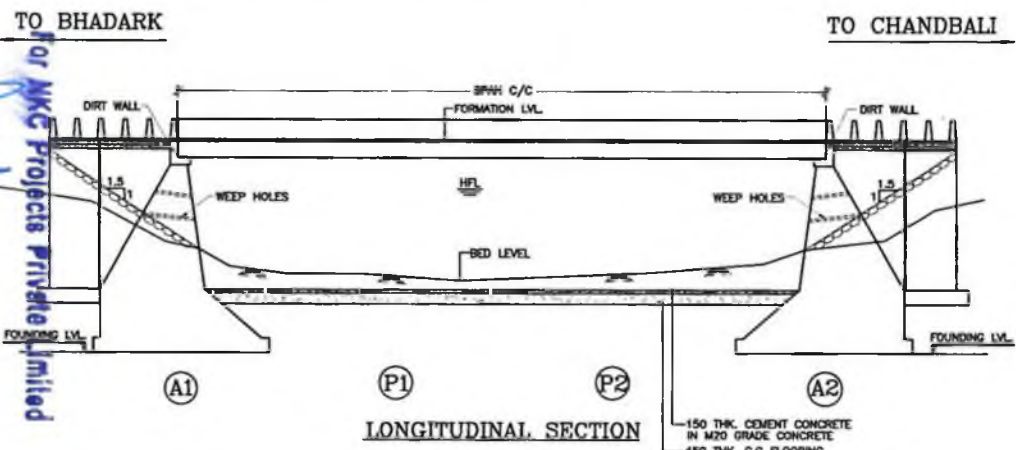


PLAN



DETAIL - C

REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DATE: 25/11/2019 E-MAIL: ceg@cgindia.com				PROJECT TITLE: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - 902B				DRAWING TITLE: TYPICAL DETAILS OF FLOOR PROTECTION WORK (SHEET 1 OF 1)			
CONSULTANT: CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR - 17 +91-141-2520889, 2521099, 2520950 2521348, e-mail: ceg@cgindia.com				CLIENT: ODISHA WORKS DEPARTMENT				SCALE: N.T.S.				DRAWING NO.: OSRP/CEG/P02B/STR			



- NOTES:-**
1. ALL DIMENSIONS ARE IN MM.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.

Director

Page 38 of 92

Chief Engineer, DPI & Roads, Odisha (Employer)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
01	SEP-2013	SECOND REVISION	JANA		RAJU MATHUR	RAJ MEHRA (CC)	G.P. PATEL (CC)
02	JAN-2014	FIRST REVISION	CHD	VINAY	PILAKSHI (AD)	RAJ MEHRA (CC)	RAJ PRASANN (CC)
03	JUNE 2008	ORIGINAL	CHD				

CONCEPT CONSULTANT :
CEC
CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJ COLONY, MALVIYA NAGAR
 JAPUR-17 Tel:
 +91-141-2520899, 2521899, 2520558 Fax:
 2521545, e-mail: ceg@cegindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE
 INDUSTRIAL ESTATE, MATHURA ROAD, NEW
 DELHI-110044

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
 WIDENING AND STRENGTHENING OF EXISTING
 CARRIAGEWAY TO 2 LANE ROAD FROM
 PIRAHAT TO CHANDBALI - KM 27+500 TO KM
 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

DRAWING TITLE :
 TYPICAL DETAILS OF FLOOR
 PROTECTION WORK (SHEET 10F1)

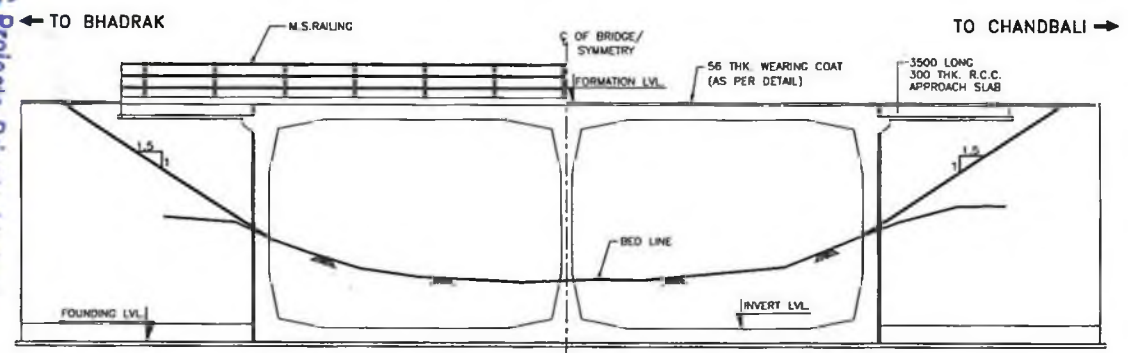
FILE NUMBER : OSRP/ICEGSH/P02B/FFW/1 REV : 03

NOTES:

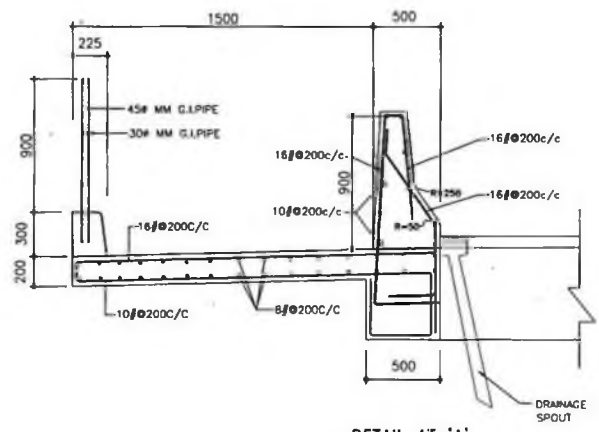
- ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
- ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
- GRADE OF CONCRETE:-
 SLAB - M-20
 CRASH BARRIER - M-40

REFERENCE DRAWINGS

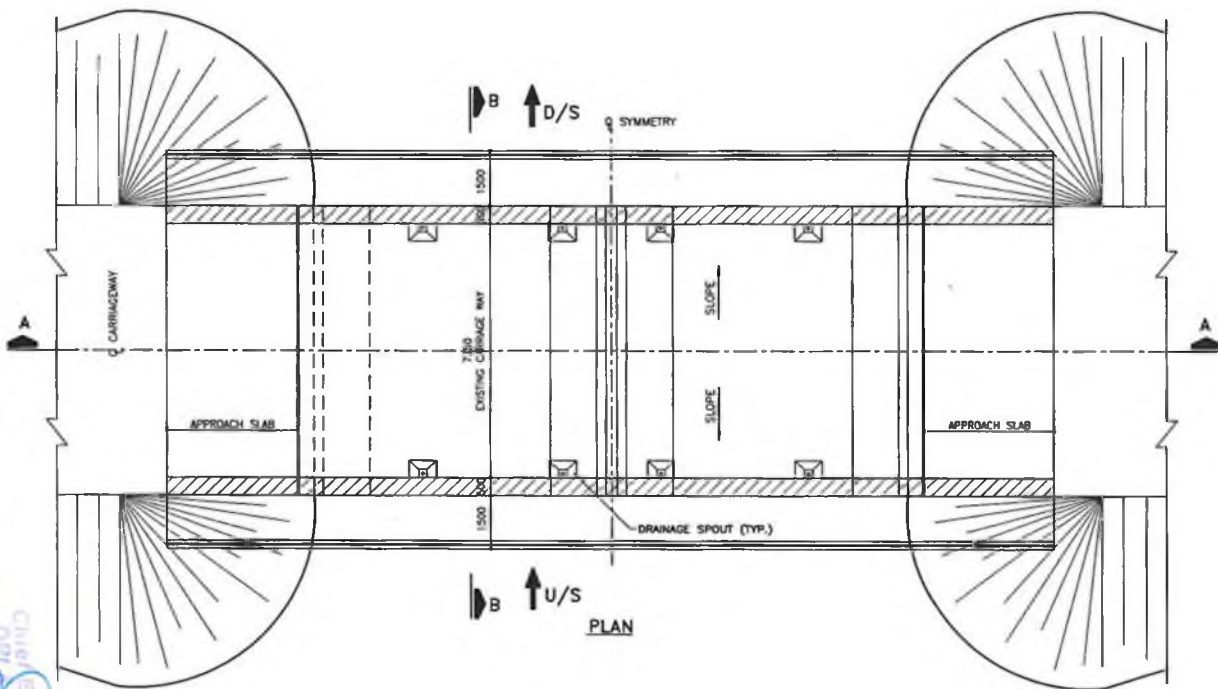
- OSRP/CEG/SH-9/BR/30+200/01



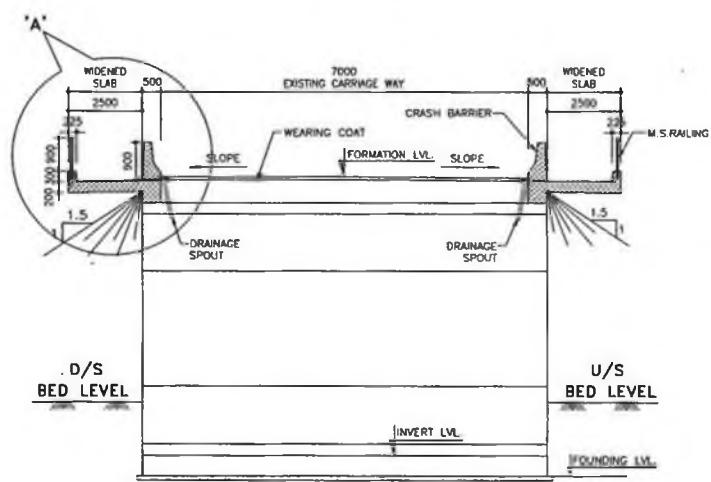
SECTION A-A



DETAIL AT 'A'



PLAN



SECTION B-B

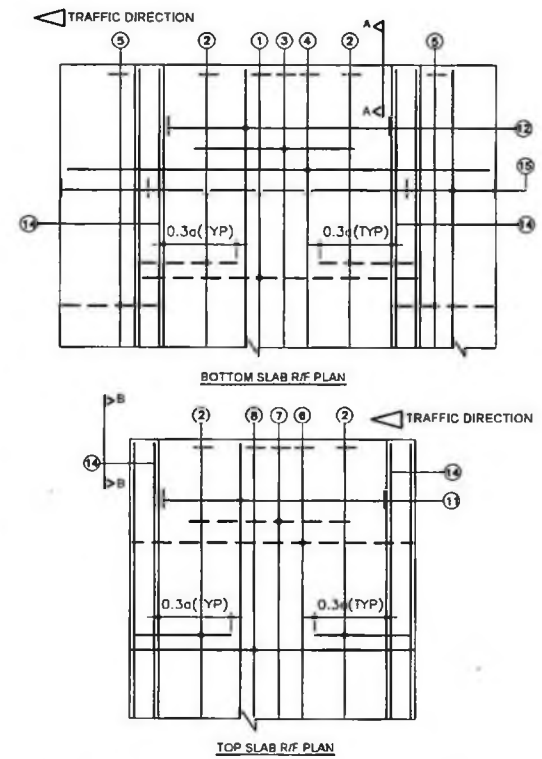
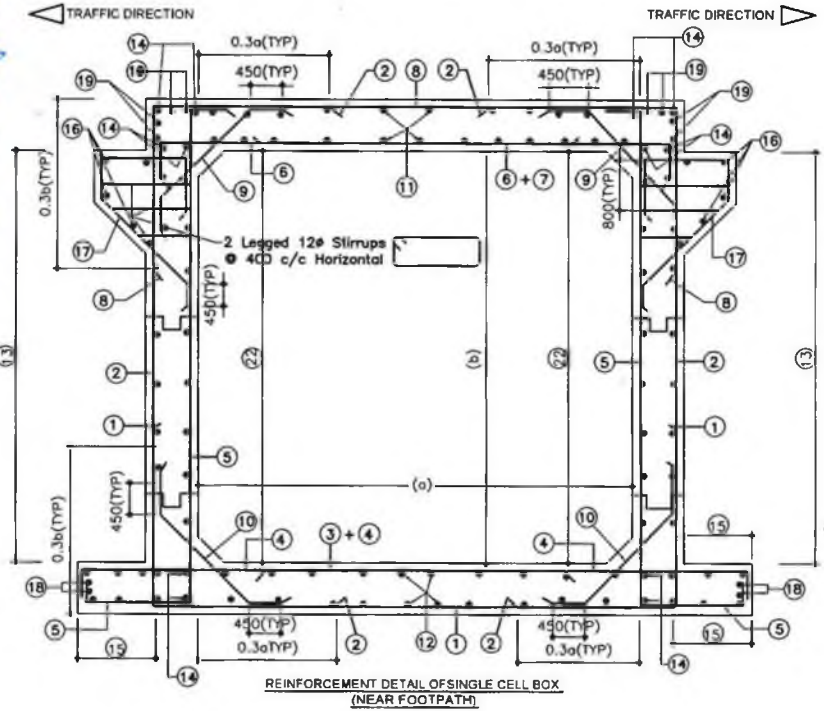
REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DPM CONSULTANT: RAJU MATHUR IAS, RAJ NIYRA (C), G.P. PATEL (C) CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520699, 2521099, 2520558 Fax: 2521348, e-mail: ceg@cegroup.co.in				DESIGN REVIEW CONSULTANT: LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: GENERAL ARRANGEMENT DRAWING BRIDGE AT KM. 30+200		SHEET 1 OF 21	
OSRP/CEG/P02B/STR/3										REV: 00											

For MKC Projects Private Limited
 MKC Projects Pvt. Ltd. (Contractor)
 Director

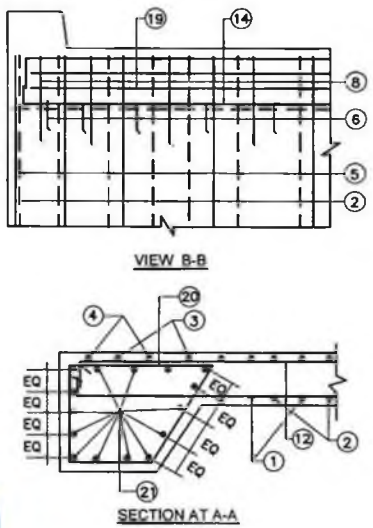
Chief Engineer,
 DPs & Roads, Odisha
 (Employer)

For NKC Projects Private Limited
M/s NKC Projects Pvt. Ltd.
(Contractor)
Director

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LEGEND :-
 - - - - - TOP FACE BARS/OUTER FACE BARS.
 - - - - - BOTTOM FACE BARS/INNER FACE BARS.



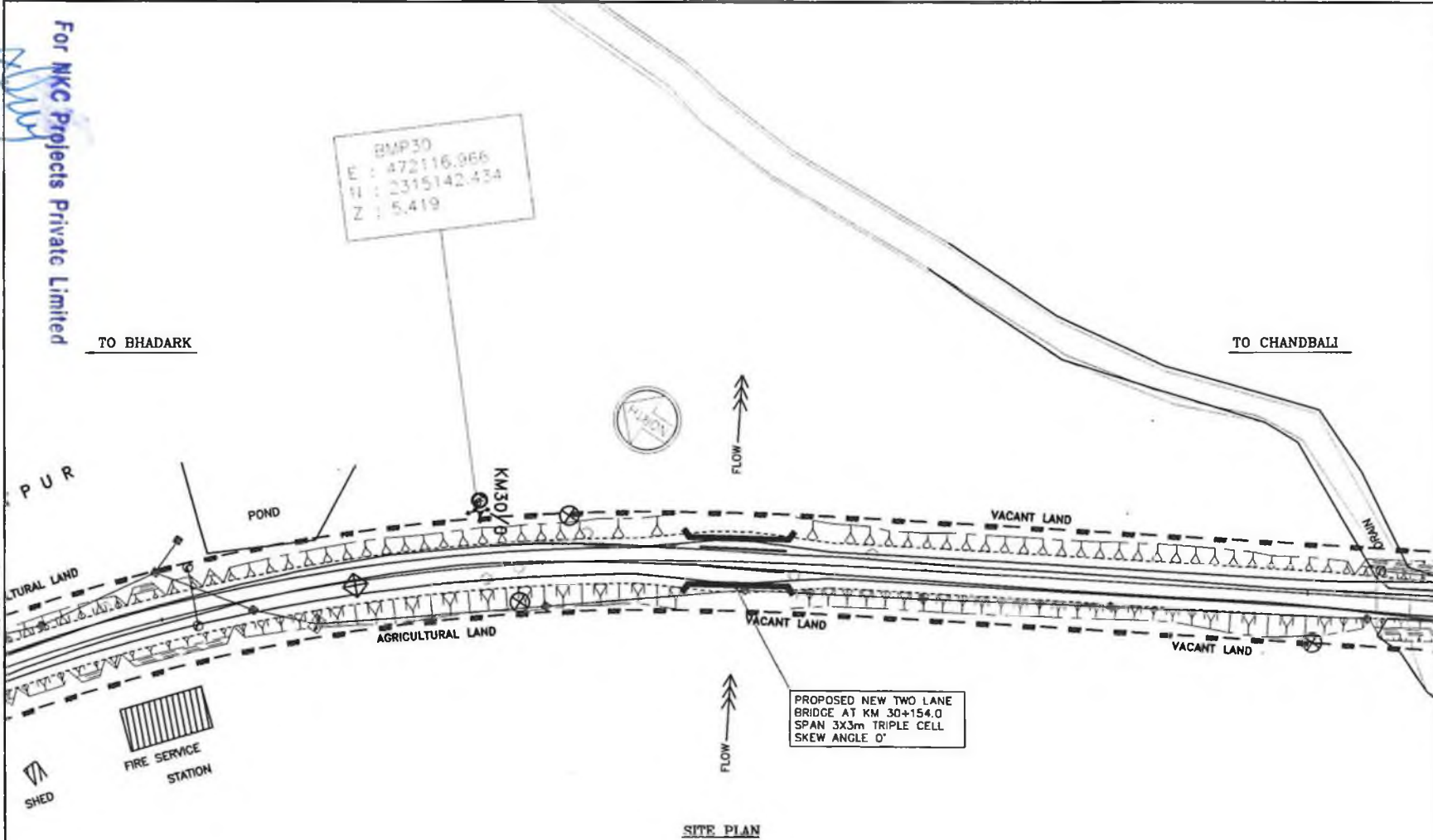
REINFORCEMENT DETAIL OF SINGLE CELL BOX

BAR MARK	BAR SHAPE	1/22/0		1/23/0		1/33/0		1/34/0		1/43/0		1/44/0		1/45/0		1/83/0		1/84/0		
		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	18	250	12	225	12	225	10	200	12	225	10	200	12	200	18	300	20	200	20	200
11	18	250	12	225	12	225	10	200	12	225	10	200	12	200	18	300	20	200	20	200
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- 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-16/ BOX CUL-01
 - 3 MINIMUM CLEAR COVER TO MAIN REINFORCEMENT SHALL BE 50mm.
 - 4 MINIMUM LAP LENGTH OF REINFORCEMENT SHALL BE KEPT AS 83 D WHERE D IS THE DIAMETER THE BAR, NOT MORE THAN 50% 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 CONFIRMING TO IS:1786-1985 WITH A MINIMUM YIELD STRENGTH OF 415 N/mm²
 - 10 JOINT OR LAPPING OF BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 304.6 OF IRC:21-2000.
- REFERENCE DRAWING:-
1. OSRP/CEG/SH-8/ BOX CUL-01

REVISION NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				OPR CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAJPUR-17 Tel: +91-141-2520809, 2521809, 2520558 Fax: 2521348, e-mail: ceg@ceg-dc.com			DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1 st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.			CLIENT : ODISHA WORKS DEPARTMENT			PROJECT : WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B			SCALE : N.T.S.			DRAWING TITLE : REINFORCEMENT DETAIL OF SINGLE CELL BOX SINGLE CELL R.C.C. BOX CULVERT		
O/SRP/CEG/P02B/STR/ 3				SHEET 1 OF 33			DATE:			DESIGNED BY:											

NOTES:-



SITE PLAN

For MKC Projects Private Limited
 (Contractor)
 Director

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NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
01	SEP-2018	SECOND REVISION	LASA		RAJU MATHUR	ILR MISHRA (CC)	G.P. PATIL (CC)
02	JAN-2019	FIRST REVISION	OND	VINAY	PRASHANTHA (AC)	ILR MISHRA (CC)	MLK PRADHAN (CC)
03	JUNE 2020	ORIGINAL	CCS				

DPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJI COLONY, MALVIYA NAGAR
 JAIPUR-17 Tel: 491-141-2520809, 2521899, 2520556 Fax: 2521346, e-mail: ceg@cegindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOLIYAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :

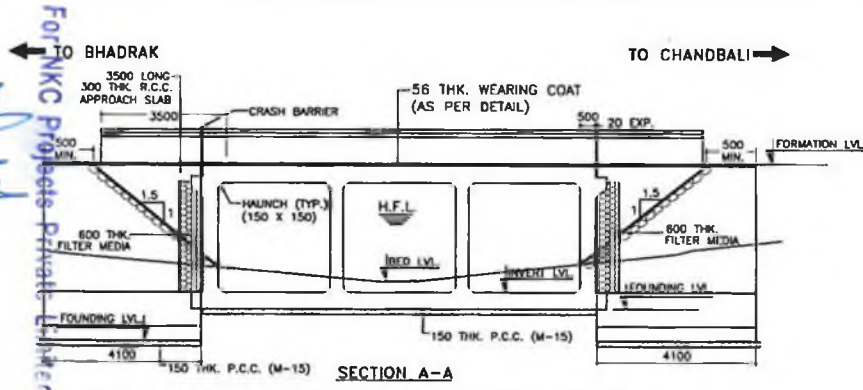
 ODISHA WORKS DEPARTMENT

PROJECT :
 WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

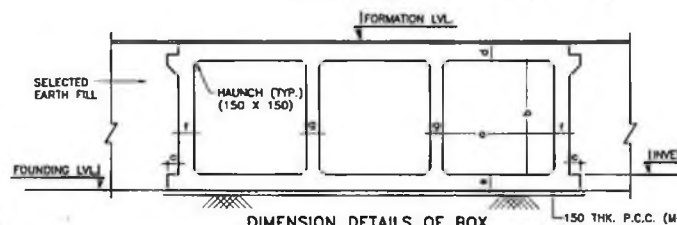
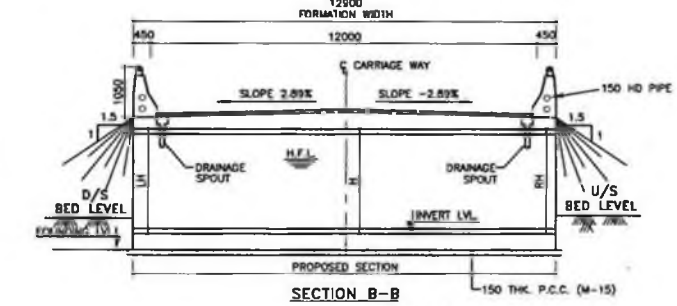
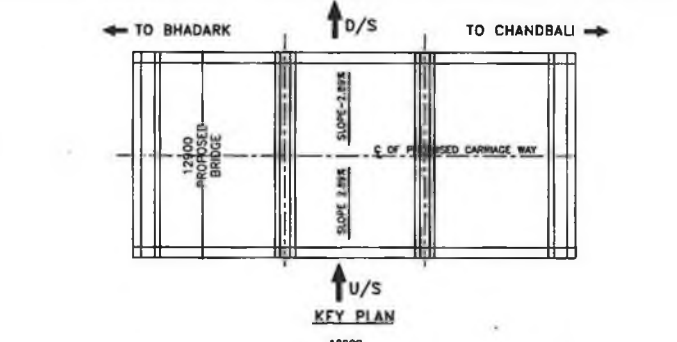
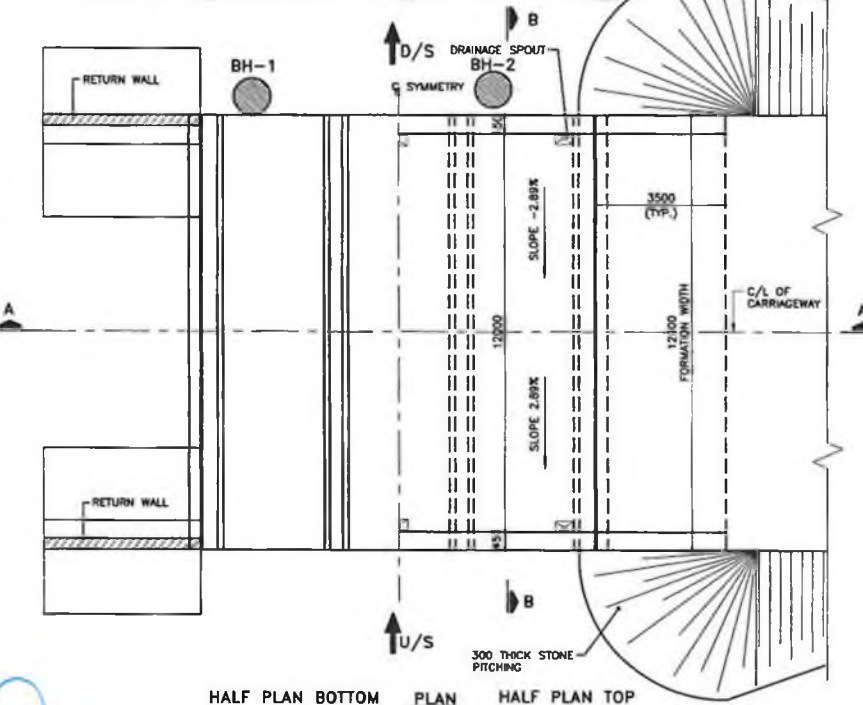
SCALE :
 N.T.S

DRAWING TITLE :
 SITE PLAN BRIDGE AT PROPOSED CH. 30+154 (GADI GHUSURA)
 DWG. NUMBER : OSRP/CEG/P02B/STR/3
 REV. NO.

Chief Engineer,
 O.P. & Road, Odisha
 (Member)



FORMATION LEVEL (m)	7.700	7.700	7.700
BED LEVEL (m)	4.333	4.753	4.433
CHAINAGE (m)	30+141.00	30+154.0	30+159.37



BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	c (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	THICKNESS g (mm)	BEARING CAPACITY
3/33/0	3000	3000	300	450	500	470	400	10 T/M ²

BOX TYPE	EXISTING LOCATION (m)	PROPOSED CHAINAGE (m)	FORMATION LEVEL (m)	DESIGN HFL (m)	BED LVL (m)	INVERT (m)	FOUNDING LVL. (m)	CLEAR HEIGHT (MAX)			DIRECTION OF FLOW
								LH (m)	H (m)	RH (m)	
3/33/0	30+050	30+154.0	7.700	6.599	4.753	4.453	3.953	2.914	2.741	2.568	R TO L

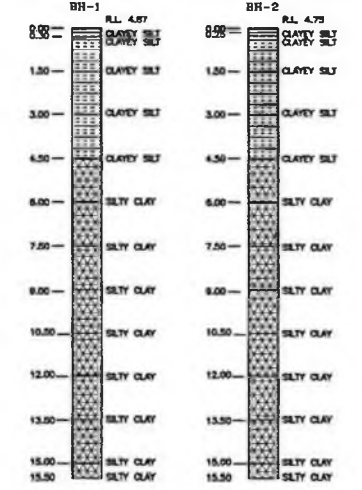
Design Discharge in (cum/sec)	Max. scour Level in (mts)	Depth of cutting Well in (mts)		Length of Rigid Apron in (mts)		Length of Flexible Apron in (mts)	
		u/s	d/s	u/s	d/s	u/s	d/s
		DCW ₁	DCW ₂	LRA ₁	LRA ₂	LFA ₁	LFA ₂
38.64	2.723	3.0	3.5	3.0	5.0	4.5	8.0

NOTE:
SOIL BELOW FOUNDING LEVEL UPTO 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 & 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
 - CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
 - FOR REINF. DETAILS OF RETURN WALL REFER SEPARATE DRAWING.
 - GRADE OF STEEL SHALL BE CRS Fa5000 AS PER 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 SCOUR/EROSION.
 - ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG.NO. OSRP/CEG/BR/MISC-02
 - SITE PLAN ON SEPARATE SHEET.
 - FOR FLOOR PROTECTION DETAILS REFER SEPARATE DRAWING.

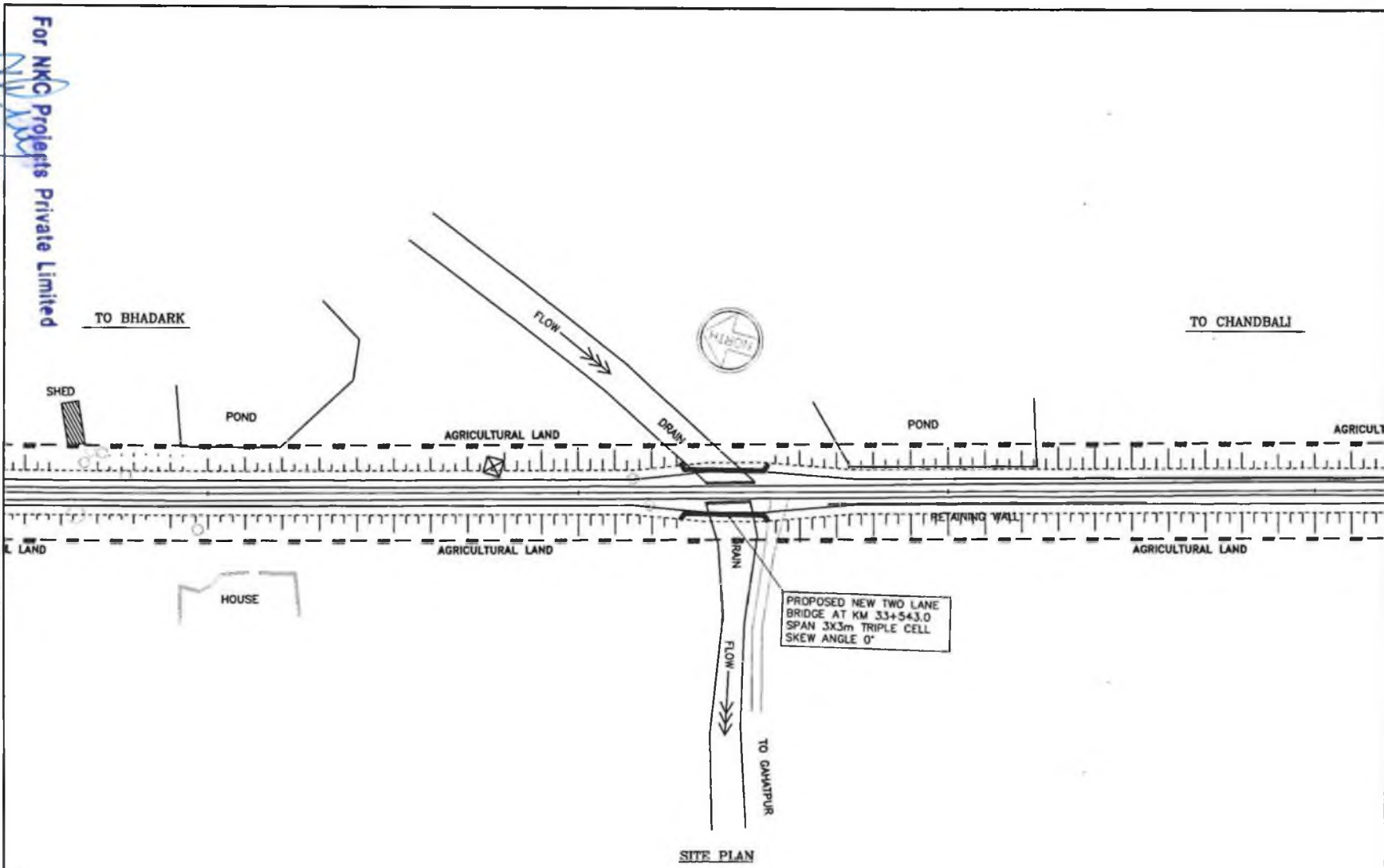
- REFERENCE DRAWING:-**
- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/106, SD/112 (SHEET 1 OF 2), SD/112 (SHEET 2 OF 2).
 - FOR GENERAL NOTES, MISCELLANEOUS DETAILS APPROACH SLAB, RCC RAILING, DRAINAGE SPOUT FLOOR PROTECTION WORKS REFER MOST STANDARD DRAWING OF 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-9/BR/30+050/02
 - OSRP/CEG/RW/MISC-01
 - OSRP/CEG/SH-9/BR/TPW/01
 - OSRP/CEG/SH-9/BR/SCW
 - OSRP/CEG/BR/MISC-02

LOCATION PLAN OF BORE HOLE AT BRIDGE NO.30/060



<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>CHKD.</th> <th>APPVED.</th> </tr> <tr> <td>02</td> <td>02/01/2018</td> <td>SECOND REVISION</td> <td>JASA</td> <td></td> <td></td> </tr> <tr> <td>01</td> <td>JAN-2018</td> <td>FIRST REVISION</td> <td>OND VRAJ</td> <td>PK.MISHRA (AC)</td> <td>BLR.MISHRA (CC)</td> </tr> <tr> <td>-</td> <td>08/06/2008</td> <td>ORIGINAL</td> <td>CCS</td> <td></td> <td></td> </tr> </table>	NO.	DATE	REVISION	BY	CHKD.	APPVED.	02	02/01/2018	SECOND REVISION	JASA			01	JAN-2018	FIRST REVISION	OND VRAJ	PK.MISHRA (AC)	BLR.MISHRA (CC)	-	08/06/2008	ORIGINAL	CCS			<p>SPR CONSULTANT :</p> <p>CEG</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12, MOH COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520899, 2521889, 2520556 Fax: 2521348, e-mail: ceg@cegindia.com</p>	<p>CLIENT :</p> <p>ODISHA WORKS DEPARTMENT</p>	<p>PROJECT :</p> <p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B</p>	<p>SCALE :</p> <p>N.T.S</p>	<p>DRAWING TITLE :</p> <p>GENERAL ARRANGEMENT DRAWING BRIDGE AT PROPOSED CH. 30+154 (GADI GHUSURA)</p> <p>DRG. NUMBER : OSRP/CEG/P02B/STR/3</p>
NO.	DATE	REVISION	BY	CHKD.	APPVED.																								
02	02/01/2018	SECOND REVISION	JASA																										
01	JAN-2018	FIRST REVISION	OND VRAJ	PK.MISHRA (AC)	BLR.MISHRA (CC)																								
-	08/06/2008	ORIGINAL	CCS																										

NOTES:-



SITE PLAN

For MNC Projects Private Limited

MNC Projects Pvt Ltd
(Contractor)

Director

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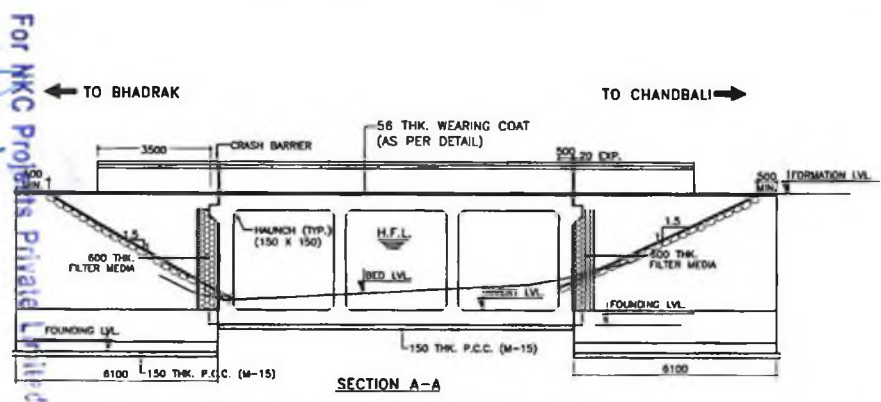
Chief Engineer
DPW & Roads, Odisha
(Employer)

NO. DATE REVISION BY DRAMA PREPARED CHECKED APPROVED			OPR CONSULTANT : CEG ENGINEERS GROUP LTD. E-12, MG3 COLONY, MALMIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521898, 2520558 Fax: 2521346, e-mail: ceg@cegindia.com			DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044			CLIENT : ODISHA WORKS DEPARTMENT			PROJECT : WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B			SCALE : N.T.S			DRAWING TITLE : SITE PLAN BRIDGE AT PROPOSED CH. 33+543		
DRG NUMBER : OSRP/CEG/P02B/STR/3												(SHEET 1 OF 3)								

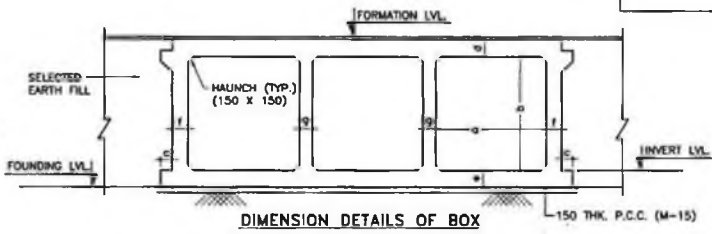
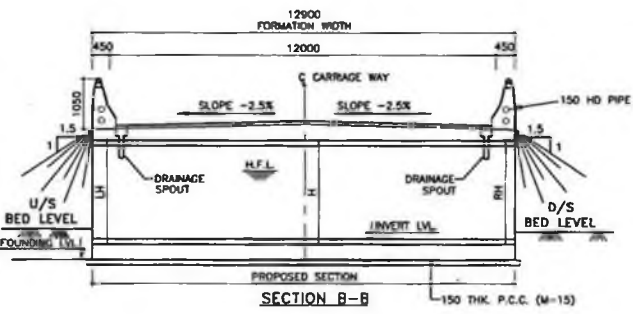
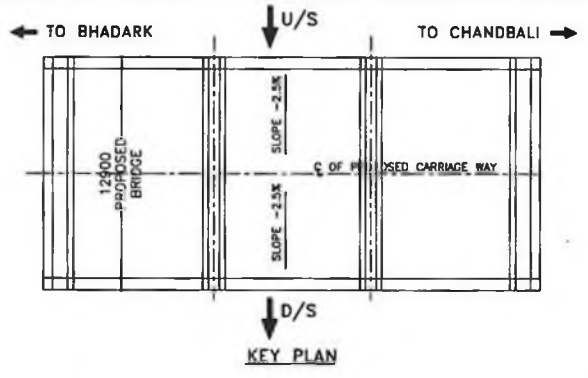
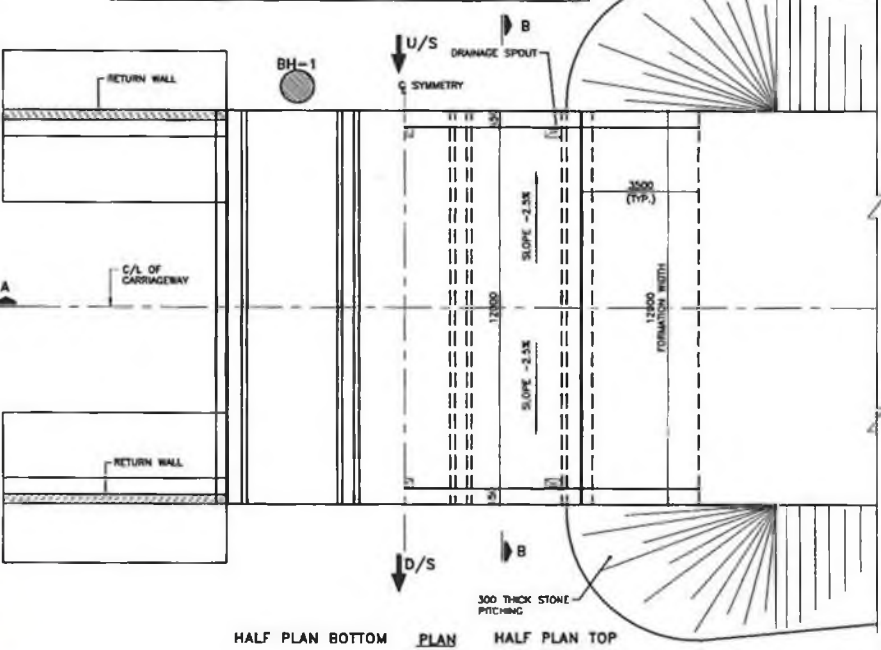
For MNC Projects Private Limited
Director

Page 44 of 92

Chief Engineer,
OP & Roads Division
(Enclaves)



FORMATION LEVEL (m)	8.300	8.300	8.300
BED LEVEL (m)	6.075	4.800	6.075
CHAMGE (m)	2.225	3.500	2.225



DIMENSION DETAILS OF BOX

BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	c (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	THICKNESS g (mm)	BEARING CAPACITY
3/33/0	3000	3000	300	450	500	470	400	10 T/M ²

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) LH (m)	H (m)	BH (m)	DIRECTION OF FLOW
3/33/0	33+500	33+543	8.300	7.043	4.860	4.560	4.060	3.084	3.234	3.084	L TO R

HYDROLOGICAL DATA

Design Discharge (cum/sec)	Max. occur Level in (m)	Depth of curtain wall 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
5.22	4.748	2.0	2.5	3.0	5.0	3.0	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.

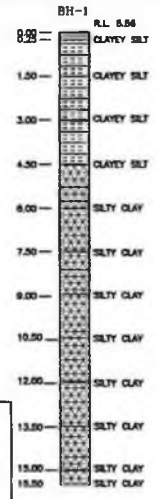
NOTES:

- 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.G.C. LEAN CONC. - M-15
- CHAMGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
- FDR REINF. DETAILS OF RETURN WALL REFER SEPERATE DRAWING. GRADE OF STEEL SHALL BE CRS F5000 AS PER 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 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/106, SD/112 (SHEET 1 OF 2), SD/112 (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-9/BR/33+500/02
- OSRP/CEG/RW/MISC-01
- OSRP/CEG/SH-9/BR/FPW/01
- OSRP/CEG/SH-9/BR/SCW
- OSRP/CEG/BR/MISC-02

LOCATION PLAN OF BORE HOLE AT BRIDGE NO.33/500



NO.	DATE	REVISION	BY	DESIGN	PREPARED	CHECKED	APPROVED
01	SEP-2015	SECOND REVISION	JASA	RAJU MATHEW	RAJ MEHRA (EC)	G.P. PATEL (CE)	
02	JAN-2016	FIRST REVISION	OND	VINAY	PRABHRA (AG)	RAJ MEHRA (EC)	RAJ PRADHAN (CE)
03	JUNE 2006	ORIGINAL	CEB				

DPR CONSULTANT :
CEG
CONSULTING ENGINEERS GROUP LTD.
E-12, MOSE COLONY, MALVIYA NAGAR
JAMPUR-17 Tel: +91-141-2520809, 2521809, 2520556 Fax: 2521348, e-mail: ceg@ceginfolia.com

DESIGN CONSULTANT :
LEA
LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

ODISHA WORKS DEPARTMENT

PROJECT :
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

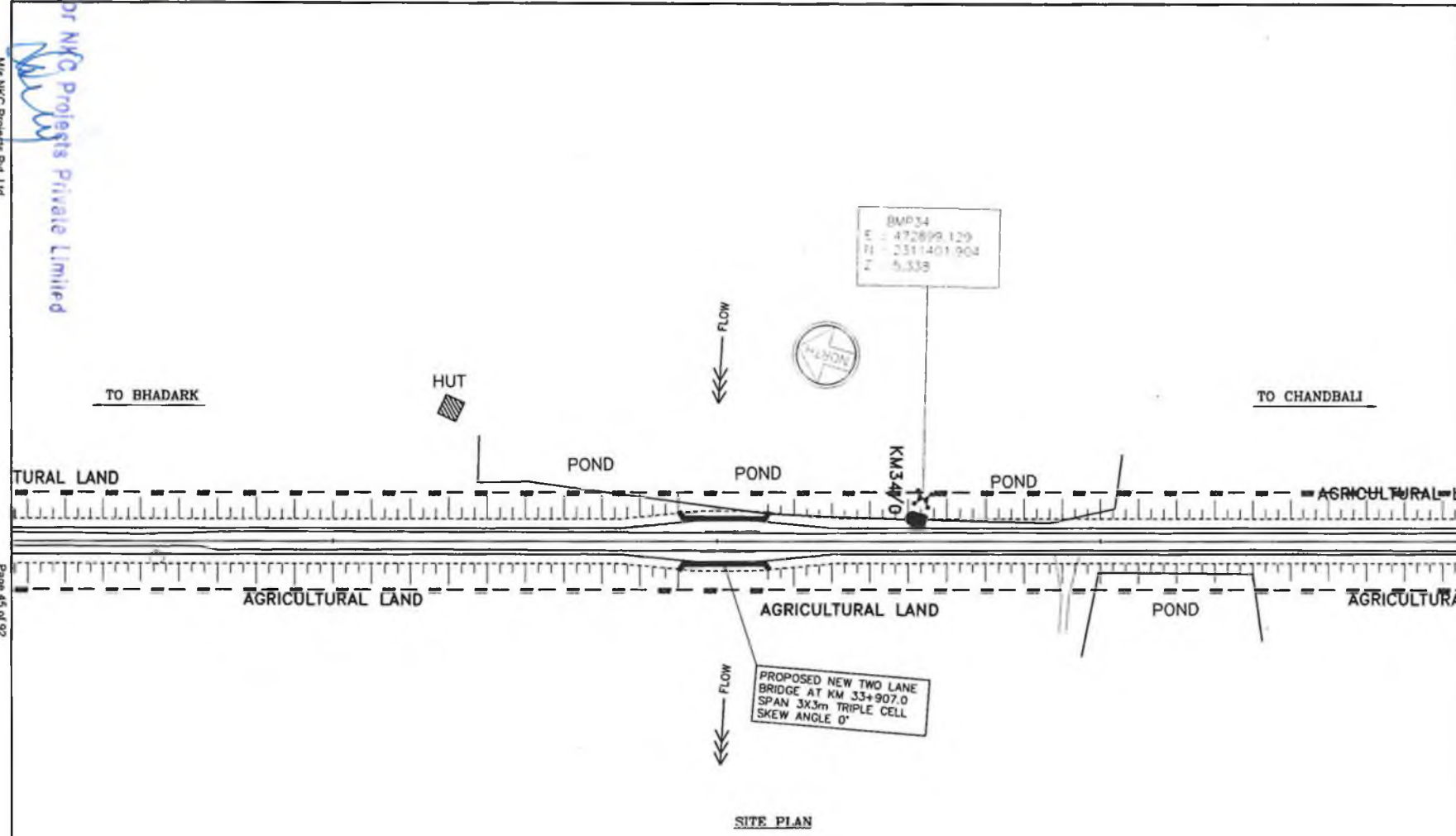
SCALE :
N.T.S

DRAWING TITLE :
GENERAL ARRANGEMENT DRAWING BRIDGE AT PROPOSED CH. 33+543
DRAWING NUMBER : OSRP/CEG/P02B/STR/3

Volume -IV, Drawings

OSRP-CW/IOB-P02B

NOTES:-

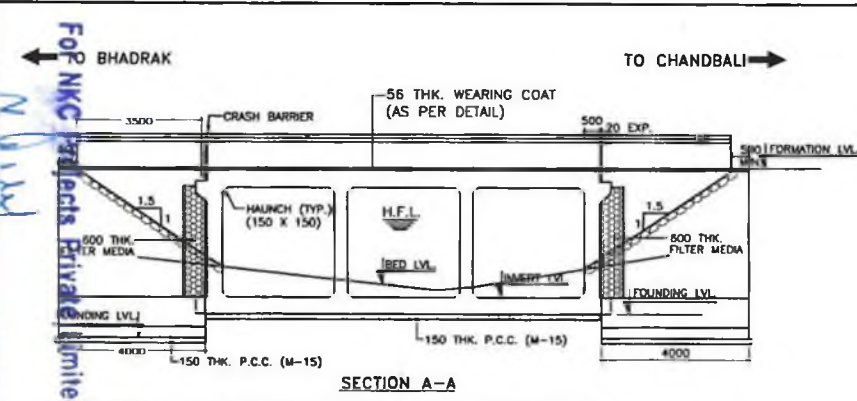


For NKC Projects Private Limited
 M/S NKC Projects Pvt. Ltd
 (Contractor)

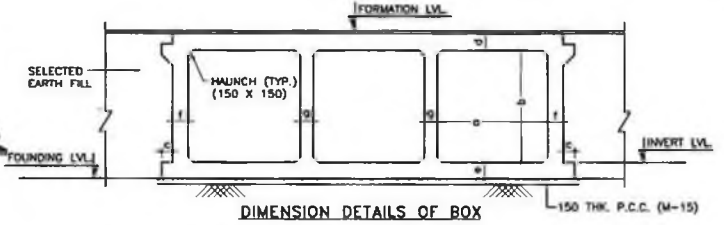
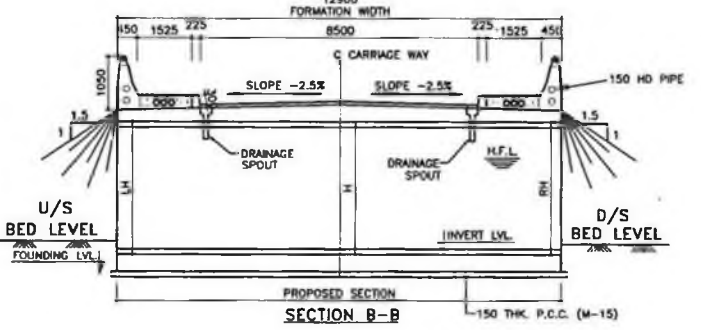
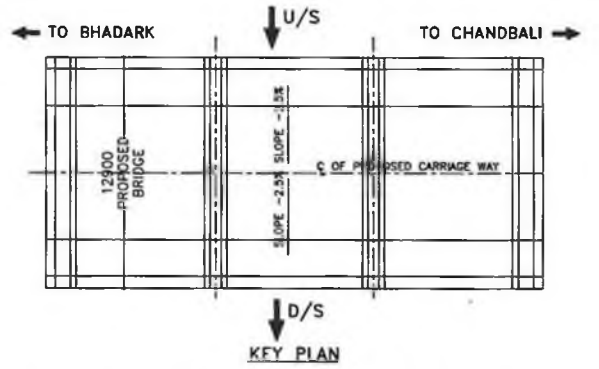
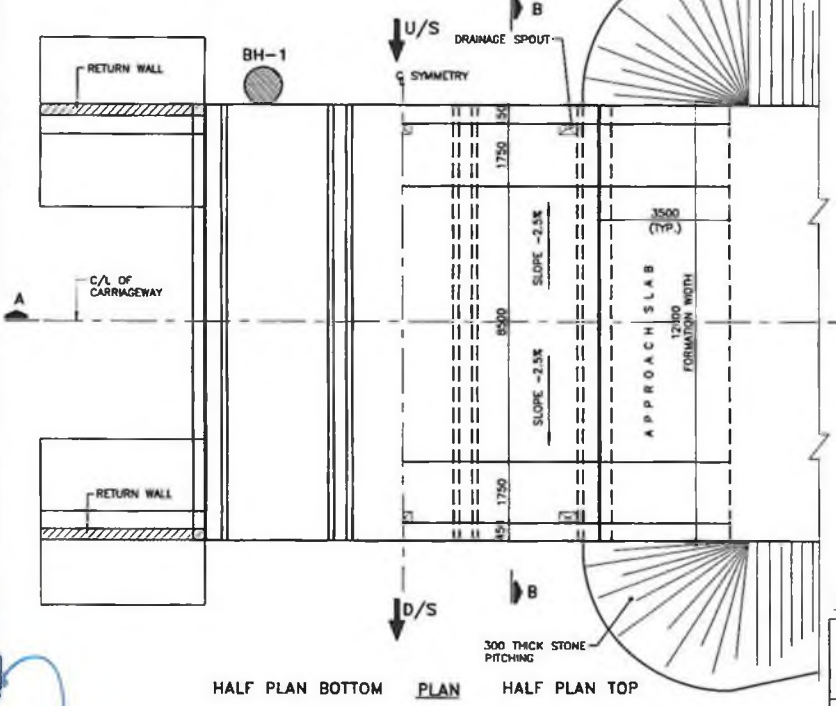
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Chief Engineer,
 O.P. & R.O.
 O.P. & R.O. (Employer)

NO. DATE REVISION BY DESIGNER PREPARED BY CHECKED APPROVED		O.P. CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521699, 2520558 Fax: 2521345, e-mail: ceg@cegroup.co.in		DESIGN REVIEW CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S		DRAWING TITLE : SITE PLAN BRIDGE AT PROPOSED CH. 33+907	
		O.P. & R.O. (Employer)								(SHEET 1 OF 3)		FILE NUMBER : OSRP/CEG/P02B/STR/3	



FORMATION LEVEL (m)	8.300	8.300	8.300
BED LEVEL (m)	6.810	6.810	6.810
CHARGE (m)	1.490	1.490	1.490



DIMENSION DETAILS OF BOX

BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	c (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	THICKNESS g (mm)	BEARING CAPACITY
3/33/0	3000	3000	300	450	500	470	400	10 T/M ²

BOX TYPE	EXISTING LOCATION CHAINAGE (m)	PROPOSED CHAINAGE (m)	FORMATION LEVEL (m)	DESIGN HFL (m)	BED LVL (m)	INVERT LEVEL (m)	FOUNDING LVL (m)	CLEAR HEIGHT (MAX) LH (m)	H (m)	BH (m)	DIRECTION OF FLOW
3/33/0	33+900	33+907	8.300	6.801	5.610	5.310	4.810	2.334	2.484	2.334	L TO R

HYDROLOGICAL DATA

Design Discharge In (cum/see)	Max. scour Level In (mts)	Depth of curtain Wall In (mts)		Length of Right Apron In (mts)		Length of Flexible Apron In (mts)	
		u/s	d/s	u/s	d/s	u/s	d/s
4.83	4.352	2.0	2.5	3.0	5.0	3.0	6.0

NOTE:

SOL BELOW FOUNDING LEVEL UPTO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE COARSE RIVER SAND TO GET THE REQUIRED S.B.C.

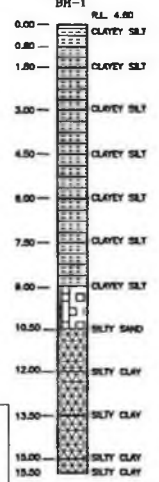
NOTES:

- ALL DIMENSIONS ARE IN MM & 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
- CHANGING / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
- FOR REINF. DETAILS OF RETURN WALL REFER SEPERATE DRAWING. GRADE OF STEEL SHALL BE CRS Fe5000 AS PER IS-1788
- 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 SCOUR/EROSION.
- ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG.NO. OSRP/CEG/BR/MSC-02
- SITEPLAN ON SEPERATE SHEET.
- FOR FLOOR PROTECTION DETAILS REFER SEPERATE DRAWING.

REFERENCE DRAWING:-

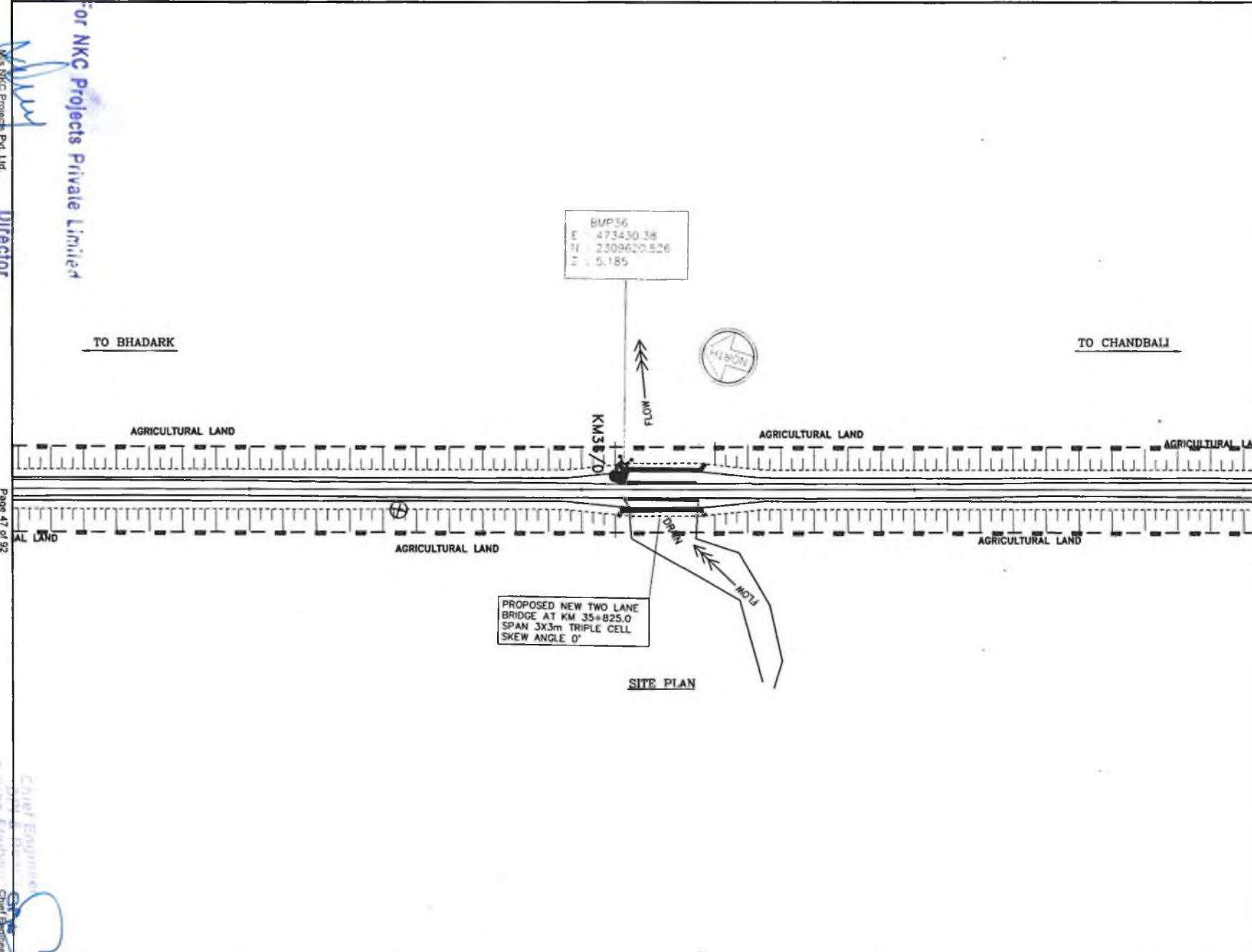
- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/106, SD/112 (SHEET 1 OF 2), SD/112 (SHEET 2 OF 2).
- FOR GENERAL NOTES, MISCELLANEOUS DETAILS, APPROACH SLAB, RCC RAILING, DRAINAGE SPOUT FLOOR PROTECTION WORKS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/101, SD/115 (SHEET 1 OF 4), (SHEET 2 OF 4), (SHEET 3 OF 4), (SHEET 4 OF 4) & SD/111.
- OSRP/CEG/SH-9/BR/33+900/02
- OSRP/CEG/RW/MSC-01
- OSRP/CEG/SH-9/BR/FPW/01
- OSRP/CEG/SH-9/BR/SCW
- OSRP/CEG/BR/MSC-02

LOCATION PLAN OF BORE HOLE AT BRIDGE NO.33+900



<p>NO. 02P-2019</p> <p>REVISION</p> <p>DATE</p> <p>BY</p> <p>DATE</p>	<p>REVISION</p> <p>DATE</p> <p>BY</p> <p>DATE</p>	<p>REVISION</p> <p>DATE</p> <p>BY</p> <p>DATE</p>	<p>REVISION</p> <p>DATE</p> <p>BY</p> <p>DATE</p>	<p>REVISION</p> <p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>	<p>DATE</p> <p>BY</p> <p>DATE</p>
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NOTES:-



PROPOSED NEW TWO LANE
BRIDGE AT KM 35+825.0
SPAN 3X3m TRIPLE CELL
SKEW ANGLE 0°

SITE PLAN

For NKC Projects Private Limited
 Director
 (Contractor)

Page 47 of 92

Chief Engineer
 Chief Engineer
 (Employer)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
01	2019-01-15	RECORD REVISION	LAKA		RAJ K MATHUR	S.R. MISHRA (CC)	G.P. PATIL (CC)
02	2019-01-15	FIRST REVISION	OND	VINAY	PRADHANA (AK)	S.R. MISHRA (CC)	S.R. PRADHAN (CC)
03	2019-01-15	ORIGINAL	OND				

DPE CONSULTANT :
CBC
ENGINEERS GROUP LTD.
 E-12, MOU COLONY, MALVIYA NAGAR
 JAIPUR-302017 Tel:
 +91-141-2520889, 2521899, 2520556 Fax:
 2521345, e-mail: cbc@bcgindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 9-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE
 INDUSTRIAL ESTATE, MATHURA ROAD, NEW
 DELHI-110044

CLIENT :

ODISHA WORKS DEPARTMENT

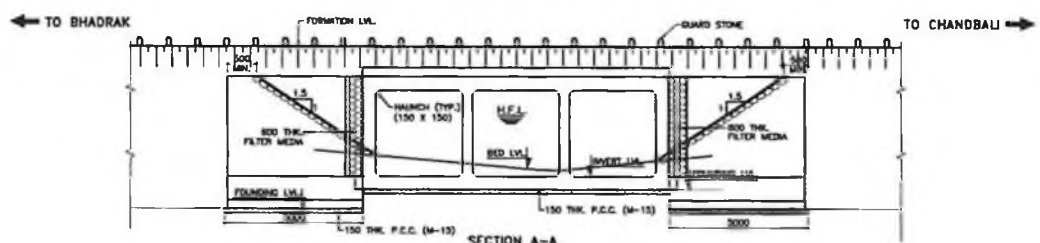
PROJECT :
 WIDENING AND STRENGTHENING OF EXISTING
 CARRIAGEWAY TO 2 LANE ROAD FROM
 PIRHAT TO CHANDBALI - KM 27+500 TO KM
 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S

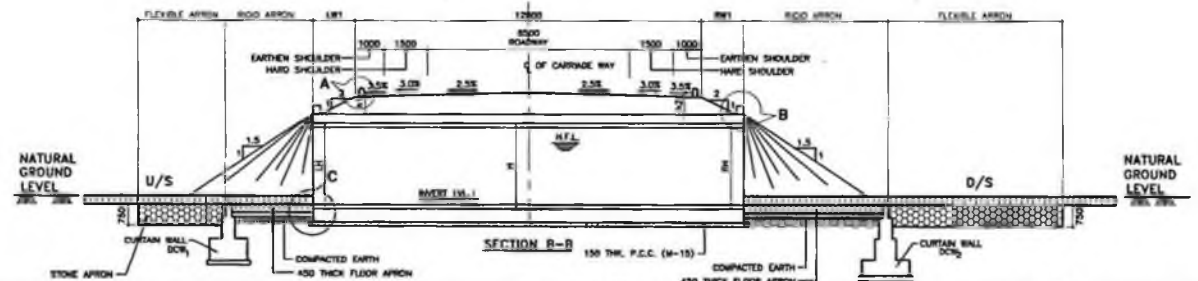
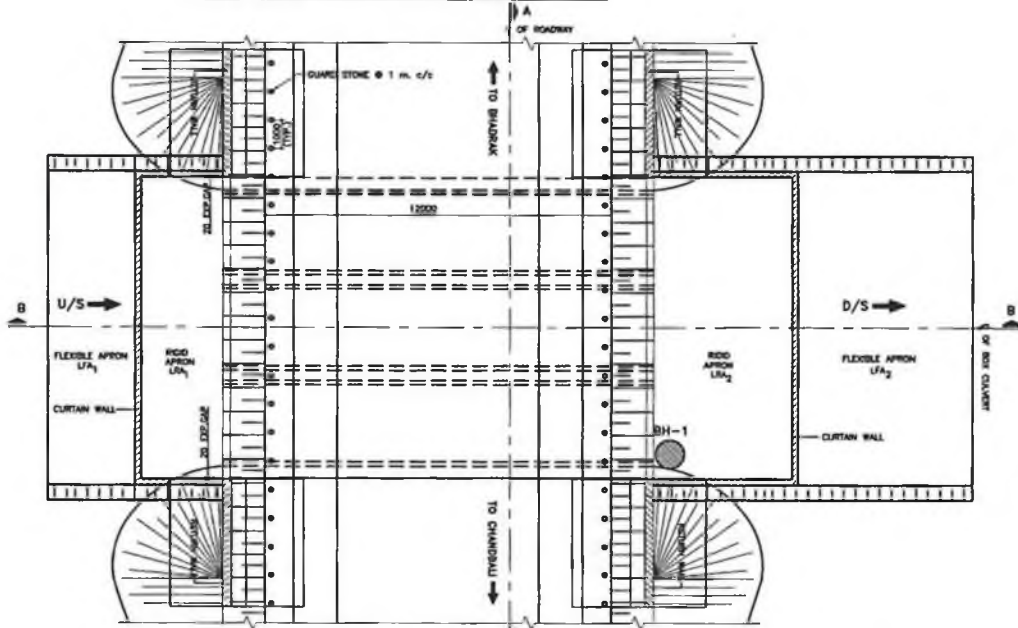
DRAWING TITLE :
 SITE PLAN BRIDGE AT KM 36+005
 (NALAGANDHA GHUSURA)

DRAWING NUMBER : OSRP/CEG/P02B/STR/3

For M&C Projects Private Limited



FORMATION LEVEL (m)	RED LEVEL (m)	CHARGE (m)	DOE S TOE	DOE B/S TOE
12.00	11.75	0.25		

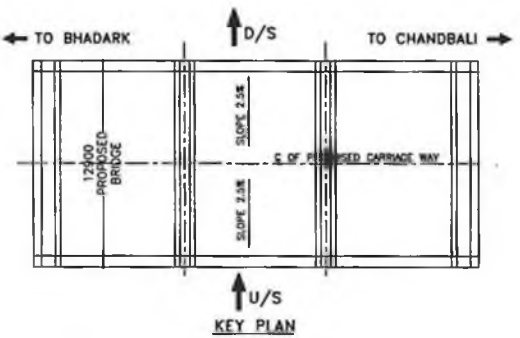


NOTES:

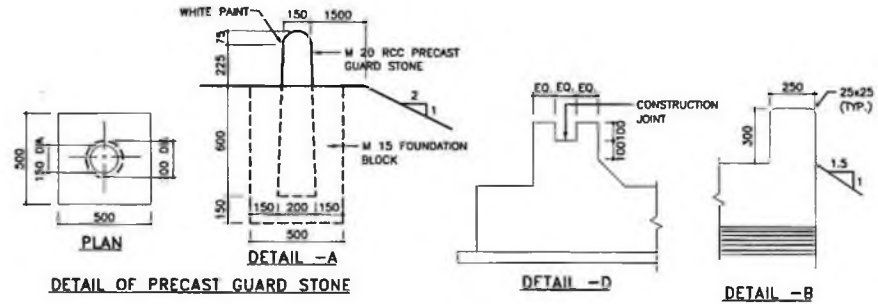
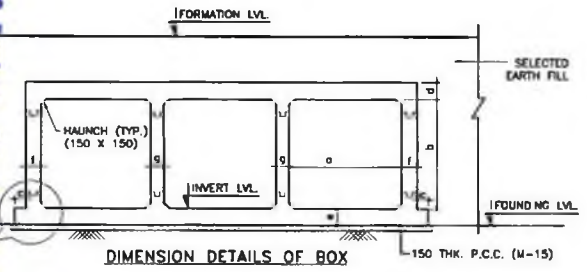
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
- ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
- LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
- GRADE OF CONCRETE:-
 BOX - M-25
 RETURN WALL - M-25
 APPROACH SLAB - M-30
 CURTAIN WALL - M-20
 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 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 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/107, SD/118 (SHEET 1 OF 3), SD/118 (SHEET 3 OF 3).
- FOR GENERAL NOTES, MISCELLANEOUS DETAILS FLOOR PROTECTION WORKS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/101 & SD/111 (SHEET 1 OF 4).
- OSRP/CEG/SH-9/BR/36+005/01 (SHEET 2 OF 2)
- OSRP/CEG/SH-9/BR/36+005/02
- OSRP/CEG/SH-9/BR/FPW/01
- OSRP/CEG/SH-9/BR/SCW
- OSRP/CEG/RW/MISC-01
- OSRP/CEG/BR/MISC-02



<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>DESIGN</th> <th>PREPARED</th> <th>CHECKED</th> <th>APPROVED</th> </tr> <tr> <td>01</td> <td>SEP-2016</td> <td>ISSUE FOR TENDER</td> <td>JSA</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>JAN-2017</td> <td>FIRST REVISION</td> <td>ONG</td> <td>VINAY</td> <td>PRANSHU (AE)</td> <td>RAJESH (AE)</td> <td>RAJESH (AE)</td> </tr> <tr> <td>03</td> <td>JUNE 2008</td> <td>ORIGINAL</td> <td>CEG</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				NO.	DATE	REVISION	BY	DESIGN	PREPARED	CHECKED	APPROVED	01	SEP-2016	ISSUE FOR TENDER	JSA					02	JAN-2017	FIRST REVISION	ONG	VINAY	PRANSHU (AE)	RAJESH (AE)	RAJESH (AE)	03	JUNE 2008	ORIGINAL	CEG					<p>SPR CONSULTANT I CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 TEL: 491-141-2320699, 2321899, 2520555 2321346, e-mail: ceg@cegindia.com</p>				<p>DESIGN REVIEW CONSULTANT I LEA LEA Associates South Asia Pvt. Ltd., India B-1, 6-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044</p>				<p>CLIENT ODISHA WORKS DEPARTMENT</p>				<p>PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B</p>				<p>SCALE N.T.S</p>				<p>DRAWING TITLE GENERAL ARRANGEMENT DRAWING BRIDGE AT KM 36+005 (NALAGANDHA GHUSURA)</p>			
NO.	DATE	REVISION	BY	DESIGN	PREPARED	CHECKED	APPROVED																																																				
01	SEP-2016	ISSUE FOR TENDER	JSA																																																								
02	JAN-2017	FIRST REVISION	ONG	VINAY	PRANSHU (AE)	RAJESH (AE)	RAJESH (AE)																																																				
03	JUNE 2008	ORIGINAL	CEG																																																								
<p>DRW NUMBER OSRP/CEG/P02B/STR/3</p>																																																											



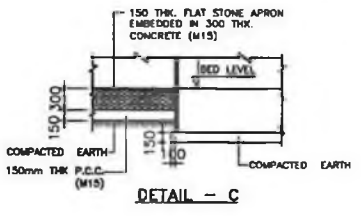
DIMENSION DETAILS OF BOX

BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	c (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	THICKNESS g (mm)	HEIGHT h (mm)	BEARING CAPACITY
3/33/3	3000	3000	300	350	400	350	250	3000	10 T/M ²

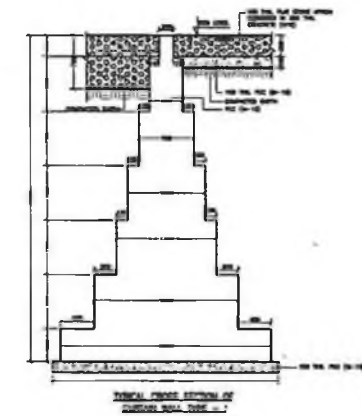
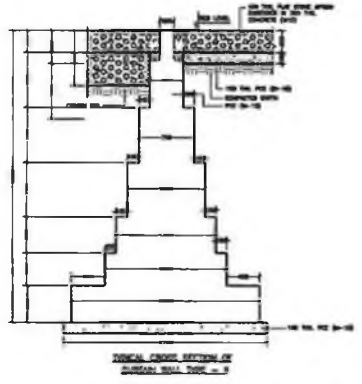
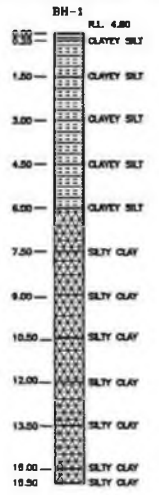
BOX TYPE	PROPOSED CHAINAGE (m)	FORMATION LEVEL (m)	DESIGN H/L (m)	BED LVL (m)	INVERT LEVEL (m)	FOUNDING LVL (m)	CLEAR HEIGHT (MAX)			DIRECTION OF FLOW	CUSHION		LW1	RW1
							LH (m)	H (m)	RH (m)		N1	N2		
3/33/3	35+825.0	8.700	7.490	4.772	4.472	3.972	3.572	3.722	3.572	R TO L	0.57	0.57	1.10	1.10

HYDROLOGICAL DATA

Design Discharge (cum/Sec)	Max. river level in (m)	Depth of main Wall in (m)		Length of Right Apron in (m)		Length of Flexible Apron in (m)	
		u/s	d/s	u/s	d/s	u/s	d/s
		DCW ₁	DCW ₂	LRA ₁	LRA ₂	LFA ₁	LFA ₂
24.46	1.273	4.0	4.5	3.0	5.0	7.0	7.0



LOCATION PLAN OF BORE HOLE AT BRIDGE NO.36/005



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
 CURTAIN WALL - M-20
 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. GRADE OF STEEL SHALL BE CRS Fe500D AS PER 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 SCOUR/EROSION.
- ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG.NO. OSRP/CEG/BR/MISC-02
- INDEX PLAN ON SEPARATE SHEET.
- FOR FLOOR PROTECTION DETAILS REFER SEPERATE DRAWING.

REFERENCE DRAWING:-

- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/107, SD/116 (SHEET 1 OF 3), SD/116 (SHEET 3 OF 3).
- FOR GENERAL NOTES, MISCELLANEOUS DETAILS FLOOR PROTECTION WORKS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/101 & SD/111 (SHEET 1 OF 4).
- OSRP/CEG/SH-9/BR/36+005/01 (SHEET 1 OF 2)
- OSRP/CEG/SH-9/BR/36+005/02
- OSRP/CEG/SH-9/BR/FPW/01
- OSRP/CEG/SH-9/BR/SCW
- OSRP/CEG/RW/MISC-01
- OSRP/CEG/BR/MISC-02

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.

REVISIONS: NO. DATE REVISION BY 01 JAN-2013 FIRST REVISION CHS VNAAY 02 JUNE 2008 ORIGINAL CHS				DRG. CONSULTANT 1: CONSULTING ENGINEERS GROUP LTD. E-12, MOHA COLONY, MALVIYA NAGAR, JAIPUR-17 Tel: +91-141-2520899, 2521889, 2520556 Fax: 2521348, e-mail: ceg@ceghd.com				DRG. CONSULTANT 2: LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT: ODISHA WORKS DEPARTMENT				PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B				SCALE: H.T.S				DRAWING TITLE: GENERAL ARRANGEMENT DRAWING BRIDGE AT KM 36+005 (NALAGANDHA GHUSURA)			
NO. DATE REVISION BY 01 JAN-2013 FIRST REVISION CHS VNAAY 02 JUNE 2008 ORIGINAL CHS				DRG. CONSULTANT 1: CONSULTING ENGINEERS GROUP LTD. E-12, MOHA COLONY, MALVIYA NAGAR, JAIPUR-17 Tel: +91-141-2520899, 2521889, 2520556 Fax: 2521348, e-mail: ceg@ceghd.com				DRG. CONSULTANT 2: LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT: ODISHA WORKS DEPARTMENT				PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B				SCALE: H.T.S				DRAWING TITLE: GENERAL ARRANGEMENT DRAWING BRIDGE AT KM 36+005 (NALAGANDHA GHUSURA)			
NO. DATE REVISION BY 01 JAN-2013 FIRST REVISION CHS VNAAY 02 JUNE 2008 ORIGINAL CHS				DRG. CONSULTANT 1: CONSULTING ENGINEERS GROUP LTD. E-12, MOHA COLONY, MALVIYA NAGAR, JAIPUR-17 Tel: +91-141-2520899, 2521889, 2520556 Fax: 2521348, e-mail: ceg@ceghd.com				DRG. CONSULTANT 2: LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT: ODISHA WORKS DEPARTMENT				PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B				SCALE: H.T.S				DRAWING TITLE: GENERAL ARRANGEMENT DRAWING BRIDGE AT KM 36+005 (NALAGANDHA GHUSURA)			

NOTES:-

For NKC Projects Private Limited

Director

CURVE DETAILS	
R (m)	75
L (m)	42+377.413
P (m)	80
Lc (m)	300
Lr (m)	56.483
Ls (m)	75
Delta (°)	25° 6' 41.2"
e (m)	7.0
Tan (m)	104.462
Ea (m)	3.150

TO BHADARK

TO CHANDBALI

TO MUTHUGUDA

TO RANGUDA

PROPOSED NEW TWO LANE BRIDGE AT KM 42+487.0 SPAN 1X6.0m SINGLE CELL SKEW ANGLE 0°

BLISRAY	
CHAINAGE	42+595
SIDE	RIGHT
REF. DWG. NO.	OSRP/CEG/BB-

SITE PLAN

NO.	DATE	REVISION	BY	DRAMA	PREPARED	CHECKED	APPROVED
1	15-01-2013	RECORD	REVISION	JASA			
2	15-01-2013	FIRST REVISION	PRO	WHAT			
3	15-01-2013	ORIGINAL	CEG				

CLIENT: ODISHA WORKS DEPARTMENT
 PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

CONSULTANT: CEC CONSULTING ENGINEERS GROUP LTD.
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 2nd FLOOR, MOHNI COOPERATIVE INDUSTRIAL ESTATE, MAHURA ROAD, NEW DELHI-110044



SCALE: N.T.S.

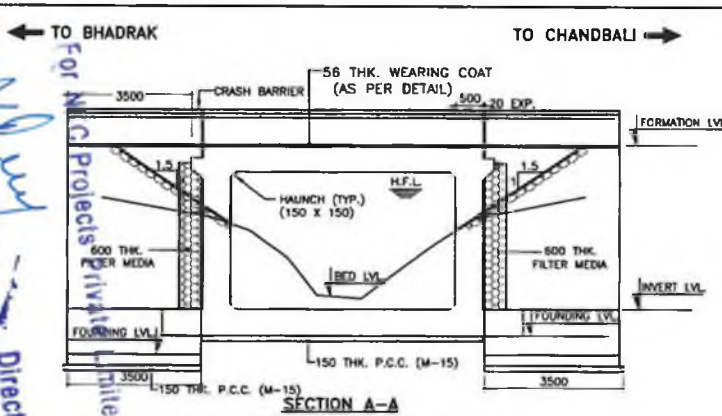
DRAWING TITLE: SITE PLAN DRAWING BRIDGE AT PROPOSED CH. 42+487

REF. DWG. NO. OSRP/CEG/P02B/STR/3

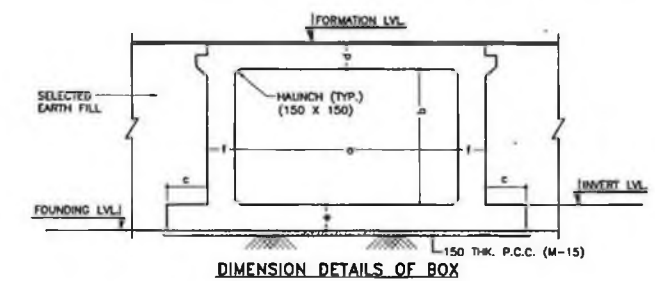
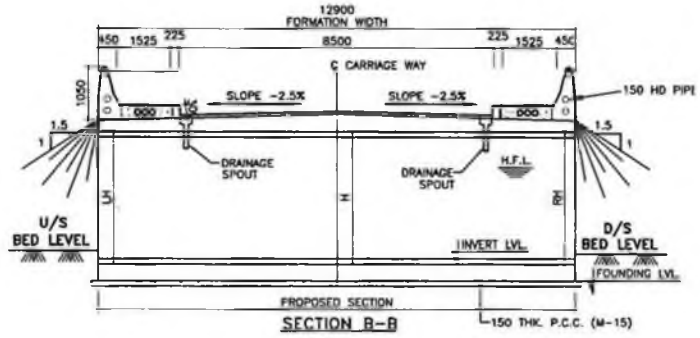
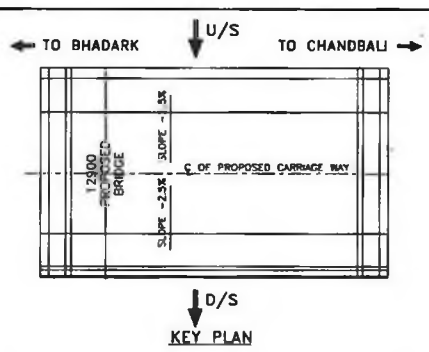
STUDY 1 OF 3

OSRP-CW/ICB-P02B

Client Engineer, Chief Engineer, DPA Road, Odisha (Employer)



FORMATION LEVEL (m)	9.000	9.000	9.000
BED LEVEL (m)	7.814	4.721	7.268
CHAMAGE (m)	42+403.23	42+487.0	42+490.75



BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	c (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	BEARING CAPACITY
1/85/D	6000	5000	1100	680	750	750	15 T/m ²

BOX TYPE	EXISTING LOCATION (m)	PROPOSED CHAMAGE (m)	FORMATION LEVEL (m)	DESIGN H.F.L. (m)		BED LVL (m)	INVERT LEVEL (m)	FOUNDING LVL (m)	CLEAR HEIGHT (MAX)			DIRECTION OF FLOW
				a	b				LH (m)	H (m)	RH (m)	
1/85/D	42+400	42+487.0	9.000	7.811	4.721	4.721	3.971	3.221	4.4	4.5	4.4	L TO R

HYDROLOGICAL DATA

Design Discharge in (cum/sec)	Max. scour Level in (mts)	Depth of curb in Well in (mts)		Length of Rigid Apron in (mts)		Length of Flexible Apron in (mts)	
		u/s	d/s	u/s	d/s	u/s	d/s
		DCW ₁	DCW ₂	LRA ₁	LRA ₂	LFA ₁	LFA ₂
3.29	6.234	2.0	2.5	3.0	5.0	3.0	6.0

NOTE:

SOIL BELOW FOUNDING LEVEL UPTO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE COARSE RIVER SAND TO GET THE REQUIRED S.B.C.

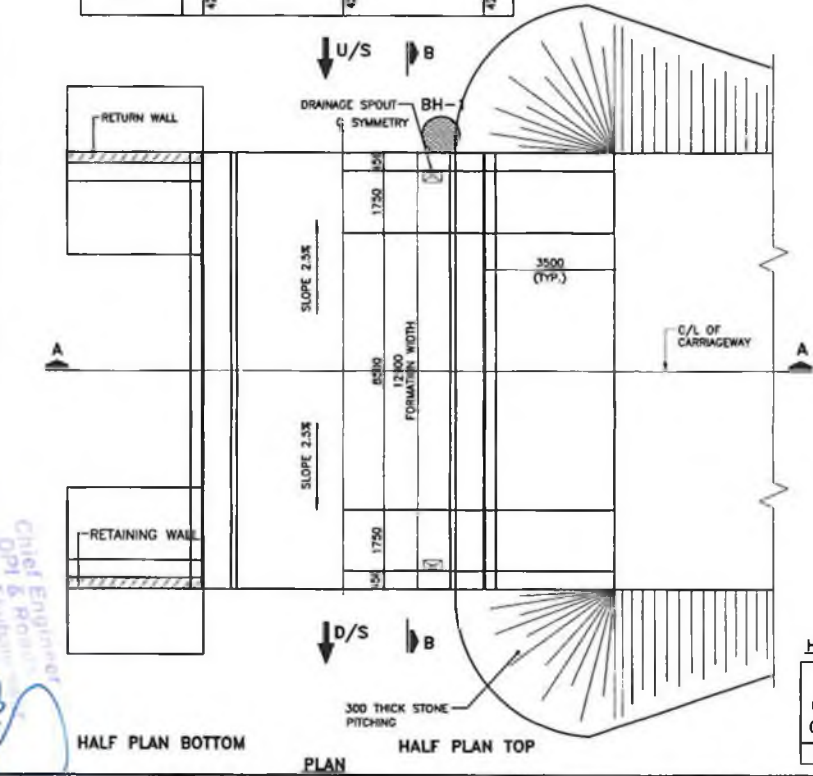
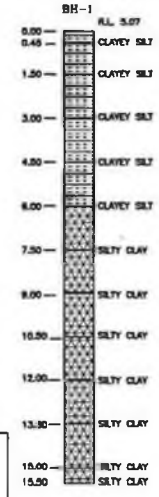
NOTES:

- ALL DIMENSIONS ARE IN MM & 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
- CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
- FOR REINF. DETAILS OF RETURN WALL REFER SEPERATE DRAWING. GRADE OF STEEL SHALL BE CRS Fa5000 AS PER 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 SCOUR/EROSION.
- ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG NO. OSRP/CEG/BR/MISC-02
- SITE PLAN ON SEPARATE SHEET.
- FOR FLOOR PROTECTION DETAILS REFER SEPERATE DRAWING.

REFERENCE DRAWING:-

- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/102, SD/108 (SHEET 1 OF 6), SD/108 (SHEET 6 OF 6) & SD/115.
- 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-9/BR/42+400/02
- OSRP/CEG/RW/MISC-01
- OSRP/CEG/SH-9/BR/FPW/01
- OSRP/CEG/SH-9/BR/SEW
- OSRP/CEG/BR/MISC-02

LOCATION PLAN OF BORE HOLE AT BRIDGE NO.42/400



NO.	DATE	REVISION	BY	CHECKED	APPROVED
01	SEP-2016	SECOND REVISION	JARA	RAAJ MATHUR	S.R. MEHRA (CC) O.P. PATIL (CC)
02	JAN-2013	FIRST REVISION	OND	VINAY	PRASHANTHA (CC) S.R. MEHRA (CC) N.K. PRASHAN (CC)
03	JUNE 2008	ORIGINAL	CEG		

CONSULTANT:
OGC
ENGINEERS GROUP LTD.
E-12, MOH COLONY, MALVIYA NAGAR
JAPUR-17 Tel: +91-141-2520809, 2521899, 2520558 Fax: 2521348, e-mail: oeg@ogcpl.com

DESIGN ENGINEER CONSULTANT:
CEA Associates South Asia Pvt. Ltd., India
8-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

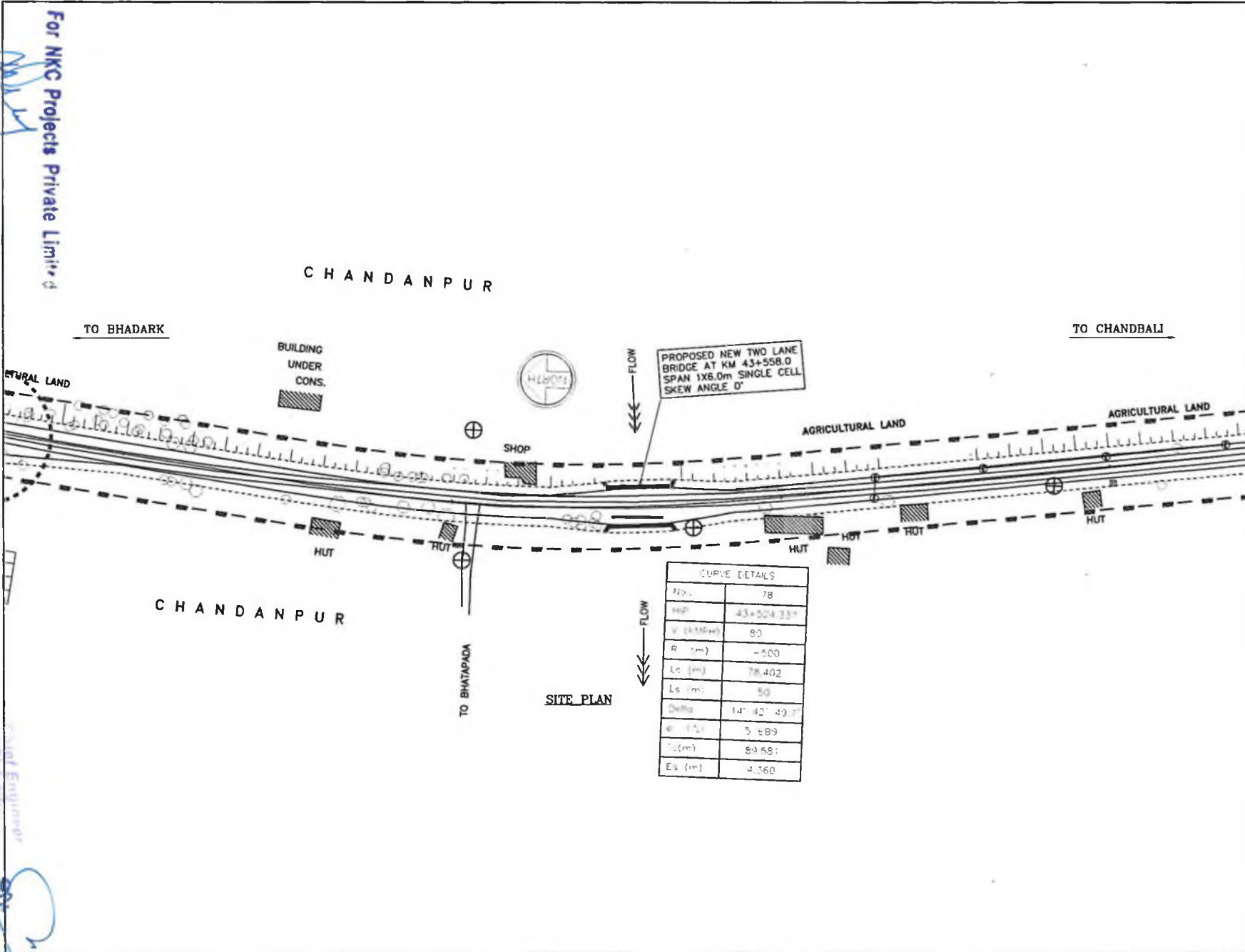
CLIENT:
ODISHA WORKS DEPARTMENT

PROJECT:
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE:
N.T.S

DRAWING TITLE:
GENERAL ARRANGEMENT DRAWING BRIDGE AT PROPOSED CH. 42+487
OSRP/CEG/P02B/STR/3

NOTES:-



For NKC Projects Private Limited
 Director
 (Contractor)

Page 52 of 92

Chief Engineer,
 Dept. of Roads, Odisha
 (Employer)

NO.	DATE	REVISION	BY	CHKD.	PREPARED	CHECKED	APPROVED
01	SEP-2016	SECOND REVISION	JADA		RAJU WATHUR	RAJ MEHRA (CE)	O.P. PATEL (CO)
02	JAN-2017	FIRST REVISION	OND	VSAT	PK.MISHRA (AE)	RAJ MEHRA (CE)	RAJ PRANSHAW (CE)
03	JUNE 2008	ORIGINAL	OND				

O.P.N CONSULTANT :
CEG
CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJI COLONY, MALVIYA NAGAR
 JAPUR-17 Tel: +91-141-2320899, 2521889, 2520558 Fax: 2521348, e-mail: oeg@cegindia.com

O.P.N CONSULTANT :
CEG
 LIA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, WATHURA ROAD, NEW DELHI-110044

CLIENT :

ODISHA WORKS DEPARTMENT

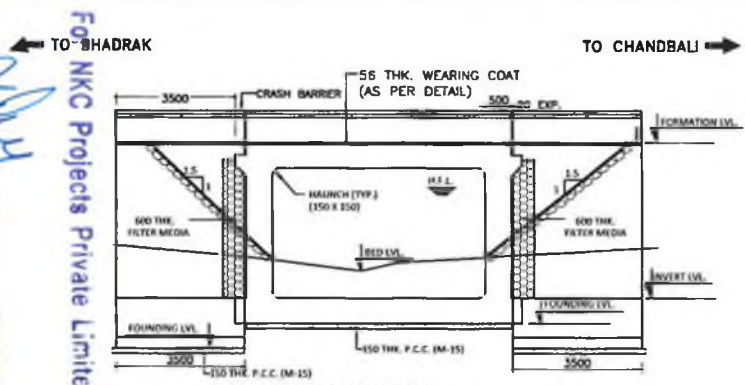
PROJECT :
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - PD2B

SCALE :
N.T.S

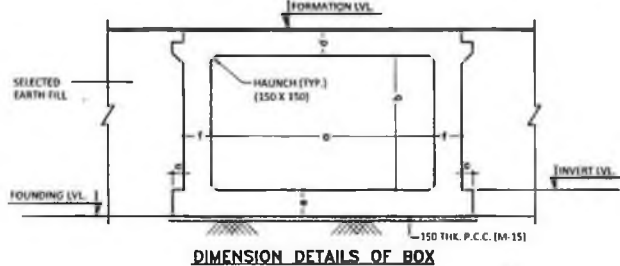
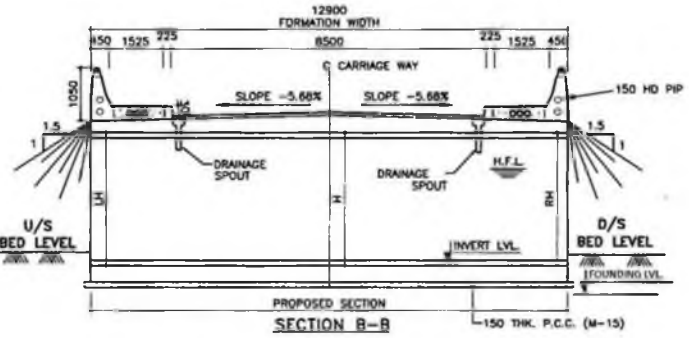
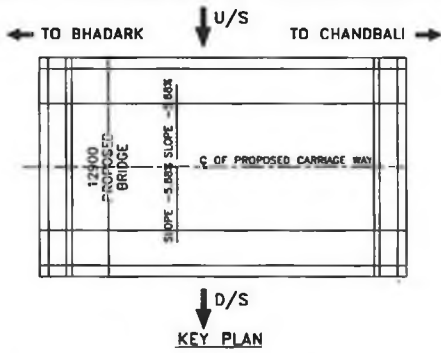
DRAWING TITLE :
SITE PLAN BRIDGE AT PROPOSED CH. 43+558 (CHANDANPUR POLO)

(SHEET 2 OF 2)

SHEET NUMBER : **OSRP/CEG/SH09/PO2B/BR/43+500/2**



SECTION A-A			
FORMATION LEVEL (m)	9.300	9.300	9.300
BED LEVEL (m)	8.318	8.098	8.113
CHAMBER (m)	02.45+43	03+55.00	04+38.75



DIMENSION DETAILS OF BOX							
BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	BEARING CAPACITY	
1/6A/0	6000	4000	300	680	720	750	15 T/M ²

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) LH (m)	H (m)	RM (m)	DIRECTION OF FLOW
1/6A/0	43+500	43+558.0	9.300	8.123	6.70	5.92	5.20	2.5	2.9	3.2	L to R

HYDROLOGICAL DATA

Design Discharge (cum/sec)	Max. scour Level in (mts)	Depth of curtain Wall in (mts)		Length of Rigid Apron in (mts)		Length of Flexible Apron in (mts)	
		u/s	d/s	LRA ₁	LRA ₂	LFA ₁	LFA ₂
2.35	7.033	2.0	2.5	3.0	5.0	3.0	6.0

NOTE:
SOIL BELOW FOUNDING LEVEL UPTO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE COARSE RIVER SAND TO GET THE REQUIRED S.B.C.

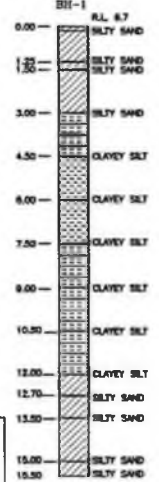
NOTES:-

- ALL DIMENSIONS ARE IN MM & 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-35
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 SEPARATE DRAWING. GRADE OF STEEL SHALL BE Fe500 AS PER IS-1786:2008
- 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 SCOUR/EROSION.
- ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG. NO. OSRP/CEG/BR/MISC. 02.
- SITE PLAN ON SEPARATE SHEET.
- FOR FLOOR PROTECTION DETAILS REFER SEPARATE DRAWING
- THE AREA IS UNDER SEVERE EXPOSURE CONDITION

REFERENCE DRAWING:-

- FOR DIMENSION & REINFORCEMENT DETAILS REFER MOST STANDARD DRAWING OF CULVERTS NO. SD/102, SD/108 (SHEET 1 OF 6), SD/108 (SHEET 6 OF 6) & SD/115
- 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-9/BR/43+500/02
- OSRP/CEG/RW/MISC-01
- OSRP/CEG/SH-9/BR/PW/01
- OSRP/CEG/SH-9/BR/SCW
- OSRP/CEG/BR/MISC-02

LOCATION PLAN OF BORE HOLE AT BRIDGE NO.43/500



NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
R2	2024-09-10	SECOND REVISION	JASA	RAJU MATHUR	MR. NEERA (JC)	G.P. PATEL (JC)	
R1	JAN-2023	FIRST REVISION	CHD	VINAY	PALASHA (JC)	MR. NEERA (JC)	RAJ PRADHAN (JC)
-	JUNE 2008	ORIGINAL	CHD				

DPI CONSULTANT:
CEG
CONSULTING ENGINEERS GROUP LTD.
E-12, MOJSA COLONY, MALVIYA NAGAR
JALPUR-17 Tel:
+91-141-3520899, 2521809, 2520558 Fax:
2521348, e-mail: ceg@cegin.co.in

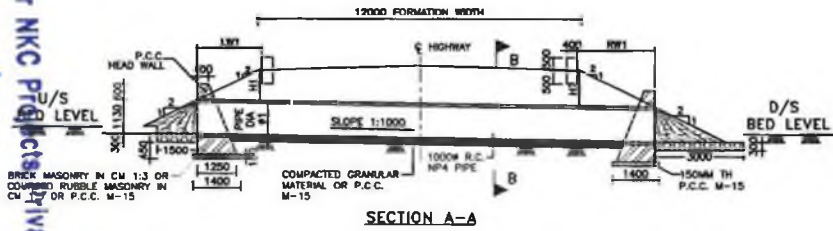
DESIGN & EXECUTION CONSULTANT:
LEA
LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

CLIENT:
ODISHA WORKS DEPARTMENT

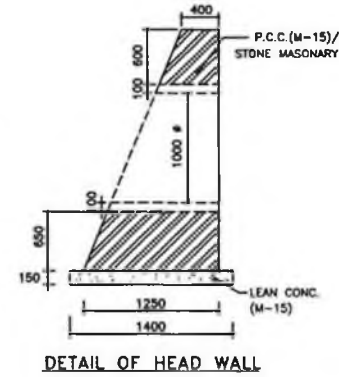
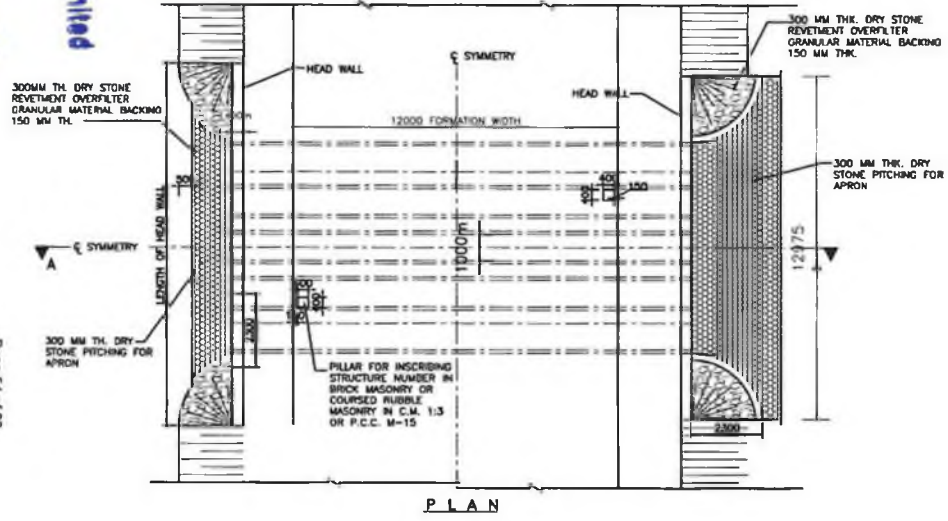
PROJECT:
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - PO2B

SCALE:
N.T.S.

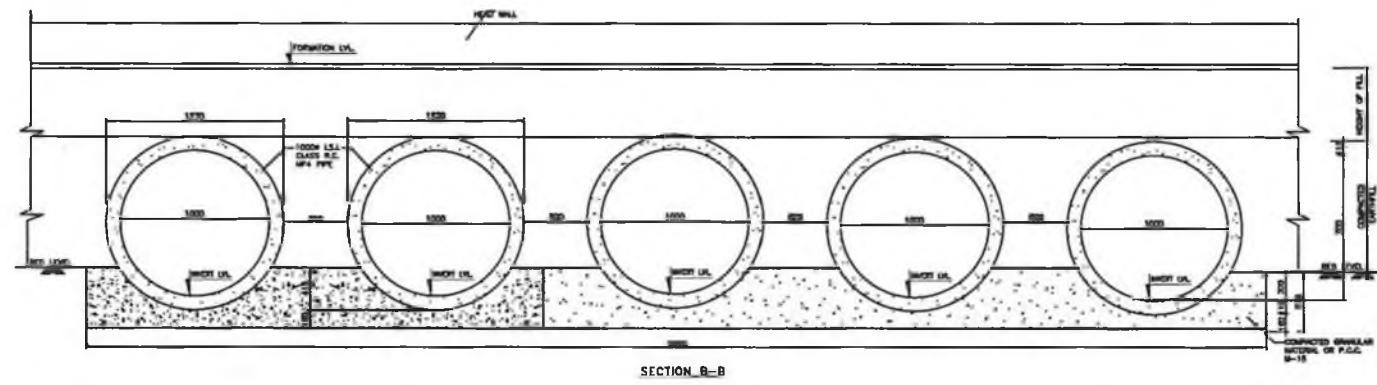
DRAWING TITLE:
GENERAL ARRANGEMENT DRAWING BRIDGE AT PROPOSED CH. 43+558 (CHANDANPUR POLO)
(SHEET 1 OF 2)
DPI NUMBER: OSRP/CEG/SH09/PO2B/BR/1+015/1



Sl. No.	Location	Proposed Chainage	Proposed Formation Level	Bed Level		Invert Level	Camber/Super Elevation		Direction of flow
				Left	Right		Left	Right	
				1	39/300		39387	8.76	
2	39/800	39837	8.93	7.12	6.79	6.79	-2.5%	-2.5%	L TO R
3	40/350	40310	8.41	6.50	6.50	6.20	-2.5%	-2.5%	R TO L
4	40/950	40974	9.16	6.48	7.10	6.40	-2.5%	-2.5%	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 CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
 - CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE.
 - FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
 - LONGITUDINAL SLOPE OF PIPE SHALL BE MIN. 1 IN 1000.
 - FIRST CLASS BEDDING CAN BE USED FOR MAXIMUM HEIGHT OF FILL OF 4.0 M.
 - THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.



NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2018	SECOND REVISION	SASA		RAJU MADHU	M.R. MENNA (CC)	S.P. PATEL (CC)
01	JAN-2018	FIRST REVISION	OND	YRATY	PKUMSURA (AC)	M.R. MENNA (CC)	N.K. PRADHAN (CC)
-	JUNE 2018	ORIGINAL	OND				

ODISHA CONSULTANT 1

CONSULTING ENGINEERS GROUP LTD.

E-12, MOJIL COLONY, MALVIYA NAGAR JAPPUR-17 Tel: +91-141-2520889, 2521889, 2520558 Fax: 2521348, e-mail: ceg@cegltda.com

ODISHA CONSULTANT 2

LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

ODISHA WORKS DEPARTMENT

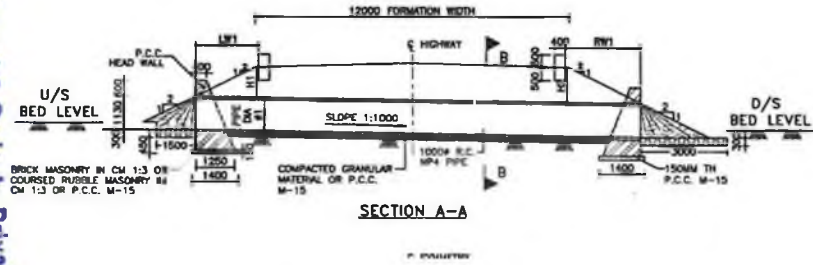
PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE: N.T.S

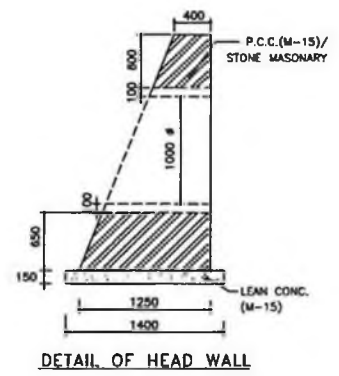
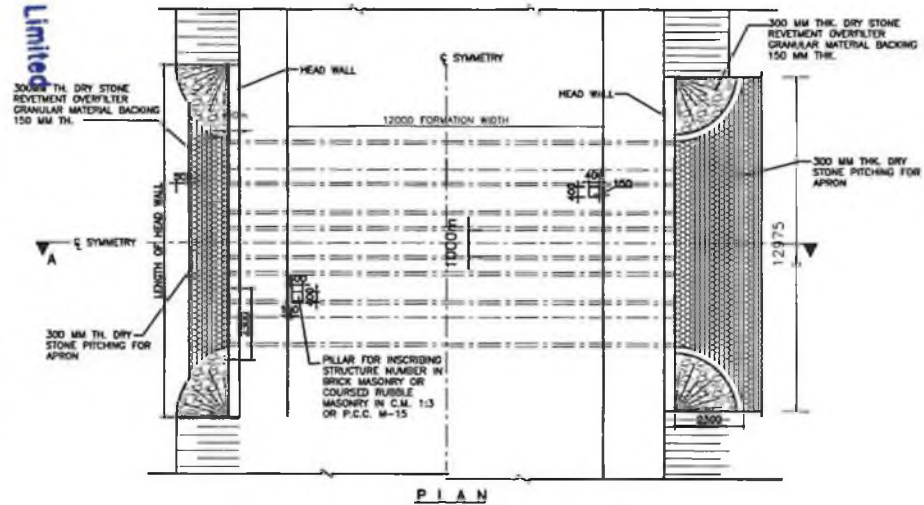
DRAWING TITLE: TYPICAL ARRANGEMENT FOR R.C.C MULTY PIPE CULVERTS (5X1.0m DIA)

DRG. NUMBER: OSRP/CEG/SH9/P02A/ 3

(SHEET 1 OF 3)

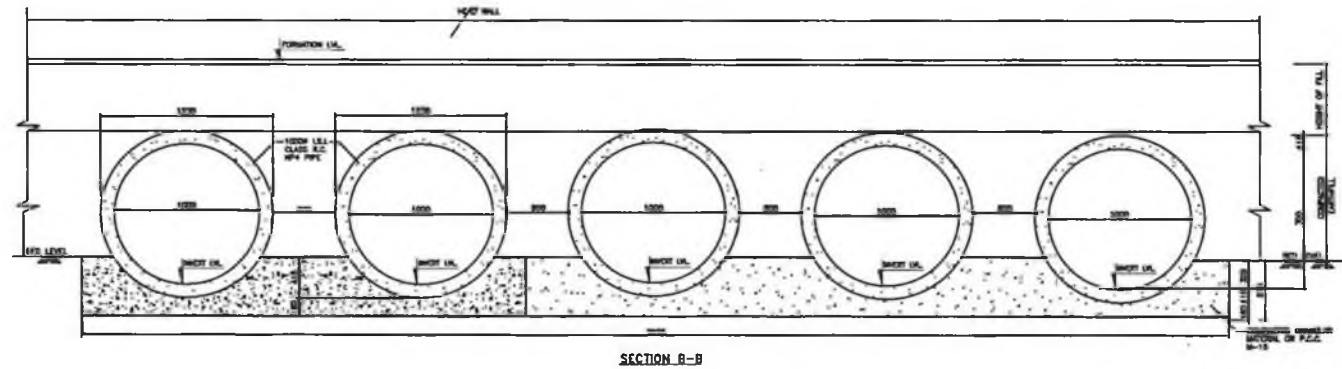


FIVE ROW PIPE CULVERT									
Sl. No.	Location	Proposed Chainage	Proposed Formation Level	Bed Level		Invert Level	Camber/Super Elevation		Direction of flow
				Left	Right		Left	Right	
1	39/300	39387	8.76	6.85	6.85	6.55	-2.5%	-2.5%	R TO L
2	39/800	39837	8.93	7.12	6.79	6.79	-2.5%	-2.5%	L TO R
3	40/350	40310	8.41	6.50	6.50	6.20	-2.5%	-2.5%	R TO L
4	40/950	40974	9.16	6.48	7.10	6.40	-2.5%	-2.5%	R TO L



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 4.0 M.
8. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.



NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	20-07-2018	RECORD REVISION	LASA		RAJU MATHUR	BLR MISHRA (SE)	G.P. PATIL (SE)
01	24-06-2018	FIRST REVISION	OND	VNAV	PRAMODRA (AD)	BLR MISHRA (SE)	ANK PRADHAN (SE)
-	JUNE 2008	ORIGINAL	OND				

UPR CONSULTANT :
CEG
CONSULTING ENGINEERS GROUP LTD.
E-12, MOJAL COLONY, MALVIYA NAGAR
JAPPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521345, e-mail: ceg@ceghdcs.com

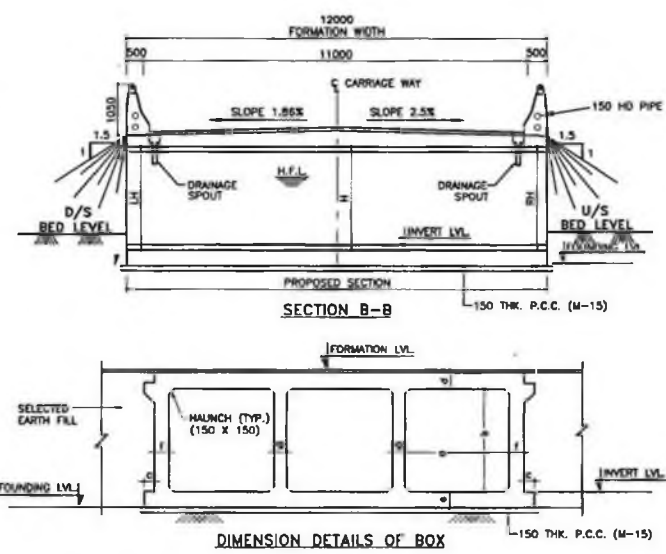
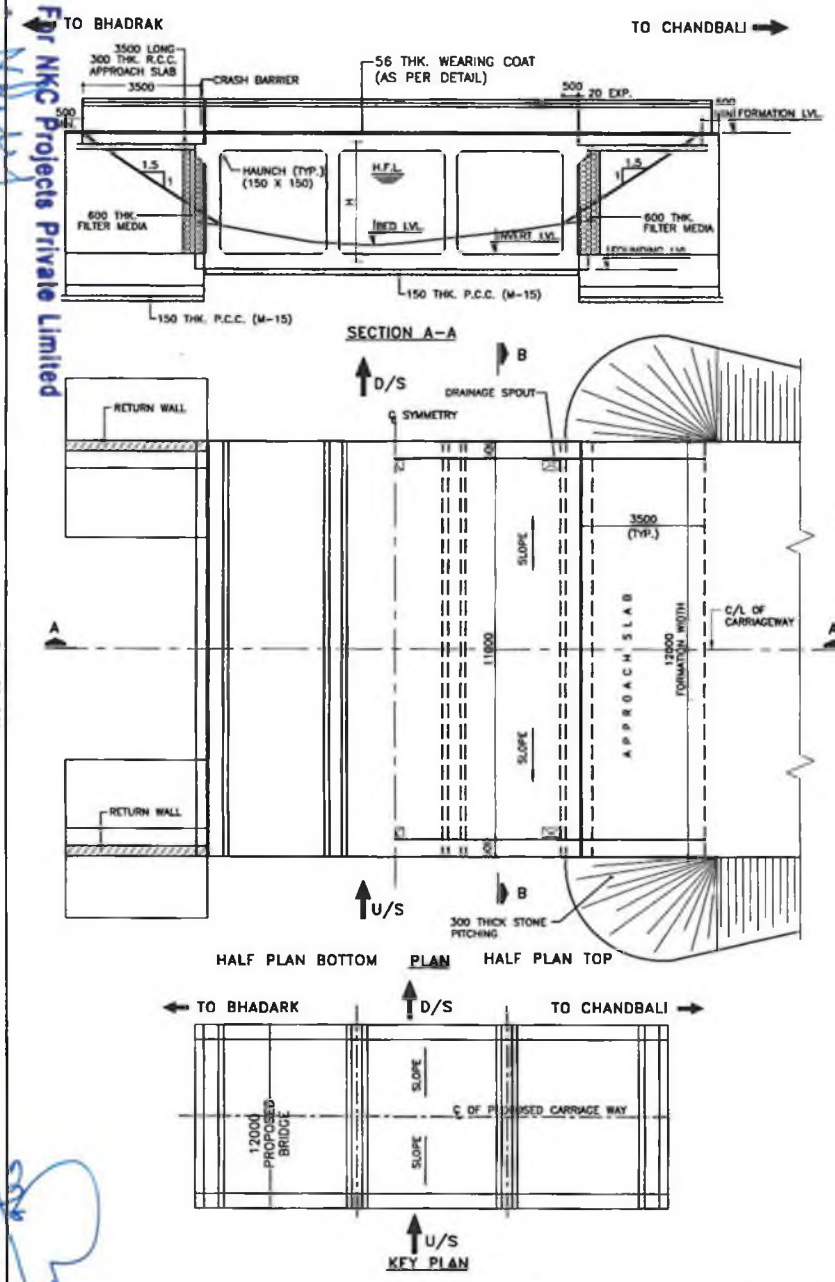
DESIGN REVIEW CONSULTANT :
LEA
LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
N.T.S.

DRAWING TITLE :
TYPICAL ARRANGEMENT FOR R.C.C MULTI PIPE CULVERTS (5X1.0m DIA)
ORNL NUMBER : OSRP/CEG/SH9/P02B/ 3
REV : 02



DIMENSION DETAILS OF BOX

BOX TYPE	WIDTH a (mm)	HEIGHT b (mm)	THICKNESS d (mm)	THICKNESS e (mm)	THICKNESS f (mm)	THICKNESS g (mm)	BEARING CAPACITY
3/33/0	3000	3000	300	450	500	470	10 1/M ²

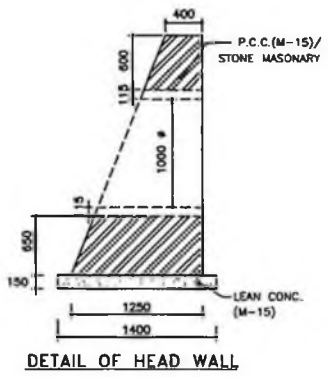
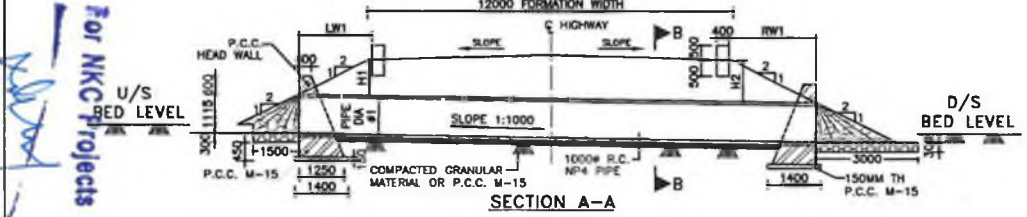
LIST OF PROPOSED BRIDGES OF 3 X 3 M BOX (WITHOUT CUSHION)

Sl. No.	PROPOSED CHAINAGE (m)	FORMATION LEVEL (m)	BED LEVEL (m)	FOUNDING LEVEL (m)	SUPER ELEVATION/CAMBER		INVERT LEVEL (m)	CLEAR HEIGHT (MAX)		
					LEFT	RIGHT		LH (m)	H (m)	RH (m)
1	27925.0	8.162	5.25	4.45	-2.5	0.127	4.95	2.556	2.706	2.714
2	28900.0	7.978	5.02	4.215	-2.5	-2.5	4.715	2.607	2.757	2.607
3	31050.0	8.200	5.78	4.98	-2.5	-2.5	5.48	2.064	2.214	2.064
4	31150.0	8.200	5.87	5.073	-2.5	-2.5	5.573	1.971	2.121	1.971
5	32380.0	7.828	5.46	4.658	-2.5	-2.5	5.156	2.016	2.166	2.016
6	34025.0	8.300	5.63	4.825	-2.5	-2.5	5.325	2.119	2.469	2.319
7	34375.0	8.046	5.58	4.781	0.09	-2.5	5.281	2.264	2.259	2.108
8	35000.0	8.280	5.30	4.504	-2.5	-2.5	5.004	2.620	2.770	2.620
9	35090.0	8.292	5.06	4.26	0.06	-2.5	4.76	3.029	3.026	2.876
10	35280.0	8.176	5.59	4.788	-2.5	-2.5	5.288	2.232	2.382	2.232
11	37000.0	8.654	5.37	4.568	-2.5	-2.5	5.068	2.930	3.080	2.930
12	37075.0	8.558	6.80	4.702	-2.5	-2.5	5.202	2.698	2.848	2.698
13	41750.0	9.118	6.16	5.38	-7	7	5.86	2.332	2.752	3.172

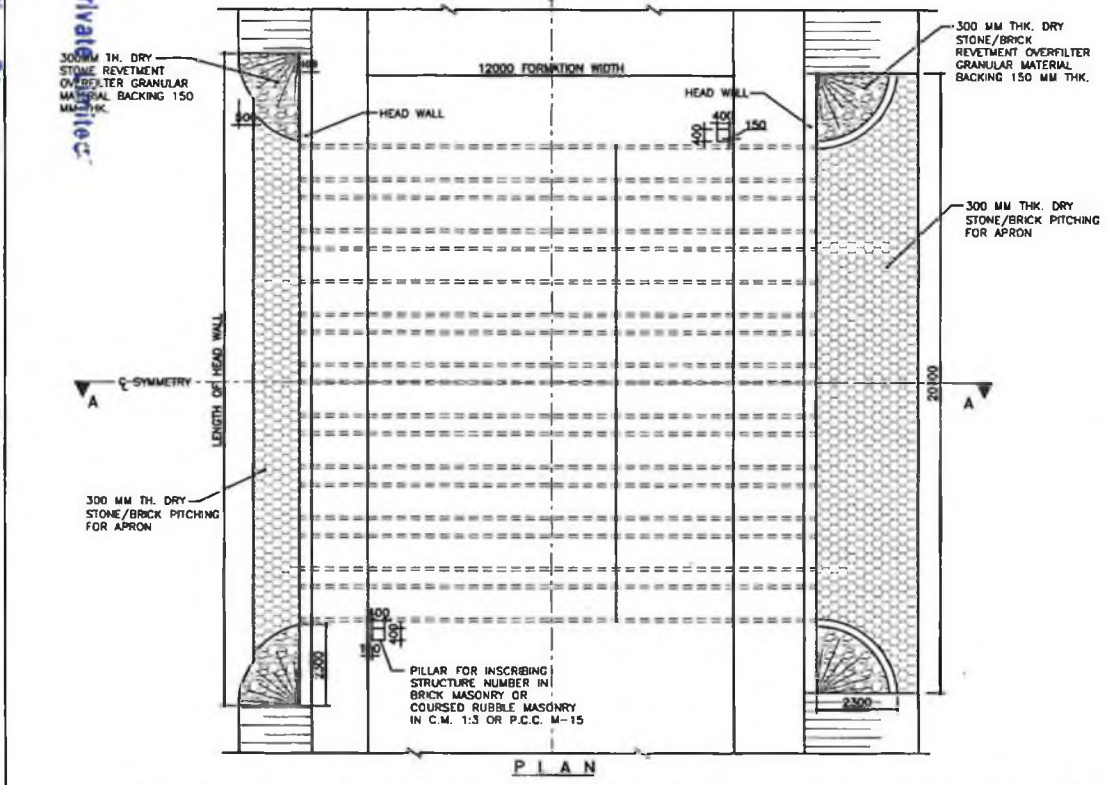
- NOTES:**
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
 - ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
 - LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
 - GRADE OF CONCRETE:-
BOX - M-25
RETURN WALL - M-25
P.C.C. LEAN CONC. - M-15
 - CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
 - ALL REINFORCEMENTS SHALL BE OF GRADE CRS F_a-5000 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 SCOUR/EROSION.
 - ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER DRG.NO. OSRP/CEG/BR/MSC-02
 - FOR FLOOR PROTECTION DETAILS REFER SEPERATE 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/115 (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-9/BR/FPW/01
 - OSRP/CEG/SH-9/BR/SCW
 - OSRP/CEG/RW/MSC-01
 - OSRP/CEG/BR/MSC-02

<p>REVISIONS:</p> <table border="1"> <tr><td>NO.</td><td>DATE</td><td>REVISION</td><td>BY</td><td>DRAWN</td><td>PREPARED</td><td>CHECKED</td><td>APPROVED</td></tr> <tr><td>01</td><td>SEP-2019</td><td>RECORD REVISION</td><td>JARA</td><td></td><td>RAJU MATHUR</td><td>ALR MISHRA (CC)</td><td>S.P. PATEL (CC)</td></tr> <tr><td>02</td><td>JAN-2023</td><td>FIRST REVISION</td><td>ONG VINAY</td><td>PALESHWARA (AC)</td><td>ALR MISHRA (CC)</td><td>ALAK PRADHAN (CC)</td><td></td></tr> <tr><td>03</td><td>JUNE 2008</td><td>ORIGINAL</td><td>CEG</td><td></td><td></td><td></td><td></td></tr> </table>				NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	01	SEP-2019	RECORD REVISION	JARA		RAJU MATHUR	ALR MISHRA (CC)	S.P. PATEL (CC)	02	JAN-2023	FIRST REVISION	ONG VINAY	PALESHWARA (AC)	ALR MISHRA (CC)	ALAK PRADHAN (CC)		03	JUNE 2008	ORIGINAL	CEG					<p>DATE: 25/11/2023</p> <p>PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B</p> <p>SCALE: N.T.S.</p> <p>DRAWING TITLE: GENERAL ARRANGEMENT DRAWING TRIPLE CELL R.C.C. BOX CULVERT 3m X3m (WITH OUT CUSHION) (SHEET 1 OF 3)</p> <p>FILE NUMBER: OSRP/CEG/SH9/P02B/TRIPLE BOX 3</p>			
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED																																
01	SEP-2019	RECORD REVISION	JARA		RAJU MATHUR	ALR MISHRA (CC)	S.P. PATEL (CC)																																
02	JAN-2023	FIRST REVISION	ONG VINAY	PALESHWARA (AC)	ALR MISHRA (CC)	ALAK PRADHAN (CC)																																	
03	JUNE 2008	ORIGINAL	CEG																																				
<p>CONTRACTOR: CEG CONSULTANTS</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520899, 2521898, 2520556 Fax: 2521348. e-mail: ceg@cegnlco.com</p>				<p>CLIENT: ODISHA WORKS DEPARTMENT</p>																																			



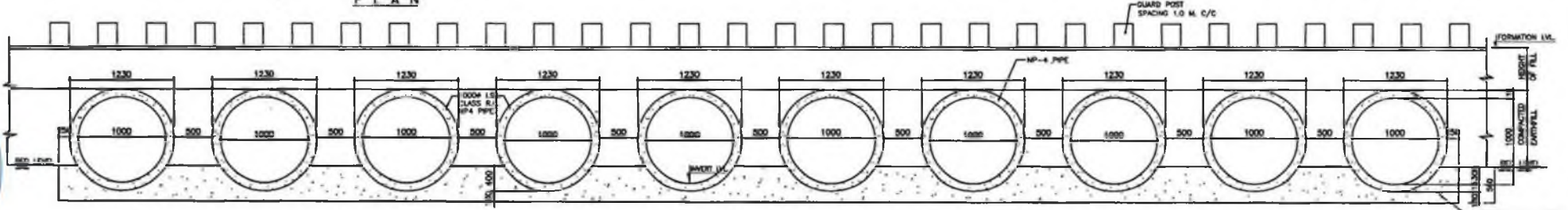
- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
 3. LOOSE / UNSUITABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
 4. CHAINAGE / FORMATION-LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE.
 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 4.0 M.
 8. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.



List of Additional Bridges of 10 x 1.0 m Pipe

S. no.	Proposed Chainage	Formation Level	Bed Level	Superelevation/ Camber		Height of fill		LWI	RWI	Total length	No of pipes
				LeR	Right	H1	H2				
1	27+800	8.025	6.28	-2.5	-2.5	0.8	0.8	1.6	1.6	15.2	60
2	29+650	7.482	5.56	5.8	-5.8	1.5	0.8	2.9	1.6	16.5	70
3	29+650	7.569	5.54	5.8	-5.8	1.6	0.9	3.2	1.8	16.9	70
4	31+900	7.873	6.36	-2.5	-2.5	0.6	0.6	1.1	1.1	14.3	60

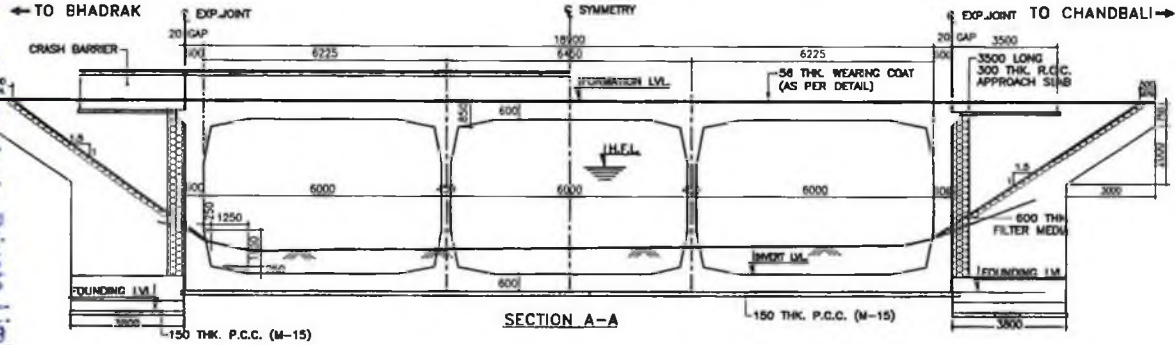
FOR 15 Row Pipes Spacing and edge distance shall also be same.



SECTION B-B

<p>NO. DATE REVISION BY DRAWN PREPARED: CHECKED: APPROVED:</p>	<p>DATE: 2023-07-20</p> <p>REVISION: 01</p> <p>BY: [Signature]</p> <p>DRAWN: [Signature]</p> <p>PREPARED: [Signature]</p> <p>CHECKED: [Signature]</p> <p>APPROVED: [Signature]</p>	<p>CONSULTANT:</p> <p>CEG</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520890, 2521889, 2520556 Fax: 2521348, e-mail: ceg@cegltd.com</p>	<p>DESIGN ENGINEER CONSULTANT:</p> <p>LEA</p> <p>LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044</p>	<p>CLIENT:</p> <p>ODISHA WORKS DEPARTMENT</p>	<p>PROJECT:</p> <p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B</p>	<p>SCALE:</p> <p>N.T.S.</p>	<p>DRAWING TITLE:</p> <p>TYPICAL ARRANGEMENT FOR R.C.C TEN PIPE BRIDGES (1.0m DIA) (HEIGHT OF FILL VARYING FROM 0.6 TO 4.0 M)</p> <p>(SHEET 1 OF 3)</p>
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For NKE Projects Private Limited

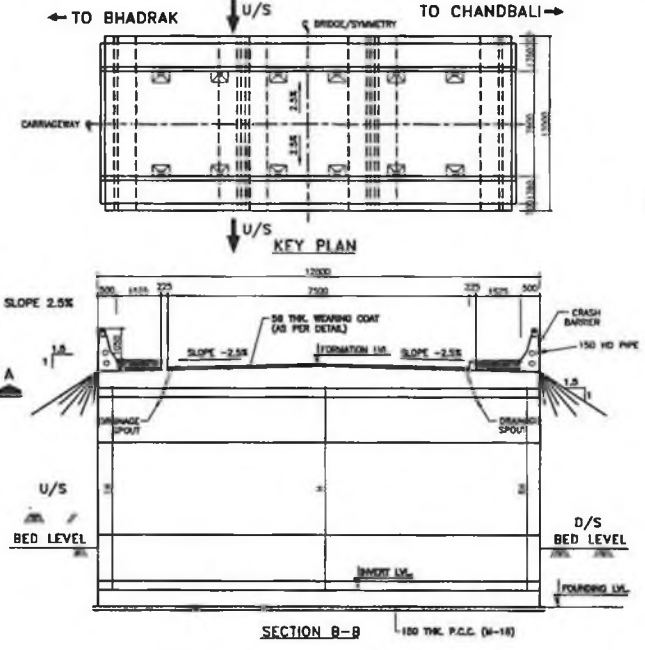
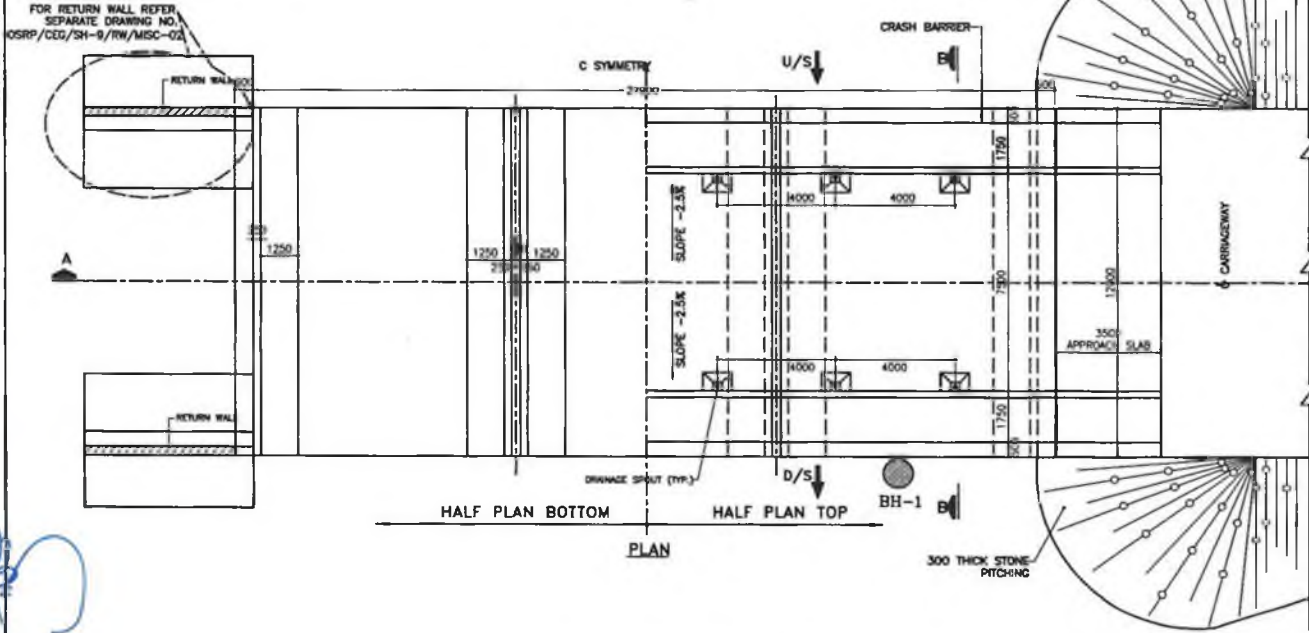


FORMATION LEVEL (m)	7.800	7.800	7.800
BED LEVEL (m)	8.415	5.000	8.415
CHAINAGE (m)	32+087	32+100	32+113

BOX LEVELS DETAILS

EXISTING LOCATION (m)	PROPOSED CHAINAGE (m)	FORMATION LEVEL (m)	DESIGN HFL (m)	DESIGN BED LVL (m)	INVERT LVL (m)	FOUNDING LVL (m)	CLEAR HEIGHT (MAX) LR (m) / RR (m)	DIRECTION OF FLOW
32+100	32+100	7.800	8.225	5.000	4.310	3.500	2.8 / 3.0 / 2.8	L TO R

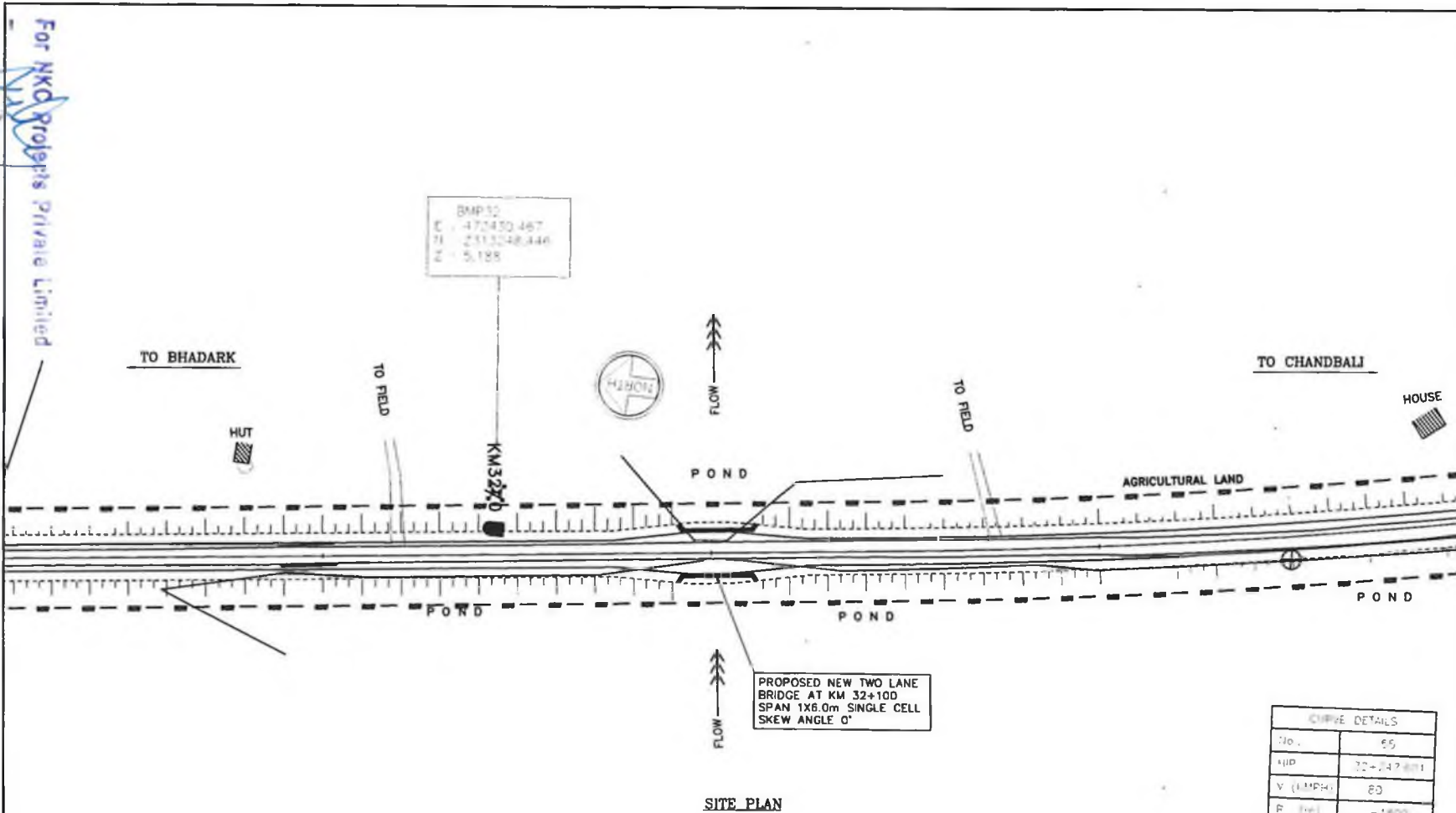
- NOTES:**
- ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
 - ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
 - CHAINAGES SHOWN ARE C/L OF PROPOSED ROAD.
 - LOOSE / UNSUITABLE SOIL BELOW BOX STRUCTURES IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
 - FORMATION LEVEL & SUPERELEVATION IS PROVIDED AS PER THE APPROVED 'PLAN & PROFILE' DRAWING.
 - ASPHALTIC PLUG TYPE EXPANSION JOINT IS PROVIDED AS PER DRAWING NO. OSRP/CEG/BR/MSC-02
 - GRADE OF CONCRETE:**
P.C.C. LEAN CONC. ----- M-15
BOX STRUCTURE ----- M-35
RETURN WALL ----- M-30
CRASH BARRIER ----- M-40
 - FOR FLOOR PROTECTION DETAILS REFER SEPARATE DRAWING.
 - FOR REINF. DETAILS OF RETURN WALL REFER SEPARATE DRAWING. GRADE OF STEEL SHALL BE CRS FAS000 AS PER IS-1786
- REFERENCE DRAWINGS**
- OSRP/CEG/SH-9/BR/6+050/02
 - OSRP/CEG/SH-9/BR/6+050/03
 - OSRP/CEG/BR/MSC-02
 - OSRP/CEG/SH-9/BR/TPW/01
 - OSRP/CEG/SH-9/BR/SCW
 - OSRP/CEG/SH-9/RW/MISC-02



NOTE:
SOIL BELOW FOUNDING LEVEL UPTO DEPTH OF 2.0 M. SHALL BE REPLACED BY SUITABLE COARSE RIVER SAND TO GET THE REQUIRED S.B.C.

<p>DATE: 25/01/2024</p> <p>REVISION: 01</p> <p>BY: [Signature]</p> <p>PREPARED: [Signature]</p> <p>CHECKED: [Signature]</p> <p>APPROVED: [Signature]</p>				<p>CEG CONSULTANT:</p> <p>CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALAYA NAGAR, JAMPUR-17 Tel: +91-141-2520669, 2521690, 2520556 Fax: 2521348. e-mail: ceg@cegroup.co.in</p>				<p>CLIENT:</p> <p>ODISHA WORKS DEPARTMENT</p>				<p>PROJECT:</p> <p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 27+500 (BALANCE WORK) PACKAGE - P02B</p>				<p>SCALE:</p> <p>N.T.S</p>				<p>DRAWING TITLE:</p> <p>GENERAL ARRANGEMENT DRAWING BRIDGE AT PROPOSED CH. 32+100 (KALA POLO)</p> <p>(SHEET 1 OF 21)</p> <p>FILE NUMBER: OSRP/CEG/P02B/STR/1</p>			
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NOTES:-



SITE PLAN

CURVE DETAILS	
No.	65
HPD	32+247.801
V (LMPH)	60
R (m)	-1800
Lc (m)	201.391
Ls (m)	0
Delta	60.247.33.1
PC (+ve)	2.5
PT (+ve)	100.780
EC (m)	2.519

For Nkd Projects Private Limited

MishraKNC Projects Pvt. Ltd.
(Contractor)

Director

Page 58 of 92

Chief Engineer,
ODP & Road,
Odisha
(Employer)

NO.	DATE	REVISION	BY	SCALE	PREPARED	CHECKED	APPROVED
01	SEP-2016	SECOND REVISION	LASA		RAJJI MATHUR	RAJ MEHRA (CC)	G.P. PATEL (CC)
02	JAN-2018	FIRST REVISION	ODS		VINAY	PRADYUMNA (CC)	RAJ MEHRA (CC)
03	JUNE 2008	ORIGINAL	ODS				RAJ MEHRA (CC)

ODS CONSULTANT :

CEG

CONSULTING ENGINEERS GROUP LTD.
E-12, MOJI COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceghdca.com

ODS SOLE CONSULTANT :

LEA

LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :

ODISHA WORKS DEPARTMENT

PROJECT :

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM BHADRAK TO PIRHAT - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE :

N.T.S

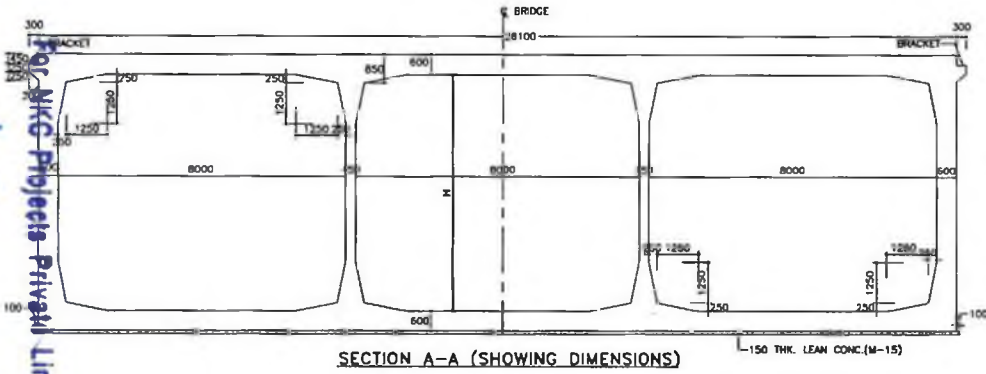
DRAWING FILE :

SITE PLAN BRIDGE AT PROPOSED CH. 32+100

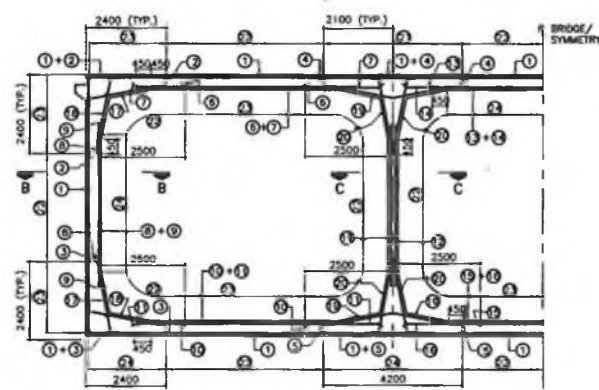
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(SHEET 1 OF 21)

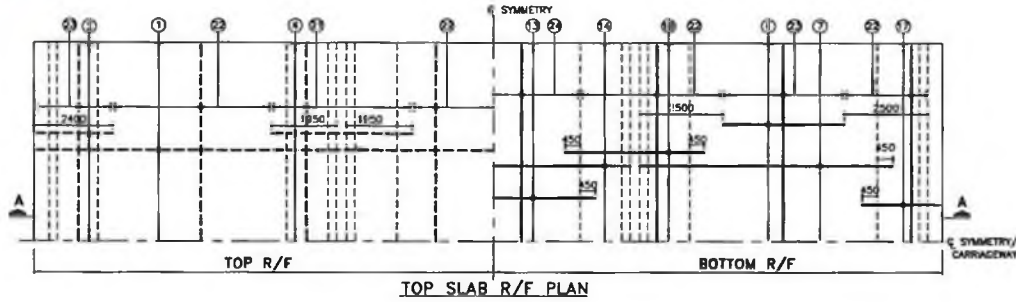
REV: 02



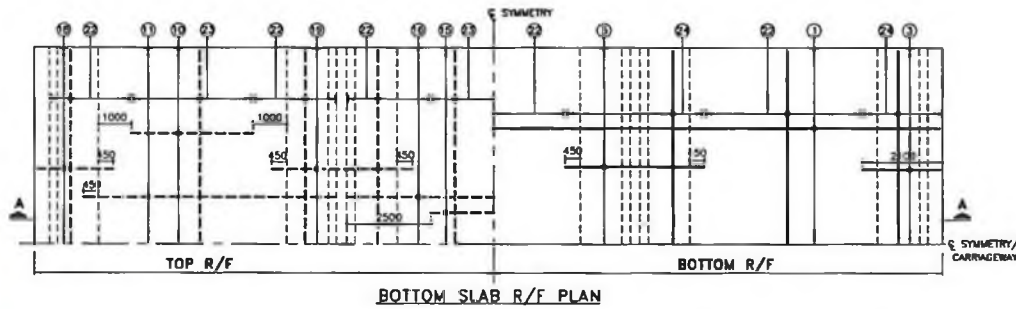
SECTION A-A (SHOWING DIMENSIONS)



SECTION A-A (SHOWING REINFORCEMENT)

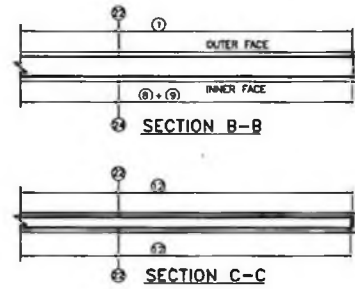


TOP SLAB R/F PLAN



BOTTOM SLAB R/F PLAN

LEGEND:
 - - - - - BAR ON BOTTOM FACE
 - - - - - BAR ON TOP FACE
 - - - - - REINFORCEMENT



REINF. DETAILS

BAR NO.	BAR DIA.	SPACING	SHAPE
1	18	150 C/C	—
2	18	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	32	600 C/C	—
14	25	600 C/C	—
15	18	150 C/C	—
16	18	150 C/C	—
17	18	150 C/C	—
18	18	150 C/C	—
19	12	150 C/C	—
20	12	150 C/C	—
21	10	150 C/C	—
22	10	150 C/C	—
23	12	180 C/C	—
24	12	150 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 500.
5. ANTI CORROSIVE REINFORCING BAR SHALL BE PROVIDE.
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-9/TRIPLE CELL/01 C. A. D.
- (2) OSRP/CEG/BR/MISC-02 MISC DETAILS

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2016	RECORD	REKISHA	ASA			
01	JAN-2015	FIRST REVISION	CHD	YERAT	PRADHANA (AD)	RAJU MATHUR	SAR MEHRA (CE)
-	JUNE 2007	ORIGINAL	CHD		PRADHANA (AD)	RAJU MATHUR (CE)	SAR MEHRA (CE)

OPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJI COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520869, 2521869, 2520558 Fax: 2521348, e-mail: ceg@cegindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

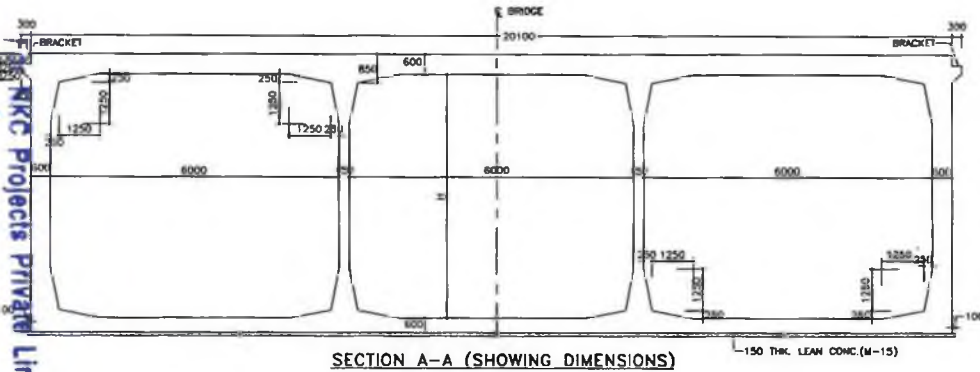
CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM BHADRAK TO PIRHAT - KM 0+000 TO KM 27+500 (BALANCE WORK) PACKAGE - PO2A

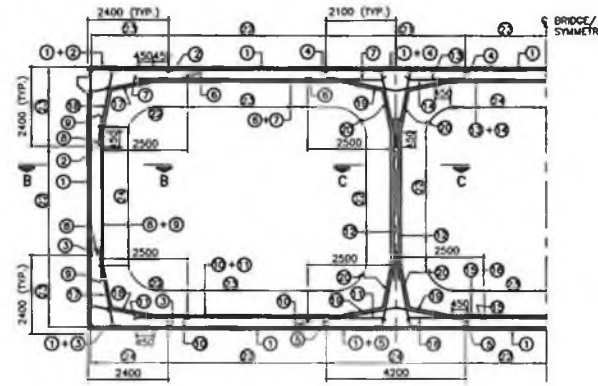
SCALE :
 N.T.S

DRAWING TITLE :
DIMENSION AND REINFORCEMENT DETAILS TRIPLE CELL R.C.C. BOX BRIDGES (WITHOUT EARTH CUSHION)

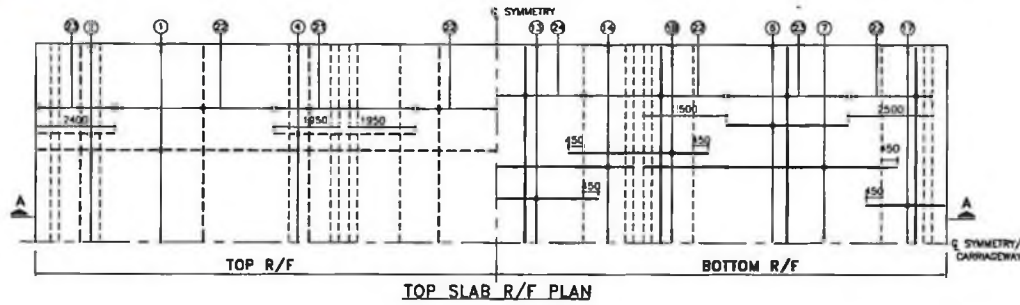
DRW. NUMBER : OSRP/CEG/PO2A/STR/ 3



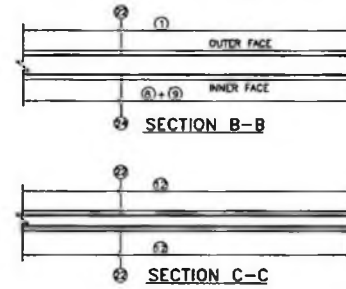
SECTION A-A (SHOWING DIMENSIONS)



SECTION A-A (SHOWING REINFORCEMENT)

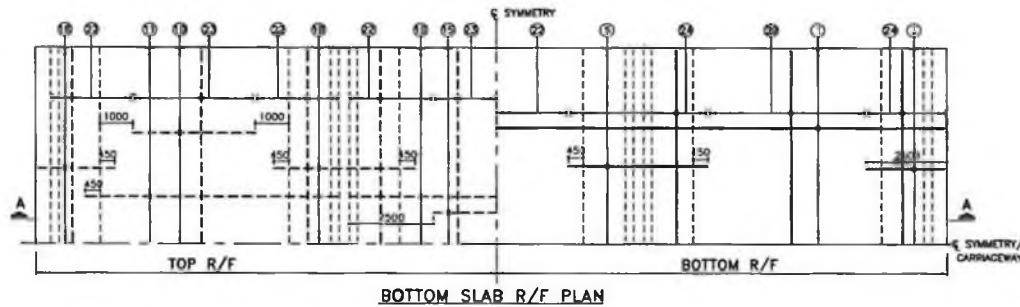


TOP SLAB R/F PLAN



SECTION B-B

SECTION C-C



BOTTOM SLAB R/F PLAN

LEGEND:
 - - - - - BAR ON BOTTOM FACE
 - - - - - BAR ON TOP FACE
 R/F REINFORCEMENT

REINF. DETAILS

BAR NO.	BAR DIA.	SPACING	SHAPE
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	—	—	—
8	32	300 C/C	—
9	—	—	—
10	32	300 C/C	—
11	32	300 C/C	—
12	12	150 C/C	—
13	32	600 C/C	—
14	25	600 C/C	—
15	16	150 C/C	—
16	12	150 C/C	—
17	16	150 C/C	—
18	16	150 C/C	—
19	12	150 C/C	—
20	12	150 C/C	—
21	10	150 C/C	—
22	10	150 C/C	—
23	12	180 C/C	—
24	12	150 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 $f_y = 500$
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/MSC-02

REFERENCE DRAWINGS:

- (1) OSRP/CEG/SH-9/BR/6+050/01 C. A. D.
 (2) OSRP/CEG/BR/MSC-02 MISC DETAILS

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2019	SECOND REVISION	JASA		RAJU MATHUR	NAJ MEHRA (CC)	G.P. PATEL (CC)
01	JAN-2019	FIRST REVISION	END	VINAY	PRASHANTHA (AG)	NAJ MEHRA (CC)	NAJ PRASHANTH (CC)
—	JUNE 2009	ORIGINAL	CCS				

DPI CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJ COLONY, MALVIYA NAGAR
 JAIPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521348, e-mail: ceg@cegindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

CLIENT :
ODISHA WORKS DEPARTMENT

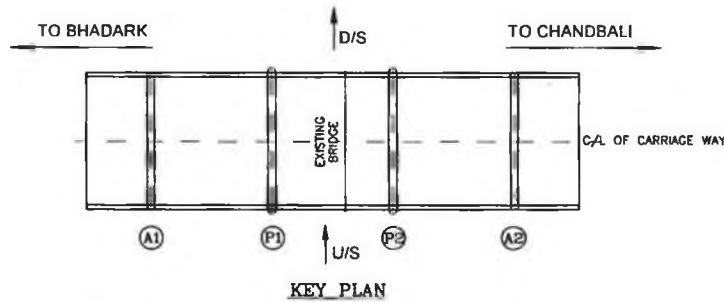
PROJECT :
 WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO BHADRAK - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

DRAWING TITLE :
 DIMENSION AND REINFORCEMENT DETAILS BRIDGE AT PROPOSED CH. 32+100 (KALA POLO)
 (SHEET 1 OF 2)
 Dwg. NUMBER : OSRP/CEG/P02B/STR/3

EXISTING BRIDGE DETAILS		
1	Change	9/300
2	Name of the nallah	Kundi pole
3	Year of construction	1962 - 63
4	Type of bridge	High level Bridge
5	Existing span arrangement	3 x 7.0
6	Existing carriage way width	7.3 m
7	Thickness of superstructure	0.55 m
8	Type of foundation	Open Foundation
9	Type of substructure	Brick masonry wall type
10	Type of superstructure	RCC solid slab
11	Existing Formation Level	11.9 m
12	Final Formation Level	11.9 m
13	Bed Level	8.064 m
14	Distance of PCL w.r.t ECL	0.03 m Right

REHABILITATION MEASURES SUGGESTED			
S. no.	Items	Rehabilitation Measures	Reference Drawings
1	Jacketing	Jacketing with dowels is suggested in piers and abutments.	OSRP CEG BR/JT-01
2	Superstructure	Touch up repair to be done in the edge of slab (1.0 sq mt)	-
3	Expansion Joints	Expansion joint buried due to overlay of BT and shall be replaced by asphaltic plug type	OSRP CEG BR/MSC-02
4	Wearing Coat	Existing Bituminous over lay shall be removed	OSRP CEG TR/MSC-02
5	Approach slab	Approach slab to be constructed	OSRP CEG BR/MSC-02
6	Bed protection	Bed protection and curtain wall shall be provided	OSRP CEG SH-53 BR/EPW-02
7	Vegetation growth	Vegetations to be removed from the structure	-



HYDROLOGICAL DATA

Design Discharge in (cum/sec)	Max. scour Level in (mts)	Depth of curtain Wall in (mts)		Length of Rigid Apron in (mts)	Length of Flexible Apron in (mts)	
		u/s	d/s		u/s	d/s
		DCW ₁	DCW ₂		LFA ₁	LFA ₂
53.74	6.037	2.0	2.5	6.1	3.0	6.0

NOTES:

NO.	DATE	REVISION	BY	DESIGN	PREPARED	CHECKED	APPROVED
01	SEP-2015	SECOND REVISION	JAA		RAJU MATHUR	RAJ KISHOR (CE)	G.P. PATEL (CO)
02	JAN-2016	FIRST REVISION	ONG	VINAY	PRANABRA (AE)	RAJ KISHOR (CE)	RAJ PRADHAN (CO)
03	JUNE 2006	ORIGINAL	CEG				

OPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOJI COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520909, 2521898, 2520596 Fax: 2521340, e-mail: ceg@ceghd.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAM COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

DRAWING TITLE :
REHABILITATION BRIDGE DETAILS BRIDGE AT KM. 9+300

(SHEET 1 OF 2)

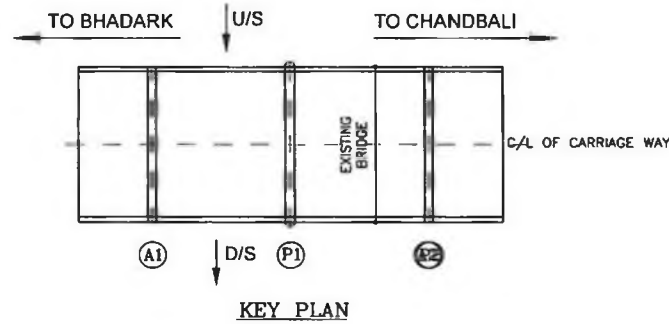
DWG. NUMBER : OSRP/CEG/P02B/STR/3

REV. NO.

For NKC Projects Private Limited
 NKC Projects Private Limited

EXISTING BRIDGE DETAILS	
1	Chainage 30/200
2	Name of the nallah Kadanga Canal
3	Year of construction 1989
4	Type of bridge High level Bridge
5	Existing span arrangement 2 x 6.7m
6	Existing carriage way width 7.35 m
7	Thickness of superstructure 0.5 m
8	Type of foundation Raft foundation
9	Type of substructure RCC Box cell
10	Type of superstructure RCC solid slab
11	Existing Formation Level 7.7 m
12	Final Formation Level 7.7 m
13	Bed Level 4.263 m
14	Distance of PCL w.r.t ECL 0.2 mt Left

REHABILITATION MEASURES SUGGESTED			
S. no.	Items	Rehabilitation Measures	Reference Drawings
1	Expansion Joints	Expansion joint shall be replaced by asphalt plug type with approach slab	OSRP CEG BR.MISC-02
2	Railing	Existing railings to be dismantled and Foot path shall be provided	OSRP CEG SI-9 BR-30-200 02
3	Bed Protection	Bed protection shall be provided	OSRP CEG SI-9 BR.FPW/01
4	Vegetation growth	Vegetations to be removed from the structure	-



HYDROLOGICAL DATA

Design Discharge in (cum/sec)	Max. scour Level in (mts)	Depth of curtain Wall in (mts)		Length of Rigid Apron in (mts)		Length of Flexible Apron in (mts)	
		u/s	d/s	u/s	d/s	u/s	d/s
		DCW ₁	DCW ₂	DCW ₁	DCW ₂	LFA ₁	LFA ₂
15.84	2.735	2.5	3.0	3.0	5.0	3.5	6.0

NOTES:

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
01							

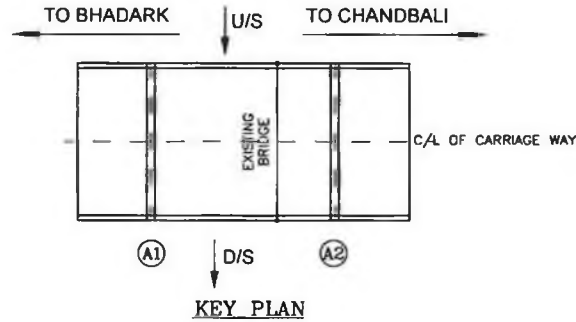
SPM CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521348. e-mail: ceg@ceginfol.com	DESIGN REVIEW CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1 st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S.	DRAWING TITLE : REHABILITATION BRIDGE DETAILS BRIDGE AT KM. 30+200
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SHEET : 1 OF 24 FILE NUMBER : OSRP/CEG/P02B/STR/3 REV : 01
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NOTES:

EXISTING BRIDGE DETAILS		
1	Chainage	34/700
2	Name of the nallah	Talajharia Khetka Polo
3	Year of construction	1975
4	Type of bridge	High level Bridge
5	Existing span arrangement	1 x 10.3m
6	Existing carriage way width	7.25 m
7	Thickness of superstructure	0.85 m
8	Type of foundation	Open Foundation
9	Type of substructure	PCC with skin reinforcement wall type
10	Type of superstructure	RCC girder with slab
11	Existing Formation Level	8.3 m
12	Final Formation Level	8.3 m
13	Bed Level	4.544 m
14	Distance of PCL w.r.t ECL	0.375 m Left

REHABILITATION MEASURES SUGGESTED			
S. no.	Items	Rehabilitation Measures	Reference Drawings
1	Bed Protection	Bed protection shall be provided	OSRP/CEG/S11-53/DR/FPW/02
2	Railing	Existing Railings shall be dismantled and crash barrier shall be provided	OSRP/CEG/BR/MISC-02
3	Expansion joint	Asphaltic plug type expansion joint shall be provided	OSRP/CEG/BR/MISC-02
4	Approach slab	Approach slab to be done by chipping out top 300 mm concrete from top wall	OSRP/CEG/BR/MISC-02
5	Retain Wall	Retain walls shall be repaired by surface treatment with polymer modified mortar	-



HYDROLOGICAL DATA

Design Discharge in (cum/sec)	Max. scour Level in (mts)	Depth of curtain Wall in (mts)		Length of Rigid Apron in (mts)		Length of Flexible Apron in (mts)	
		u/s	d/s	u/s	d/s	u/s	d/s
		DCW ₁	DCW ₂	DCW ₁	DCW ₂	LFA ₁	LFA ₂
14.33	3.927	2.0	2.5	3.0	5.0	3.5	6.0

NO.	DATE	REVISION	BY	DRN	PREPARED	CHECKED	APPROVED
01	SEP-2019	SECOND REVISION	LASH		RAAJ MATHAR	NAR MEHRA (CC)	S.P. PATIL (CC)
02	JAN-2019	FIRST REVISION	TOND	VRAT	PRADHANA (AO)	NAR MEHRA (CC)	NAR PRADHAN (CC)
03	JUNE 2020	ORIGINAL	CCB				

OSP CONSULTANT :

CEG

CONSULTING ENGINEERS GROUP LTD.
E-12, NOJ COLONY, MALVIYA NAGAR JAPUR-17
+91-141-2520899, 2521699, 2520668 Fax: 2521348, e-mail: ceg@cegroup.com

DESIGN & EXECUTION CONSULTANT :

LEA

LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 8th FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURBA ROAD, NEW DELHI-110044

CLIENT :

ODISHA WORKS DEPARTMENT

PROJECT :

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B

SCALE :

N.T.S.

DRAWING TITLE :

REHABILITATION BRIDGE DETAILS BRIDGE AT KM. 34+700

(SHEET 1 OF 2)

DWG. NO. : OSRP/CEG/P02B/STR/3

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd
(Contractor)

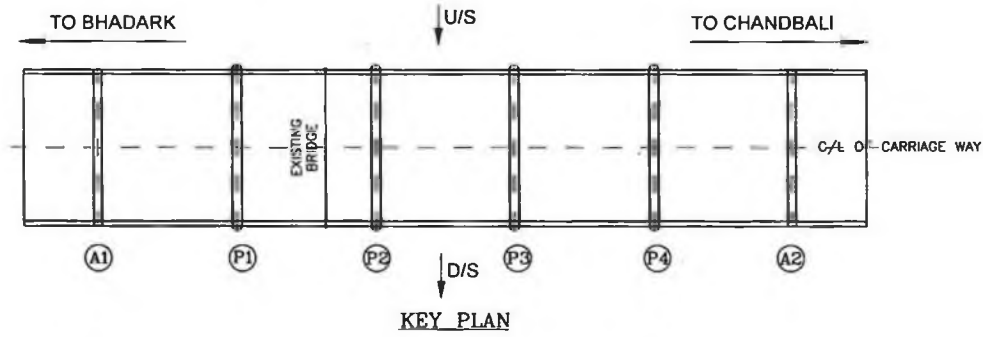
Director

Page 64 of 92

Chief Engineer,
DPI & Road
(End User)

EXISTING BRIDGE DETAILS			
1	Chainage	38/100	
2	Name of the nallah	Haladigandim Ginnua	
3	Year of construction	2005	
4	Type of bridge	High level Bridge	
5	Existing span arrangement	5 x 10.45m	
6	Existing carriage way width	8.1 m	
7	Thickness of superstructure	0.6 m	
8	Type of foundation	Pile Foundation	
9	Type of substructure	PCC with skin reinforcement wall type	
10	Type of superstructure	RCC girder with slab	
11	Existing Formation Level	9.2 m	
12	Final Formation Level	9.2 m	
13	Bed Level	3.984 m	
14	Distance of PCL w.r.t ECL	0.01 m Left	
REHABILITATION MEASURES SUGGESTED			
S. no.	Items	Rehabilitation Measures	Reference Drawings
1	Expansion joint	Expansion joints shall be replaced by asphaltic plug type (6 nos)	OSRP/CEG/BR/MISC-02
2	Bearing	The superstructure shall be lifted from the support at bed level and Neoprene bearing (Size: 400 x 250 x 48 mm) shall be placed	MOST STANDARD DRG NO SD 204
3	Honey combing	Honeycombing observed on diaphragms and girders shall be take care by polymer modified concrete	
4	Bed Protection	Bed protection to be done newly	OSRP/CEG/SH-9/BR/PPW/01
5	Approach Revetment	Approach revetment to be repacked	OSRP/CEG/BR/MISC-02
6	Approach Slab	Approach slab to be constructed	OSRP/CEG/BR/MISC-02

NOTES:

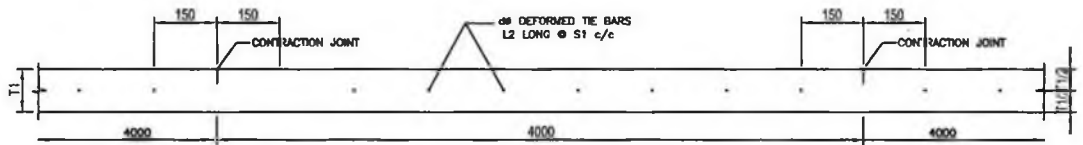
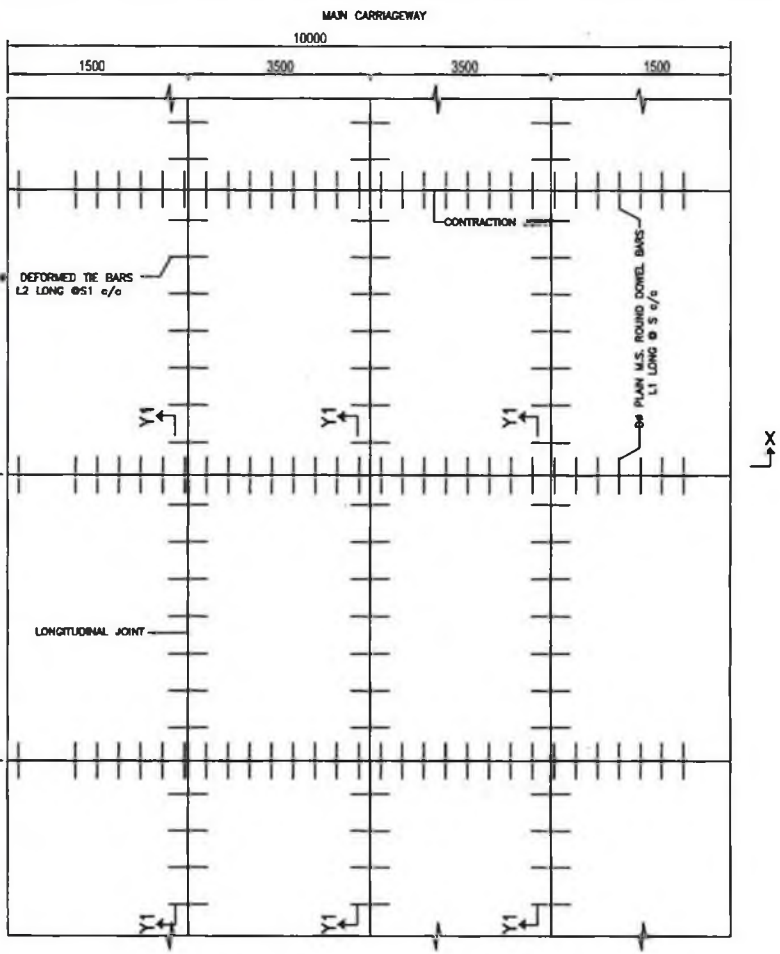


NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED		DPR CONSULTANT : CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520890, 2520899, 2520555 Fax: 2521348, e-mail: ceg@cegroup.co.in		DESIGN CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S		DRAWING TITLE : REHABILITATION BRIDGE DETAILS BRIDGE AT KM. 38+100		(SHEET 1 OF 2)	
PNL READER : OSRP/CEG/P02B/STR/3										REV : 02					

For NKC Projects Private Limited
 Director

Page 66 of 92

Chief Engineer
 O.P. & R. SINGH
 Chief Engineer
 S.P. SINGH
 (Employer)



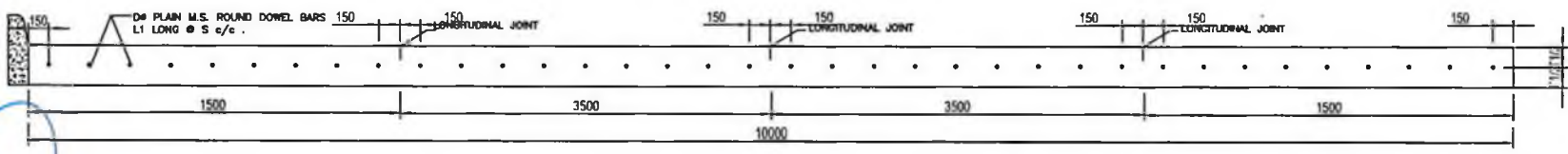
SECTION Y1-Y1 (SHOWING TIE BAR ARRANGEMENT BETWEEN CARRIAGEWAYS)

NOTATIONS

T1	Pavement Thickness
T2	DLC Thickness
S	Spacing of Dowel Bars
S1	Spacing of Tie Bars
D	Dowel Bar Dia
d	Tie Bar Dia
L1	Length of Dowel Bar
L2	Length of Tie Bar

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED.
2. THIS DRG. IS TO BE READ ALONG WITH TYPICAL CROSS SECTION FOR RIGID PAVEMENT DRG. NO. OSRP/CEG/LS/TR.
3. FOR PAVEMENT THICKNESS AND OTHER DIMENSIONS REFER PAVEMENT SCHEDULE FOR RIGID PAVEMENT.
4. ALL REINFORCEMENTS SHALL BE CONFIRMED TO FE-500



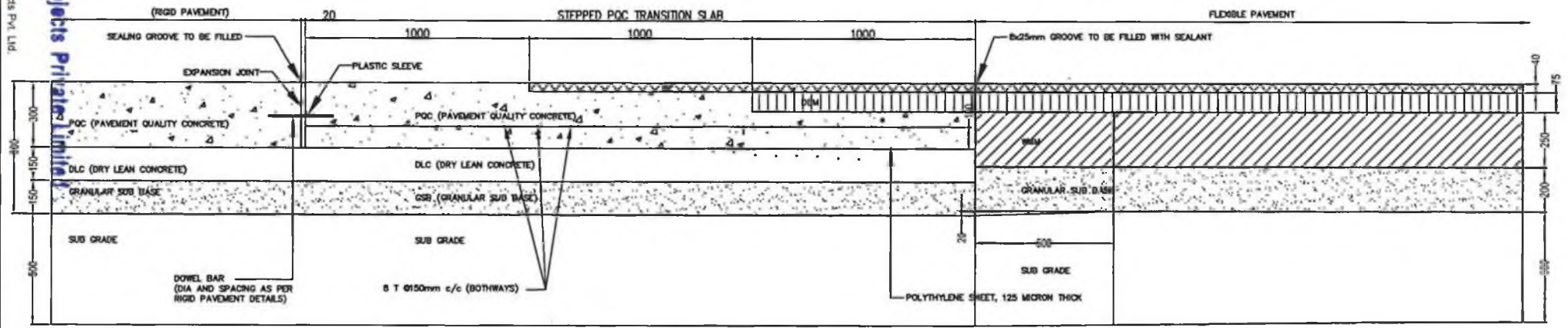
SECTION X-X (SHOWING DOWEL BAR ARRANGEMENT)

REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DPI CONSULTANT: C&R CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520530 Fax: 2521348, e-mail: ceg@cegrindia.com			SPECIAL CONSULTANT: LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: TYPICAL DETAILS OF DOWEL BAR AND TIE BAR ARRANGEMENT (SHEET 1 OF 1)	
REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DPI CONSULTANT: C&R CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520530 Fax: 2521348, e-mail: ceg@cegrindia.com		SPECIAL CONSULTANT: LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: TYPICAL DETAILS OF DOWEL BAR AND TIE BAR ARRANGEMENT (SHEET 1 OF 1)		
REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DPI CONSULTANT: C&R CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520530 Fax: 2521348, e-mail: ceg@cegrindia.com		SPECIAL CONSULTANT: LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: TYPICAL DETAILS OF DOWEL BAR AND TIE BAR ARRANGEMENT (SHEET 1 OF 1)		

For MNC Projects Private Limited
 Director

Page 67 of 92

Chief Engineer
 Dip & Rourkela
 Dip & Rourkela
 Chief Engineer



TYP. DETAILS OF TRANSITION SLAB BETWEEN RIGID & FLEXIBLE PAVEMENT
 (SCALE : HTS)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2015	SECOND REVISION	ASA		RAJU BATHUR	RAJU MISHRA (OC)	G.P. PATIL (OC)
01	JAN-2015	FIRST REVISION	OND	VINAY	PRASHANTHA (AE)	RAJU MISHRA (OC)	RAJU PRADHAN (OC)
-	JUNE 2007	ORIGINAL	OND				

DPR CONSULTANT :
CEC
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOHA COLONY, MALVIYA NAGAR
 JALPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521345, e-mail: ceg@cecgindia.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

CLIENT :

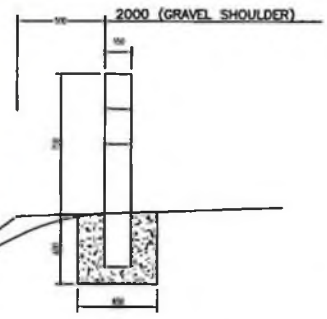
 ODISHA WORKS DEPARTMENT

PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

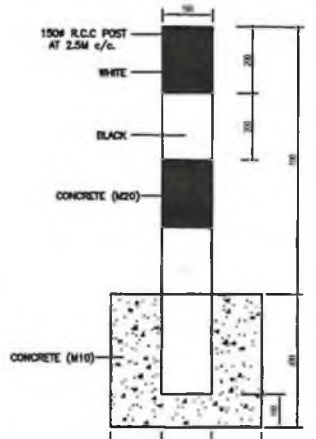
SCALE :
 H.T.S

DRAWING TITLE :
 TYPICAL DETAILS OF TRANSITION SLAB BETWEEN RIGID AND FLEXIBLE PAVEMENT
 (SHEET 1 OF 1)
 DWG NUMBER : OSRP/CEG/SH/P02B/ 3
 REV : 02

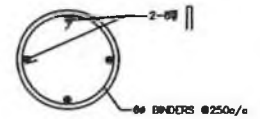
FIXING DETAILS OF GUARD POST



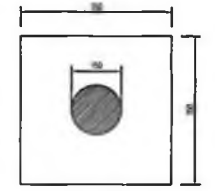
TYPICAL DETAILS OF GUARD POST



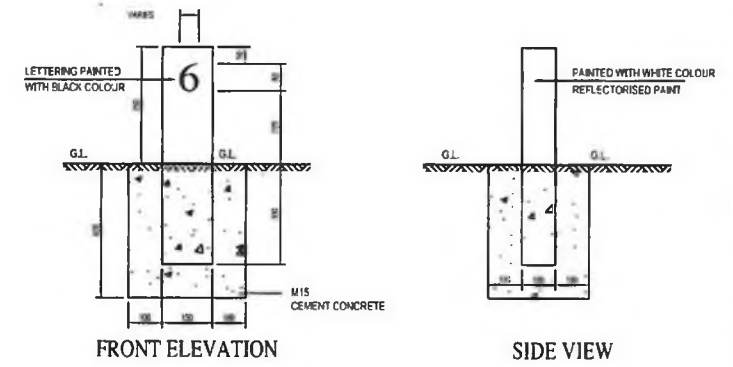
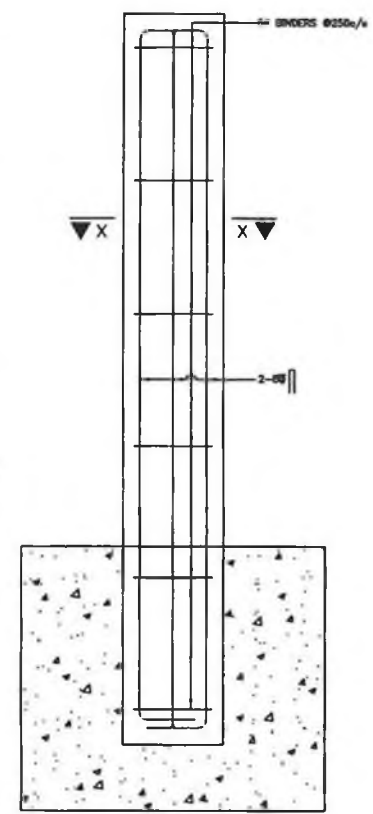
SECTION X-X



PLAN OF GUARD POST



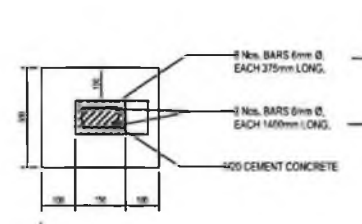
REINFORCEMENT DETAIL OF GUARD POST



FRONT ELEVATION

SIDE VIEW

PLAN



SCHEDULE OF REINFORCEMENT

TYPICAL DESIGN FOR 200m STONES

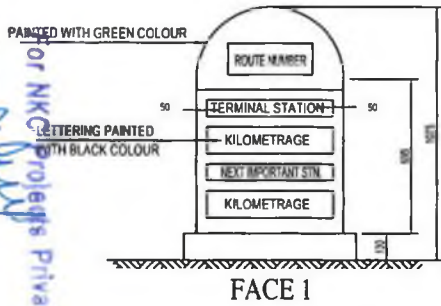
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFLECTORISED PAINT SHALL BE IN ACCORDANCE WITH CL.803.5 OF M.O.R.T & H SPEC.
3. FOR TYPE & STYLE SIZE OF LETTERING RELEVANT IRC CODE OF PRACTICE SHALL BE REFERED.
4. LETTERING IS DONE WITH APPROVED QUALITY BLACK ENAMEL PAINT USING STENCIL

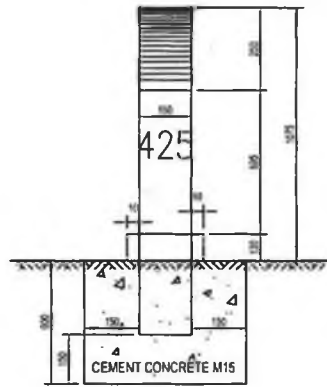
NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED.
2. R.C.C. GUARD POSTS IS INSTALLED WHERE EMBANKMENT HEIGHT IS GREATER THAN 3 M. AT OTHER HAZARD LOCATIONS.
3. FOR SCHEDULE REFER DRAWING NO. OSRP/CEG/SH9A & SH-9/SCH-GP

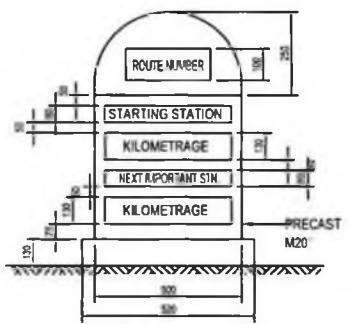
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	DSR CONSULTANT : C O N S U L T I N G E N G I N E E R S G R O U P L T D . E-12, MOJ COLONY, MALVIYA NAGAR JAIPUR-17. Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginia.com	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S	DRAWING TITLE : STANDARD DRAWINGS TYPICAL DETAILS OF 200M STONE & GUARD POST (SHEET 1 OF 1)
REV	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	DSR CONSULTANT : RANU MADHAR RAJU MADHAR RAJESH K (A) RAJESH K (A) RAJESH K (A)	DSR CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .	DRAWING NUMBER : OSRP/CEG/SH9P02B/ 3	REV. NO.	



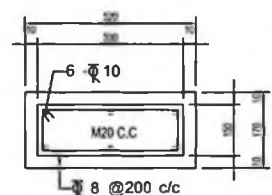
FACE 1



SIDE ELEVATION

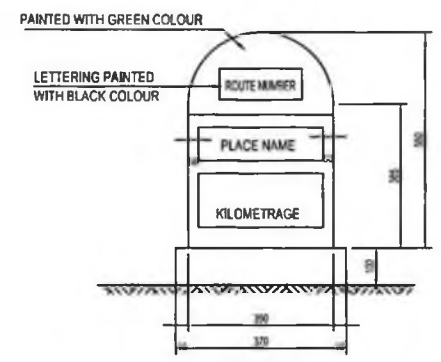


FACE 2

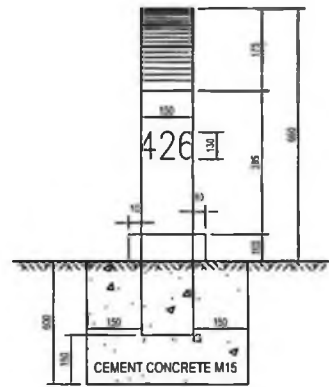


SECTIONAL PLAN

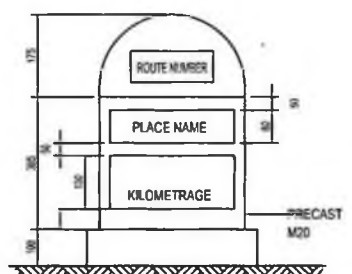
TYPICAL DESIGN FOR THE 5TH KILOMETRE STONE



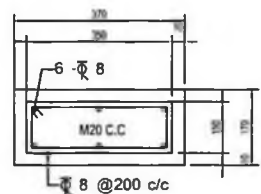
FACE 1



SIDE ELEVATION



FACE 2



SECTIONAL PLAN

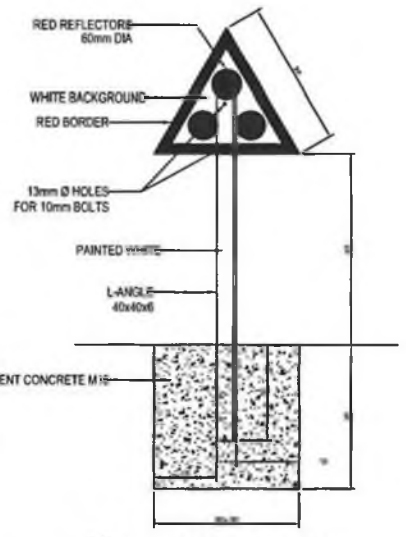
TYPICAL DESIGN FOR ORDINARY KILOMETRE STONE

INDEX FOR KILOMETRE STONES		
Km No.	SCRIPT FOR PLACE NAMES	PLACE TO BE SHOWN
0	ROMAN	TERMINAL/STARTING STATION AND NEXT IMPORTANT TOWN
1	HINDI (DEVANAGARI SCRIPT)	NEXT IMPORTANT TOWN
2	LOCAL LANGUAGE (ORIYA)	NEXT IMPORTANT TOWN
3	HINDI (DEVANAGARI SCRIPT)	TERMINAL / STARTING STATION
4	LOCAL LANGUAGE (ORIYA)	TERMINAL / STARTING STATION
5	ROMAN	TERMINAL/STARTING STATION AND NEXT IMPORTANT TOWN
6	HINDI (DEVANAGARI SCRIPT)	NEXT IMPORTANT TOWN
TO BE REPEATED IN THE SAME ORDER.		

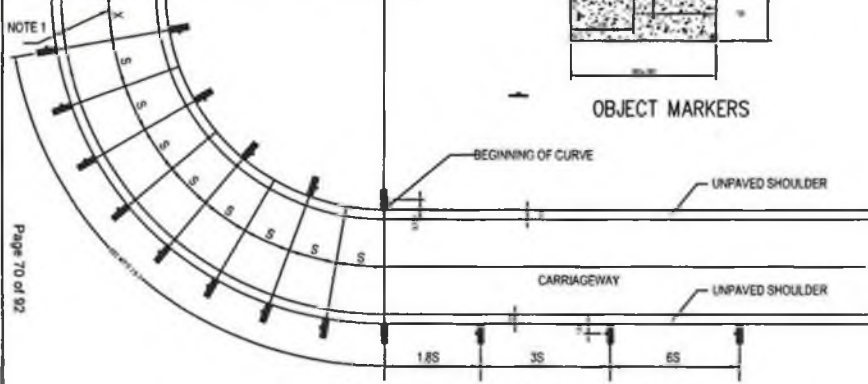
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFLECTORISED PAINT SHALL BE IN ACCORDANCE WITH CL.803.5 OF M.O.R.T & H SPEC.
3. FOR TYPE & STYLE SIZE OF LETTERING RELEVANT IRC CODE OF PRACTICE SHALL BE REFERED.
4. LETTERING IS DONE WITH APPROVED QUALITY BLACK ENAMEL PAINT USING STENCIL

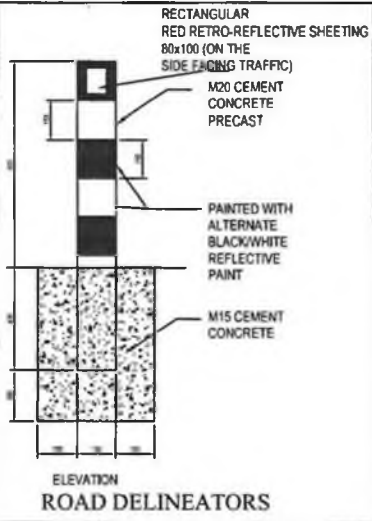
REVISIONS: NO. DATE REVISION BY DRAWN: PREPARED: CHECKED: APPROVED:		DPM CONSULTANT: CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521348, e-mail: ceg@ceginfra.com	DESIGN REVIEW CONSULTANT: LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044	CLIENT: ODISHA WORKS DEPARTMENT	PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE: N.T.S.	DRAWING TITLE: STANDARD DRAWINGS TYPICAL KM STONE & 5TH KM STONE (SHEET 1 OF 1)
NO. DATE REVISION BY DRAWN: PREPARED: CHECKED: APPROVED:				PROJECT NUMBER: OSRP/CEG/SH9/P02B/ 3		REV. NO.	



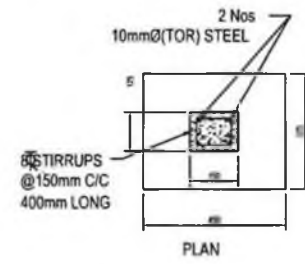
OBJECT MARKERS



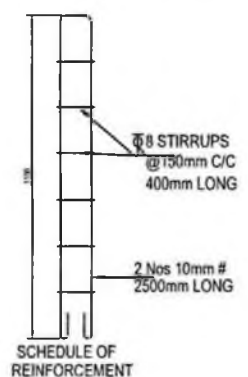
SPACING OF DELINEATORS ON CURVES



ELEVATION ROAD DELINEATORS



PLAN



SCHEDULE OF REINFORCEMENT

SCHEDULE OF ROAD DELINEATORS AT CURVES UPTO 1000m

ARC		RADIUS	ARC LENGTH	SPACING	TOTAL
START	END				
28+259.083	28+422.476	1000	253.091	50	14
29+039.397	29+109.065	500	521.921	30	32
29+318.832	29+467.715	400	99.767	25	12
29+633.782	30+140.178	500	56.067	30	9
30+490.990	30+642.449	350	236.615	25	20
31+208.886	31+267.795	500	451.438	30	29
36+131.547	36+309.543	300	832.841	25	56
36+798.239	36+883.032	1000	366.695	50	17
37+209.276	37+445.156	500	181.244	30	15
38+947.005	39+214.704	500	435.19	30	28
39+692.442	39+725.194	500	156.053	30	14
41+111.304	41+183.212	500	627.313	30	37
41+618.836	41+780.257	400	323.625	25	25
42+049.777	42+123.527	300	134.52	20	16
42+351.088	42+407.581	300	77.571	20	12
43+112.832	43+171.377	500	187.747	30	15
43+467.066	43+565.468	500	215.688	30	17
44+404.564	44+508.396	600	749.096	38	36

NOTE:

- ROAD DELINEATORS SHALL BE PROVIDED AS PER THE GUIDELINES IN IRC:79-1981
- FOR THE DETAILS OF ROAD DELINEATORS REFER DWG NO OSRP/CEG/RO

SL. No.	RADIUS OF CURVE (METRES)	SPACING ON CURVE S (METRES)
1	30	6
2	50	8
3	100	12
4	200	20
5	300	25
6	400	30
7	500	35
8	600	38
9	700	42
10	800	45
11	900	48
12	1000	50

NOTES:

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
- ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
- INSTALL ALL DELINEATORS AT EDGE AS SHOWN IN THE DRAWING PERPENDICULAR TO THE ONCOMING TRAFFIC.
- SEE TABLE FOR VALUE OF 'S' SPACING OF DELINEATORS ON THE CURVE.
- ON STRAIGHT SECTIONS DELINEATORS SHOULD BE SPACED UNIFORMLY 50m FROM EACH OTHER, THE POSTS BEING IN PAIRS, ONE ON EACH SIDE OF THE ROADWAY.
- LOCATIONS OF OBJECT MARKERS
 - TRAFFIC ISLANDS AT APPROACHES TO INTERSECTIONS
 - MEDIAN OPENINGS
 - ON MEDIANS & ISLANDS ON FAR SIDE OF THE INTERSECTIONS
 - FACING APPROACHING TRAFFIC AT ISLANDS FORMING LEFT INFILTRATION LANES
- OBJECT MARKERS SHOULD BE SET BACK FROM THE FACE OF THE KERB A DISTANCE OF ATLEAST 500mm
- REQUIREMENT OF REFLECTORS SHALL BE IN ACCORDANCE WITH IRC:79-1981 CODE OF PRACTICE.
- ON EMBANKMENTS WITH HEIGHT MORE THAN 2m CLEAR SPACING OF DELINEATORS SHALL BE 25m.
- DELINEATORS ARE NOT PROVIDED AT LOCATIONS WHERE CHEVRON SIGN BOARDS ARE PROPOSED
- GAURD POSTS ARE PROVIDED ON EMBANKMENTS OF HEIGHT >2m AND <3m AT 5m INTERVAL
- DELINEATORS ARE PROVIDED BEFORE AND AFTER PARAPET WALL ON BOTH SIDES AT ALL BRIDGE LOCATIONS AND ALSO AT CULVERT LOCATIONS WHOSE WIDTH IS LESS THAN 12m AND MORE THAN 10m.
- REFLECTIVE PAINT SHALL BE IN ACCORDANCE WITH CL803.5 OF M.O.R.T & H SPEC.

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2015	SECOND REVISION	LASA		RAJU BATHAR	NAR MEHRA (OC)	G.P. PATEL (CO)
01	JAN-2015	FIRST REVISION	OND	VIKAY	PK MEHRA (AC)	NAR MEHRA (OC)	NAR PRADHAN (OC)
-	JUNE 2016	ORIGINAL	OND				

CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOU COLONY, MALVIYA NAGAR
 JAJPUR-17 Tel:
 +91-141-2520899, 2521898, 2520556 Fax:
 2521340, e-mail: ceg@cegindia.com

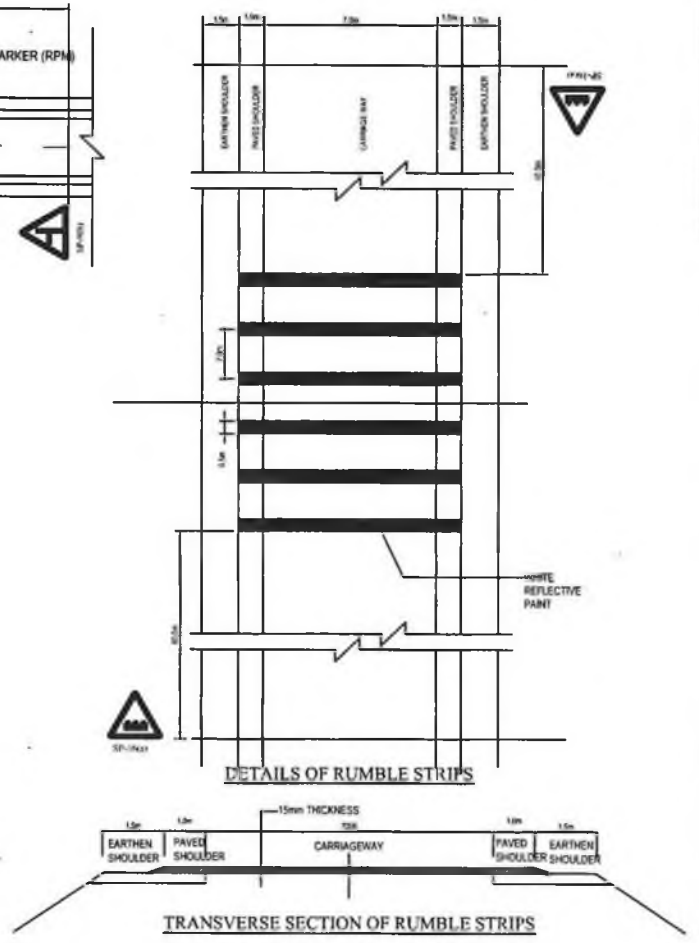
CLIENT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 8th FLOOR, MOHAN COOPERATIVE
 INDUSTRIAL ESTATE, MATHURA ROAD, NEW
 DELHI-110044.

ODISHA WORKS DEPARTMENT

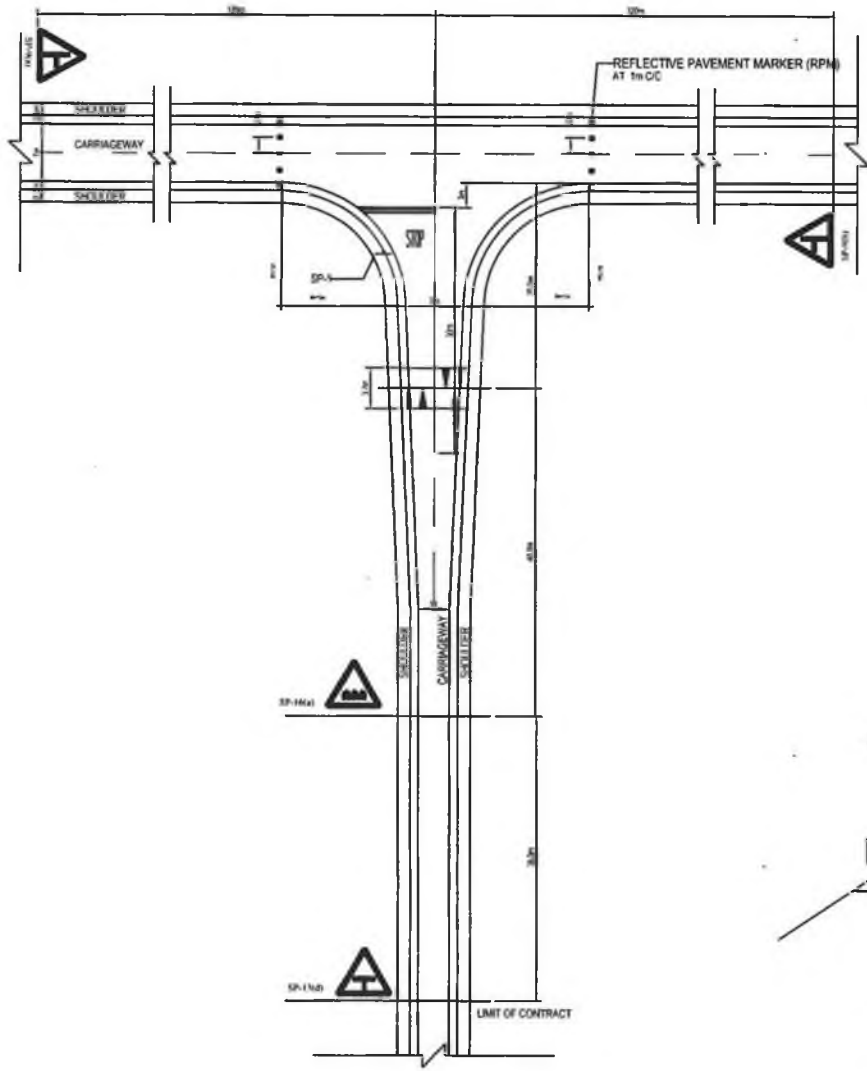
PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

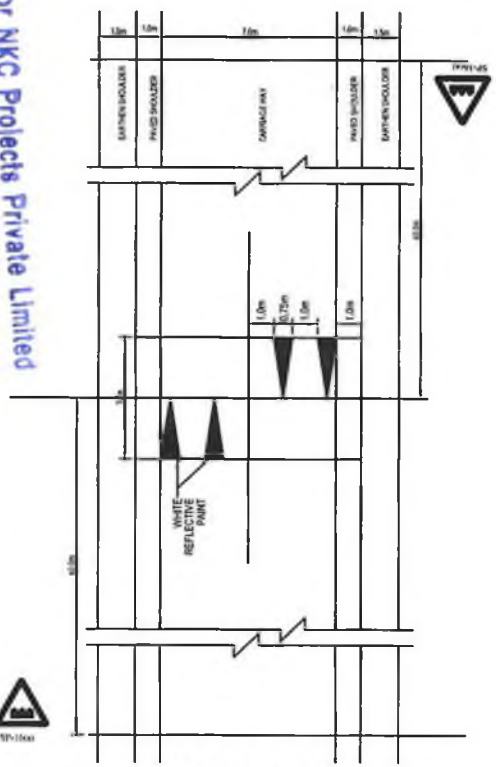
DRAWING TITLE :
**STANDARD DRAWINGS
 TYPICAL ROAD SIGN**
 SHEET 3 OF 6
 PROJ. NUMBER : OSRP/CEG/SI/HP02B/ 3



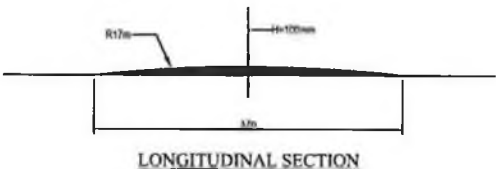
- NOTES:-**
1. THE DESIGN OF ROAD HUMP IS IN ACCORDANCE WITH IRC: 99-1988 GUIDE LINES.
 2. ROAD HUMP IS PROPOSED AT UNCONTROLLED INTERSECTIONS OF MINOR ROADS WITH MAJOR ROADS ON THE MINOR ARMS.
 3. THE WARNING SIGNS SHOULD BE OF THE DESIGN 'HUMP OR ROUGH ROAD' DETAILED IN IRC: 87-2081 SHOULD BE INSTALLED AT SPECIFIED DISTANCE AHEAD OF RUMBLE STRIP/ ROAD HUMP AS GIVEN IN DWG No. OSR/ICEGR/SH/10/03
 4. REFLECTIVE PAINT SHALL BE HOT APPLIED THERMOPLASTIC MATERIAL CONFORMING TO M.O.R.T & H SPEC. CL.8004
 5. RUMBLE STRIPS ARE PROVIDED ON ALL SHARP CURVES WITH RADIUS LESS THAN 170m AND AT VILLAGE AND URBAN APPROACHES.
 6. HEIGHT OF RUMBLE STRIP IS 15mm
 7. MATERIAL OF CONSTRUCTION FOR RUMBLE STRIP IS OPEN GRADED PREMIUM BITUMINOUS SURFACING (TYPE-B) AS PER TECH SPEC. CL 512
 8. MATERIAL OF CONSTRUCTION FOR ROAD HUMP IS BITUMINOUS CONCRETE AS PER TECH SPEC. CL 518
 9. REFLECTIVE PAVEMENT MARKERS ARE PROVIDED AS SHOWN IN DRAWING No. OSR/ICEGR/PM BEFORE AND AFTER RUMBLE STRIP/ROAD HUMP.



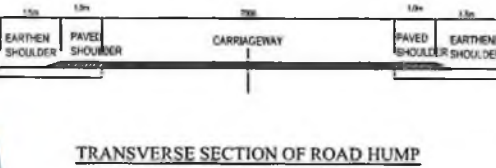
LOCATION OF ROADHUMP AT MINORROAD INTERSECTIONS



DETAILS OF ROAD HUMP



LONGITUDINAL SECTION



TRANSVERSE SECTION OF ROAD HUMP

For NKC Projects Private Limited
 Director

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Chief Engineer
 Civil & Road
 District Road, Cuttack
 Odisha

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
01	SEP-2015	SECOND REVISION	ASA	RAJU BANERJEE	RAJESH KISHOR	DR. PATIL (JC)	
02	JAN-2016	FIRST REVISION	CHD	VINAY KUMAR (AO)	RAJESH KISHOR	RAJESH KISHOR	
03	JUNE 2005	ORIGINAL	CHD				

CONTRACTOR :
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MIDC COLONY, MALVIYA NAGAR
 JAIPUR-17 Tel: +91-141-2520899, 2521898, 2520556 Fax: 2521348, e-mail: ceg@raighnla.com

DESIGNER CONSULTANT :
CEG
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

CLIENT :

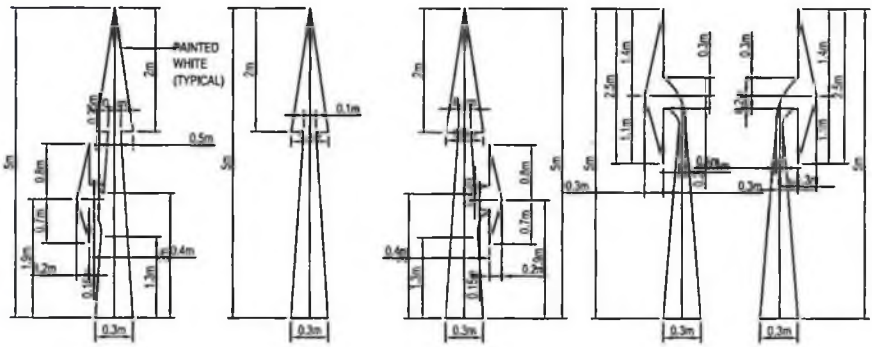
 ODISHA WORKS DEPARTMENT

PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

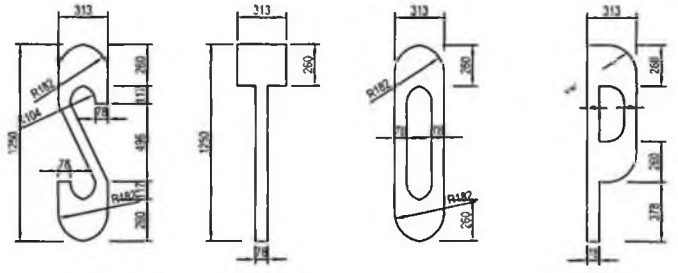
SCALE :
 H.T.S

DRAWING TITLE :
 STANDARD DRAWINGS DETAILS OF ROAD HUMP AND RUMBLE STRIPS
 (SHEET 1 OF 1)
DWG NUMBER : OSRP/ICEGR/SH/P02B/ 3

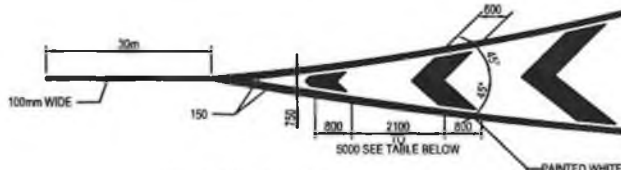
DIRECTIONAL ARROWS



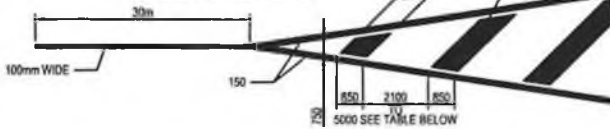
SIZE OF LETTERS



DIAGONAL MARKINGS

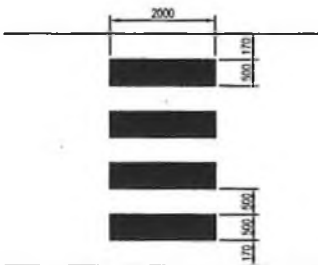


CHEVRON MARKINGS

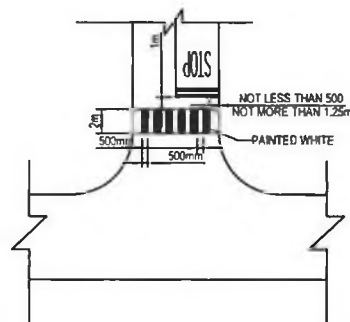


TOTAL LENGTH OF MARKING (m)	CLEAR SPACING BETWEEN DIAGONALS/CHEVRONS (mm)	
	SPEED ($\le 45 \text{ km/h}$)	SPEED (>45 km/h)
≤ 4	2100	-
6 TO 22	3500	-
>22	5000	-
≤ 10	-	4000
>10	-	6000

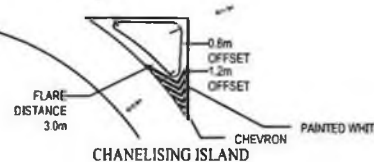
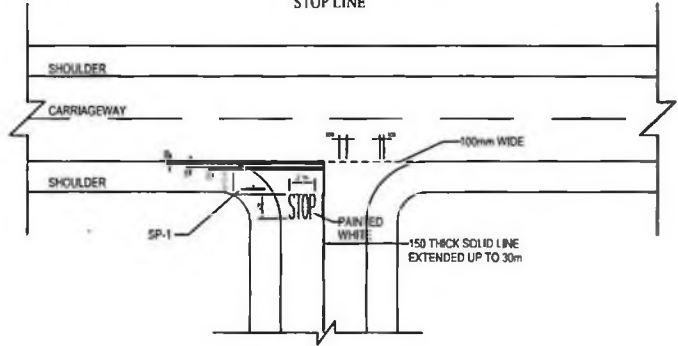
SCHEDULE OF MAJOR JUNCTIONS



PEDESTRIAN CROSSING



STOP LINE



NOTE:

1. ALL LENGTHS AND SPACINGS IN THE TABLE ARE MEASURED PARALLEL TO ROAD CENTRE LANE.
2. FIRST DIAGONAL OR CHEVRON IS TO BE SO LOCATED THAT ITS LENGTH IS AT LEAST EQUAL TO ITS WIDTH
3. WIDTH OF ALL DIAGONAL/CHEVRONS MEASURED AT RIGHT ANGLES TO THE DIAGONALS OR CHEVRONS IS 600mm.
4. FOR CENTERLINE AND EDGELINE MARKING AT BUS BAY LOCATION REFER DRAWING NO. OSRP/CEG/BB/01
5. ROAD MARKING SHOULD BE DONE WITH THERMOPLASTIC PAINT CONFORMING TO CL. R03.4 OF M.O.R.T & H SPECIFICATIONS
6. DETAILS OF MARKING AT INTERSECTIONS ARE AS PER M.O.R.T & H TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS

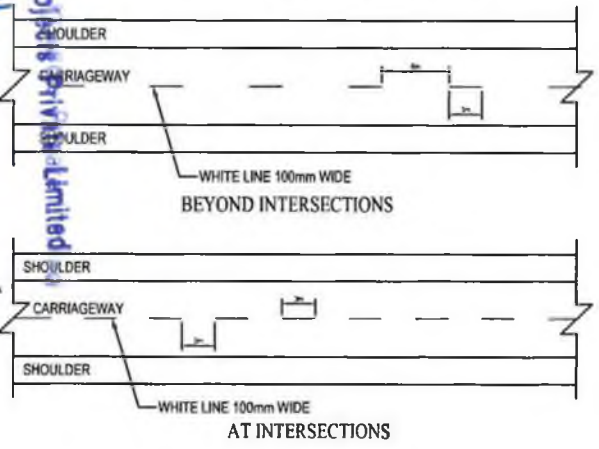
PEDESTRIAN CROSSING

FOR SCHEDULE OF PEDESTRIAN XING REFER DRAWING NO: OSRP/CEG/SCH/GP-XW-PC

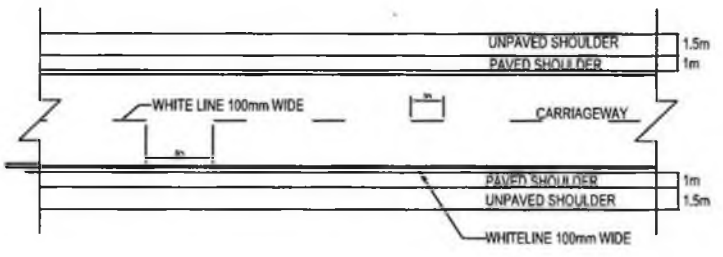
RZ SEP-2015 SECOND REVISION LABA RAJU MATHUR NLR MISHRA (CC) D.P. PATEL (CC)			DPR CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520899, 2521859, 2520856 Fax: 2521348, e-mail: ceg@ceagindia.com			DESIGN REVIEW CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044			CLIENT : ODISHA WORKS DEPARTMENT			PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B			SCALE : N.T.S			DRAWING TITLE : STANDARD DRAWINGS TYPICAL ROADMARKING & CHEVRON MARKING DETAILS (SHEET 2 OF 2)		
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	OSRP/CEG/SH9/P02B/ 3			REV/ NO									

LONGITUDINAL MARKING

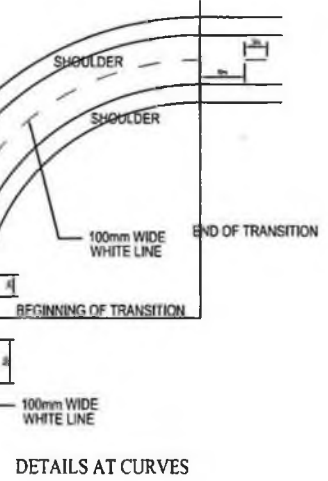
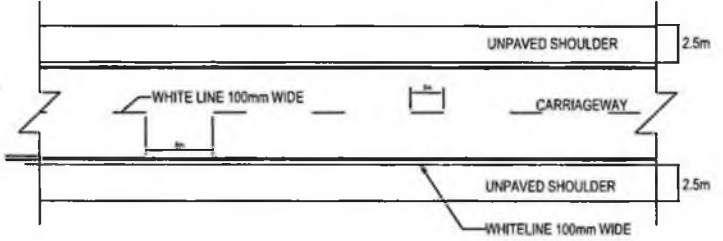
DETAILS OF CENTRE LINE



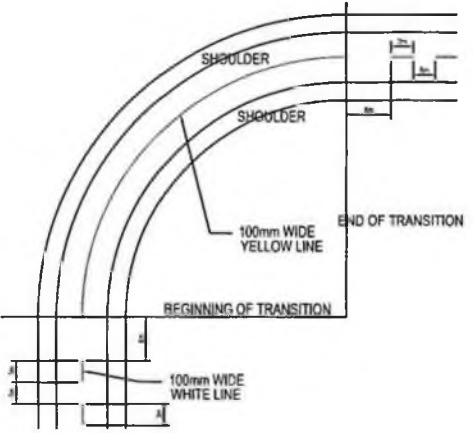
DETAILS OF EDGE LINE MARKING



DETAILS OF EDGE LINE MARKING



DETAILS AT CURVES



DETAILS AT SHARP CURVES (NO-OVERTAKING ZONE)

NOTE:

1. EDGE LINE MARKINGS SHOULD NOT BE CARRIED ACROSS THE MOUTHS OF SIDE ROADS
2. CENTRE LINE & EDGE MARK SHALL END AT THE STOP LINE & SHALL NOT BE CONTINUED.
3. ROAD MARKING SHOULD BE DONE WITH THERMOPLASTIC PAINT CONFORMING TO CL. 803.4 OF M.O.R.T & H SPECIFICATIONS
4. DETAILS OF ROAD MARKING ARE AS PER IRC: 35-1997, CODE OF PRACTICE FOR ROAD MARKINGS

For NKC Projects Private Limited
 Director

Chief Engineer
 District Roads, Cuttack
 Odisha & India
 (Employer)

NO.		DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	OPI CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOH. COLONY, MALWYA NAGAR JAMPUR-751 017, India +91-141-2520899, 2521089, 2520556 Fax: 2521348, e-mail: ceg@ceghdla.com	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S.	DRAWING TITLE : STANDARD DRAWINGS TYPICAL ROAD MARKING DETAILS (SHEET 1 OF 2)
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED		OPI CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .	DWS NUMBER : OSRP/CEG/SH/P02B/ 1	REV.	NO.	

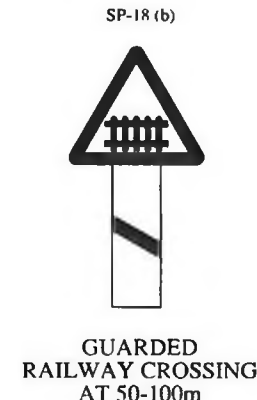
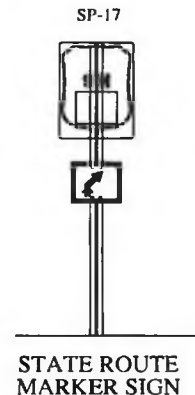
For NKC Projects Private Limited
 Director

Page 74 of 92



NO		SEP-2013	SECOND REVISION	LASA		RAJU MATHUR	MR. MISHRA (CC)	G.P. PATEL (CC)	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	25/1/34R, e-mail: ceag@nkc.com			
NO		JAN-2013	FIRST REVISION	OND	VINAY	PK.MISHRA (AC)	MR. MISHRA (CC)	MR. PRADHAN (CC)	CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520809, 2521899, 2520556 Fax: 252134R, e-mail: ceag@nkc.com										
NO		JUNE 2008	ORIGINAL	CEG					DESIGN REVIEW CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .										
CLIENT :										PROJECT :									
ODISHA WORKS DEPARTMENT										CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B									
SCALE :										DRAWING TITLE :									
N.T.S										STANDARD DRAWINGS TYPICAL ROAD SIGN (SHEET 1 OF 4)									
DRAWING NUMBER :										REV :									
OSRP/CEG/SH9/P02B/ 1										02									

Design Review Consultant
 (Employer's)



NOTE:

1. DETAILS OF ROAD SIGNS ARE AS PER IRC: 67-2001.
2. DETAIL OF STATEROUTE MARKER SIGN IS AS PER IRC: 31-1969.
3. ALL MANDATORY AND CAUTIONARY SIGNS SHOULD BE HIGH INTENSITY WIDE ANGLE MICRO PRISMATIC SHEETING CONFORMING TO CL-801 OF TECH. SPECIFICATION
4. ALL INFORMATORY SIGNS SHOULD CONFIRM TO STANDARDS OF HIGH INTENSITY ENCAPSULATED TYPE RETRO REFLECTIVE SHEETING AS PER CL. 801.OF TECH. SPECIFICATION

LEGEND

- WHITE SHEET
- BLACK SHEET
- RED SHEET
- BLUE SHEET

NO.	DATE	REVISION	BY	DRAMA	PREPARED	CHECKED	APPROVED
01	SEP-2018	SECOND REVISION	SASA		RAJU NATHAN	NAJ MEHRA (CC)	G.P. PATIL (CC)
02	JAN-2019	FIRST REVISION	END	VINAY	PRANSHU (AE)	NAJ MEHRA (CC)	NAJ PRADHAN (CC)
03	JUNE 2020	ORIGINAL	END				

DPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, JOKI COLONY, MALVIYA NAGAR
 JAIPUR-17, Tel: +91-141-2520898, 2521899, 2520858 Fax: 2521348, e-mail: ceg@vsnl.com

DESIGN REVIEW CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

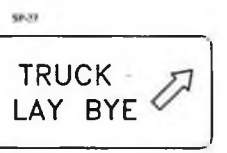
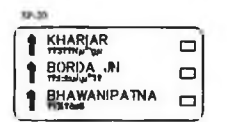
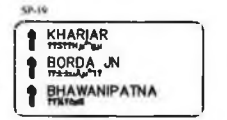
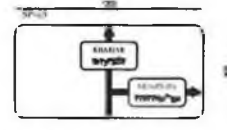
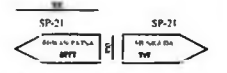
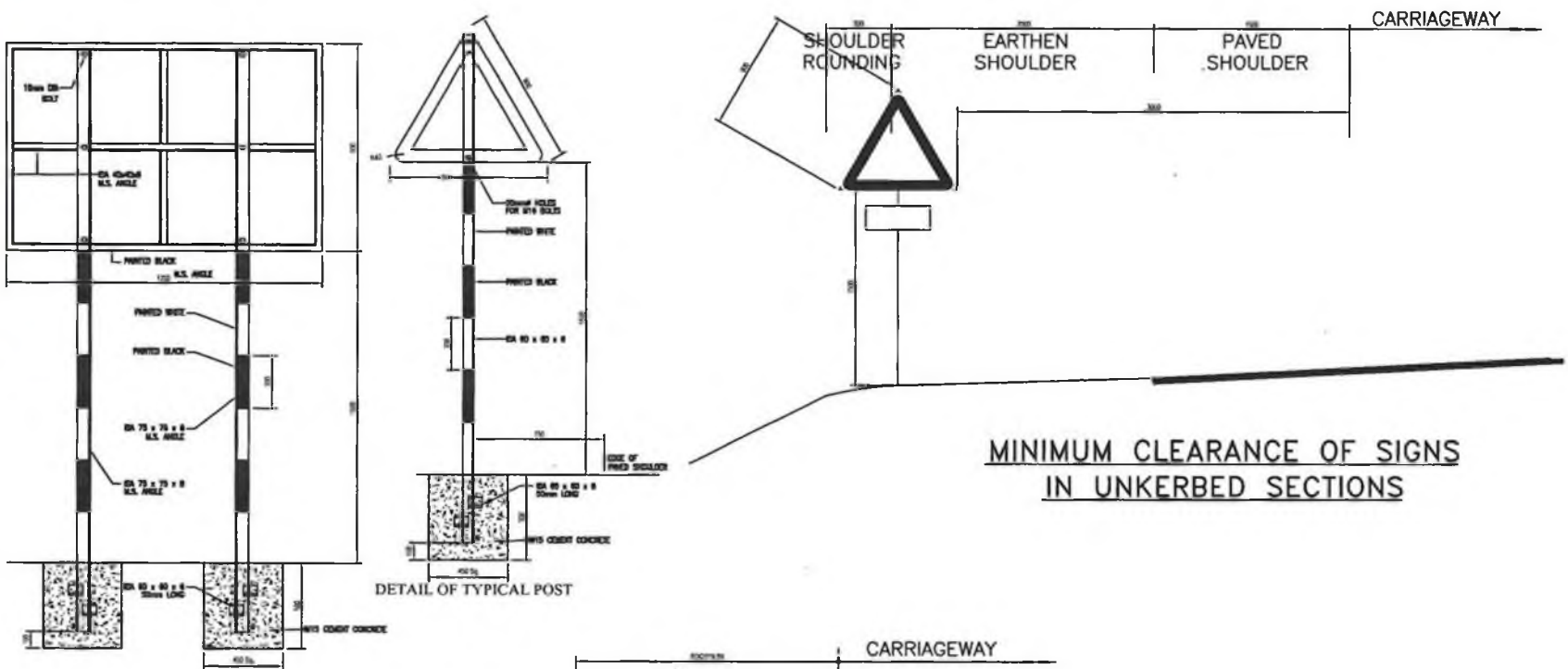
CLIENT :

 ODISHA WORKS DEPARTMENT

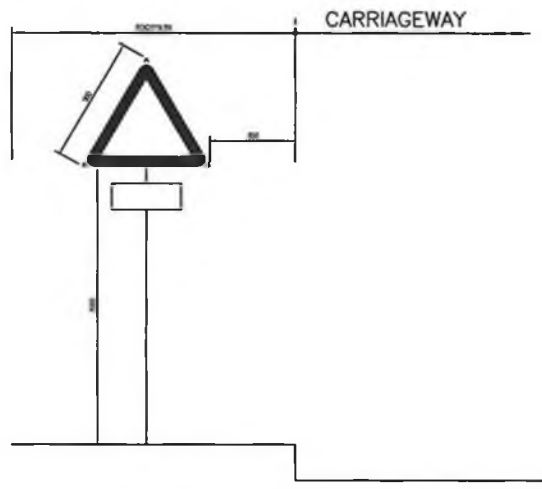
PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

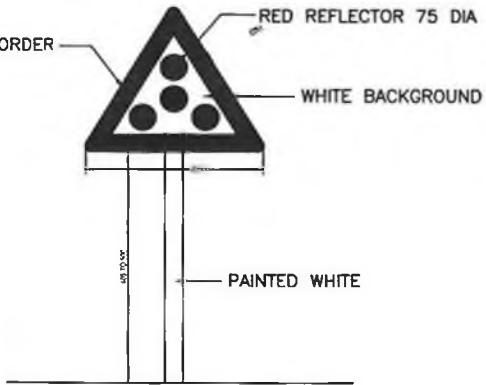
DRAWING TITLE :
**STANDARD DRAWINGS
 TYPICAL ROAD SIGN**
 (SHEET 2 OF 4)
 DWG. NUMBER : OSRP/CEG/SH-9/P02B/ 2
 REV. NO.



MINIMUM CLEARANCE OF SIGNS IN UNKERBED SECTIONS



MINIMUM CLEARANCE OF SIGNS IN KERBED SECTIONS



CLUSTER OF RED REFLECTORS
TA 1

NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS INDICATED OTHERWISE.
2. ROAD SIGNS, SIZES OF ARROWS, LETTERS & NUMERALS IS AS PER IRC:87-2001.
3. ALL ROAD SIGNS ARE NORMALLY BE PLACED AT RIGHT ANGLES TO THE LINE OF TRAVEL OF THE APPROACHING TRAFFIC.
4. ALL WARNING SIGNS ARE NORMALLY BE LOCATED AT 120m IN ADVANCE OF THE HAZARD WARNED AGAINST IN NON-URBAN LOCATIONS. IN URBAN LOCATIONS, THE WARNING SIGNS ARE LOCATED AT ABOUT 50m AWAY FROM THE POINT OF HAZARD.
5. ALL ROAD SIGNS ARE RETRO-REFLECTIVE SHEET OF HIGH INTENSITY GRADE WITH ENCAPSULATED LENSE FIXED OVER ALUMINIUM SHEET AS PER MORTH SPECIFICATIONS.
6. ROUTE MARKER SIGN FOR NH IS AS PER IRC :2-1968.
7. SIGNS WITH AN AREA UPTO 0.9sq. m. SHALL BE MOUNTED ON A SINGLE POST, AND FOR GREATER AREA TWO OR MORE SUPPORTS SHALL BE PROVIDED.
8. POST ANGLES USED TO SUPPORT THE SIGN BOARD SHALL BE PAINTED WITH (2-COATS) APPROVED QUALITY (ANTI-CORROSIVE) ENAMEL PAINT OVER TWO COATS OF GOOD QUALITY PRIMER

NO.	DATE	REVISION	BY	CHKD	PREPARED	CHECKED	APPROVED
01	JAN-2013	FIRST REVISION	OND	VINAY	RAJU BATHUR	RAJ MEHRA (AC)	S.P. PATEL (CC)
02	JAN-2018	ORIGINAL	OND		PKASHINA (AC)	RAJ MEHRA (CC)	RAJ PRADHAN (CC)

CONSULTANT
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOULI COLONY, MALWIYA NAGAR JAIPUR-17
 Tel: +91-141-2520899, 2521899, 2520330 Fax: 2521348, e-mail: ceg@cegltda.com

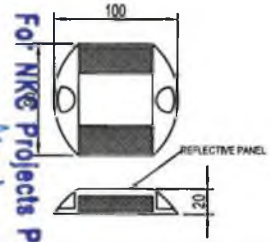
CLIENT
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

PROJECT
 ODISHA WORKS DEPARTMENT

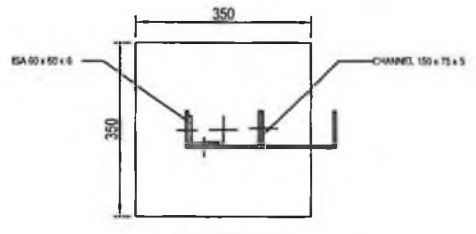
PROJECT
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE
 N.T.S.

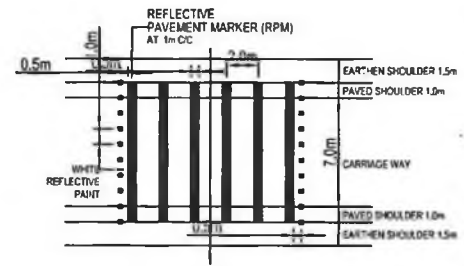
DRAWING TITLE
 STANDARD DRAWINGS TYPICAL ROAD SIGN (SHEET 3 OF 6)
DRAWING NUMBER : OSRP/CEG/SH9/P02B/ 3
REV. : 01



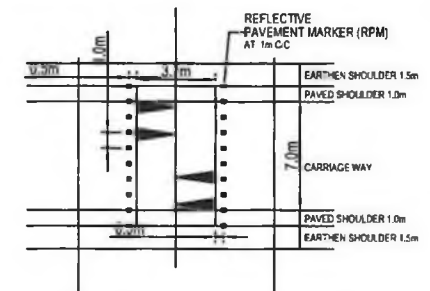
REFLECTIVE PAVEMENT MARKERS (RPM)



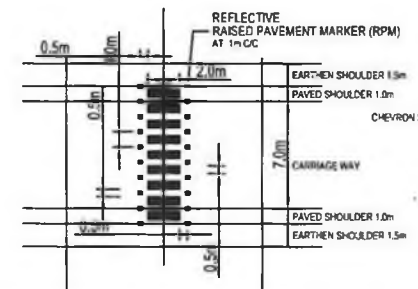
SECTION 'A-A'



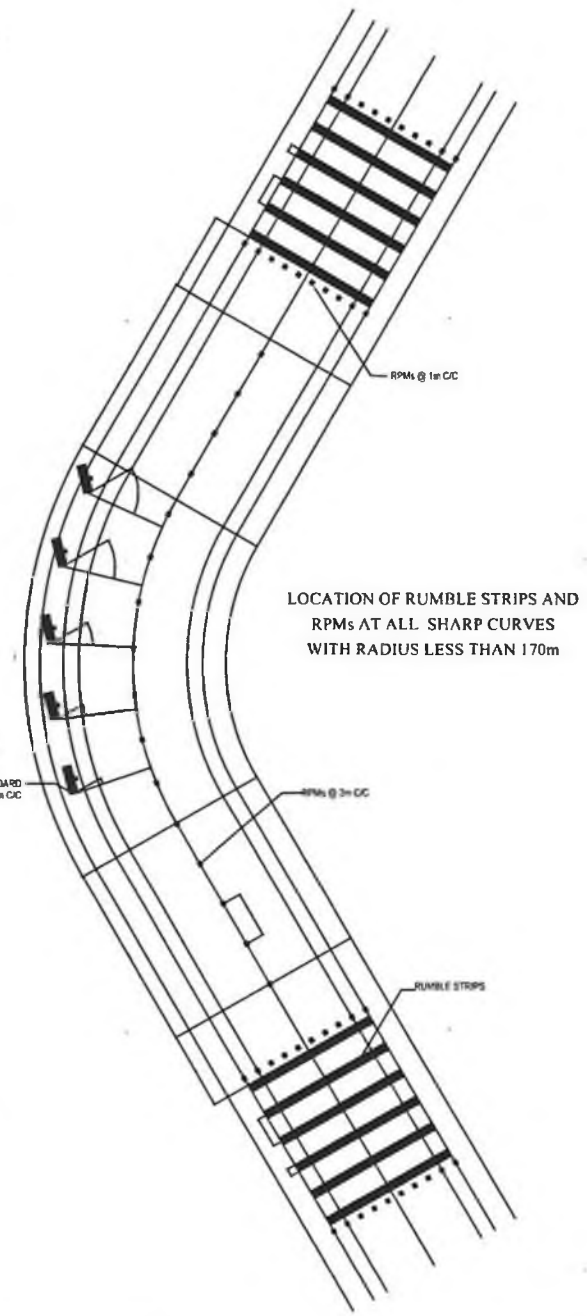
LOCATION OF RPM BEFORE RUMBLE STRIPS



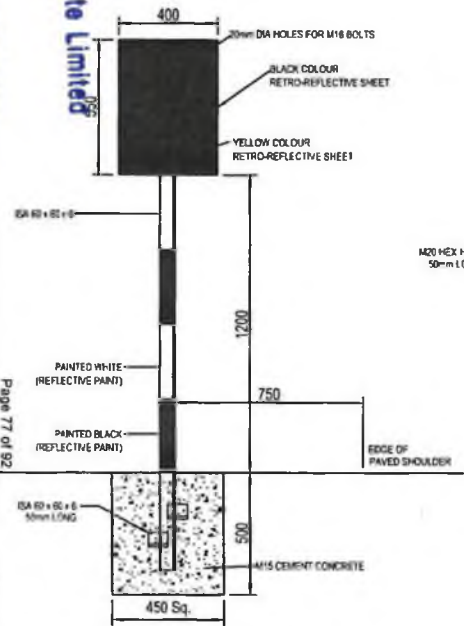
LOCATION OF RPM BEFORE ROAD HUMP



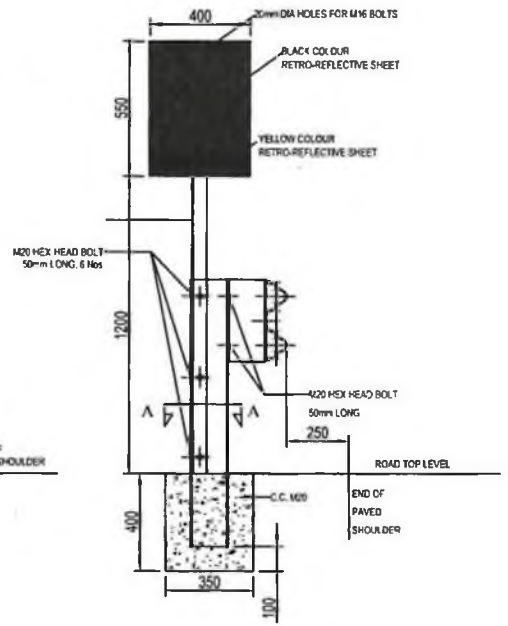
LOCATION OF RPM BEFORE PEDESTRIAN CROSSING



LOCATION OF RUMBLE STRIPS AND RPMs AT ALL SHARP CURVES WITH RADIUS LESS THAN 170m



(FOR CURVES > 170m & < 200m RADIUS) CHEVRON DIRECTION SIGN BOARD



(FOR CURVES < 170m RADIUS) CHEVRON DIRECTION SIGN BOARD WITH CRASH BARRIER

REFLECTIVE PAVEMENT MARKERS

1. SPECIFICATION OF MATERIAL, DESIGN, OPTICAL PERFORMANCE, TESTS AND FIXING OF RPM SHALL BE IN ACCORDANCE WITH TECH.SPEC. CL.812.

2. LOCATIONS OF RPM

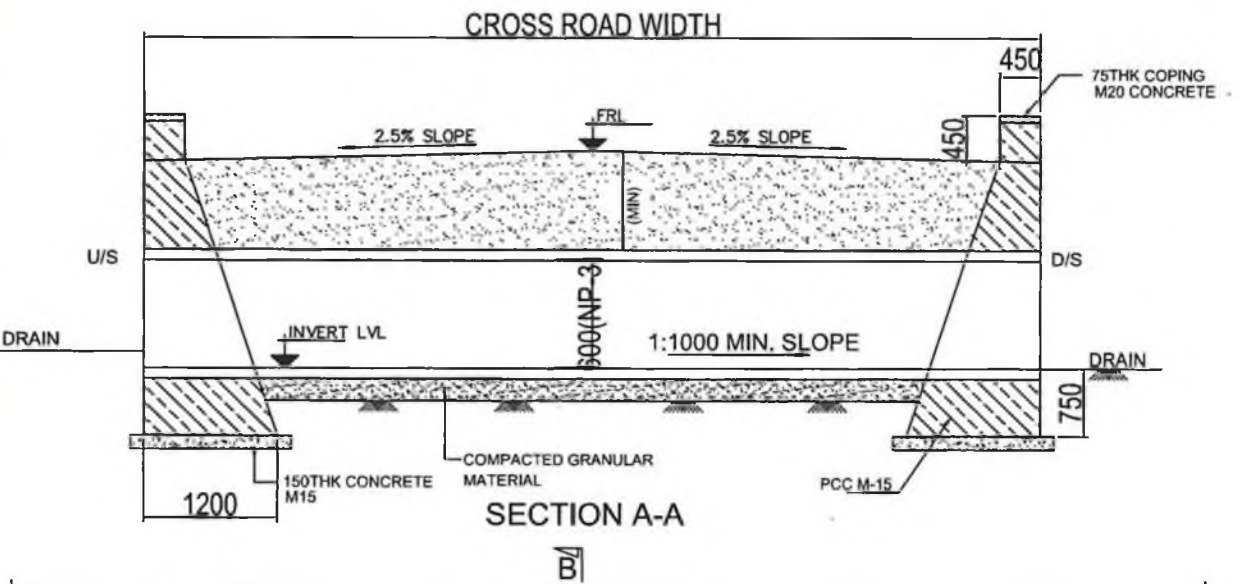
COLOUR OF RPM	LOCATION	SPACING
WHITE	RUMBLE STRIP & ROAD HUMP AS SHOWN IN DRG.	1m C/C
AMBER	CURVES < 600m RADIUS ALONG CENTERLINE	3m C/C
RED	BEFORE AND AFTER PEDESTRAIN CROSSING AS SHOWN IN DRG. AND AT APPROACHES TO ROAD INTERSECTION AS SHOWN IN DRG. U/16/11	1m C/C

3. RPM SHOULD MEET MINIMUM CL VALUES EQUIVALENT TO CATEGORY 'A' STUDS AS PER CLAUSE 812 OF TECH.SPEC.

CHEVRON SIGN BOARD

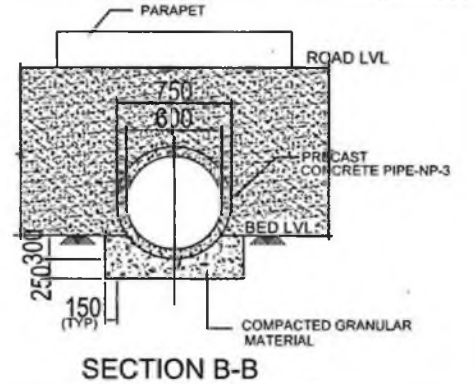
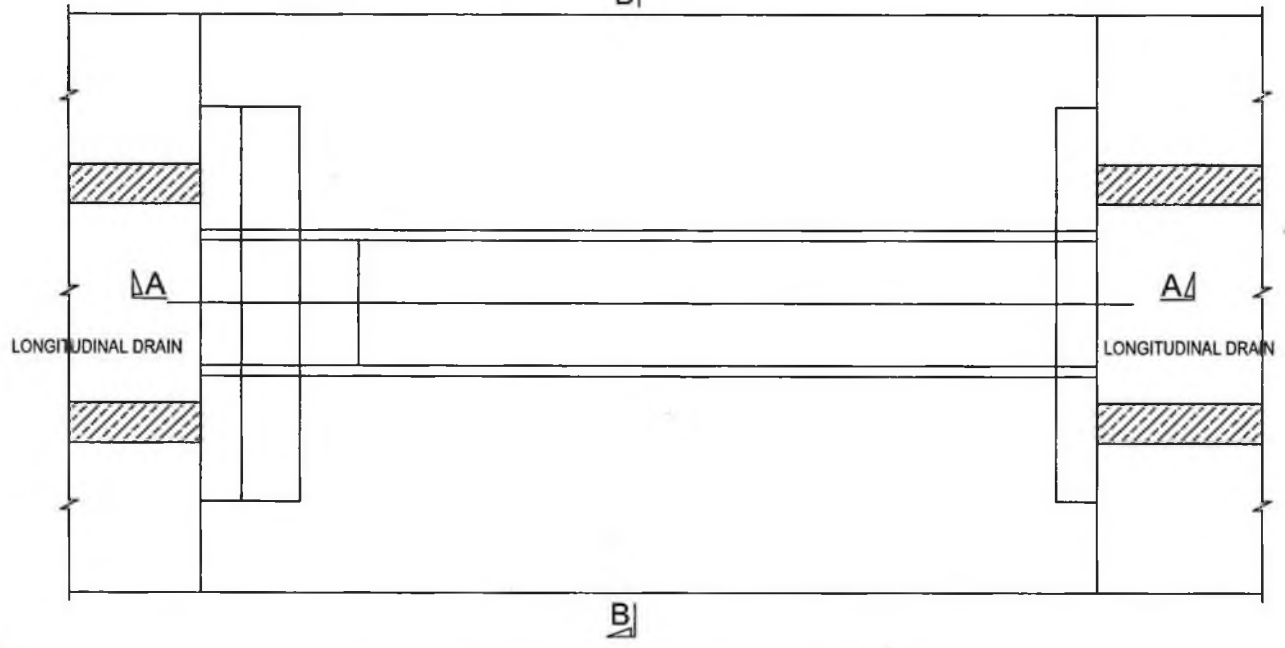
- The size of Chevron Sign board is 400mm x 550mm.
- The sign board should be wide-angle micro-prismatic lens conforming to tech.spec. CL.801.3.2.2
- The retro-reflective surface after cleaning with soap and water in dry condition should have the minimum coefficient of retro-reflection (MORT&H wide 801.3.2 clause & Ministry's letter No. RW/INH-33023/1/88-DG II) as indicated below for encapsulated lens.
- Chevron sign boards shall be installed at 10m c/c as shown in the drawings at all curves of radius less than 200m along the outer edge facing the traffic of nearby lane.

<p>REVISIONS</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>DRAWN</th> <th>PREPARED</th> <th>CHECKED</th> <th>APPROVED</th> </tr> <tr> <td>01</td> <td>SEP-2015</td> <td>SECOND REVISION</td> <td>JASA</td> <td></td> <td>RAJU WATHAR</td> <td>RAJ MEHRA (JC)</td> <td>G.P. PATEL (JC)</td> </tr> <tr> <td>02</td> <td>JAN-2016</td> <td>FIRST REVISION</td> <td>OND</td> <td>VINAY</td> <td>PK MEHRA (AC)</td> <td>RAJ MEHRA (JC)</td> <td>DEEPAK PRASAD (JC)</td> </tr> <tr> <td>03</td> <td>JUNE 2006</td> <td>ORIGINAL</td> <td>ODJ</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	01	SEP-2015	SECOND REVISION	JASA		RAJU WATHAR	RAJ MEHRA (JC)	G.P. PATEL (JC)	02	JAN-2016	FIRST REVISION	OND	VINAY	PK MEHRA (AC)	RAJ MEHRA (JC)	DEEPAK PRASAD (JC)	03	JUNE 2006	ORIGINAL	ODJ					<p>DPW CONSULTANT 1</p> <p>CONSULTING ENGINEERS GROUP LTD. E-12/MOJ COLONY, MALIYA NAGAR JAMUR-17 Tel: +91-141-2520899, 2521899, 2520056 Fax: 2521348, e-mail: ceg@ceginfolia.com</p>		<p>DPW CONSULTANT 2</p> <p>LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044</p>		<p>CLIENT</p> <p>ODISHA WORKS DEPARTMENT</p>		<p>PROJECT</p> <p>CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B</p>		<p>SCALE</p> <p>N.T.S</p>		<p>DRAWING TITLE</p> <p>STANDARD DRAWINGS DETAILS OF RRPMS & CHEVRON MARKERS</p>	
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED																																						
01	SEP-2015	SECOND REVISION	JASA		RAJU WATHAR	RAJ MEHRA (JC)	G.P. PATEL (JC)																																						
02	JAN-2016	FIRST REVISION	OND	VINAY	PK MEHRA (AC)	RAJ MEHRA (JC)	DEEPAK PRASAD (JC)																																						
03	JUNE 2006	ORIGINAL	ODJ																																										
<p>DRWG NUMBER: OSRP/CEG/SH/9/P02B/ 3</p>										<p>REV 02</p>																																			



SCHEDULE FOR MINOR JUNCTIONS

SL. NO.	CHAINAGE	TYPE OF JUNCTION	SIDE
1	33126	T-TYPE	RHS
2	36195	T-TYPE	RHS
3	37255	T-TYPE	LHS
4	40000	T-TYPE	RHS



TYPICAL PLAN FOR PIPE CULVERT ON CROSS ROAD

SECTION B-B

NO.	DATE	REVISION	BY	DRN	PREPARED	CHECKED	APPROVED
02	SEP-2018	SECOND REVISION	ASA		RAJU MADHUR	RAJ KESHRA (EE)	G.P. PATIL (CE)
01	JAN-2013	FIRST REVISION	OND	VINAY	PKUMSHRA (AO)	RAJ KESHRA (EE)	RAJ PRADHAN (CE)
-	JUNE 2008	ORIGINAL	OND				

DPR CONSULTANT :
CEG
 CONSULTING ENGINEERS GROUP LTD.
 E-12, MOH COLONY, MALVIYA NAGAR
 JAJPUR-17 Tel: +91-141-2520800, 2521899, 2520036 Fax: 2521348, e-mail: ceg@cegindia.com

DESIGN & DETAIL CONSULTANT :
LEA
 LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

CLIENT :

 ODISHA WORKS DEPARTMENT

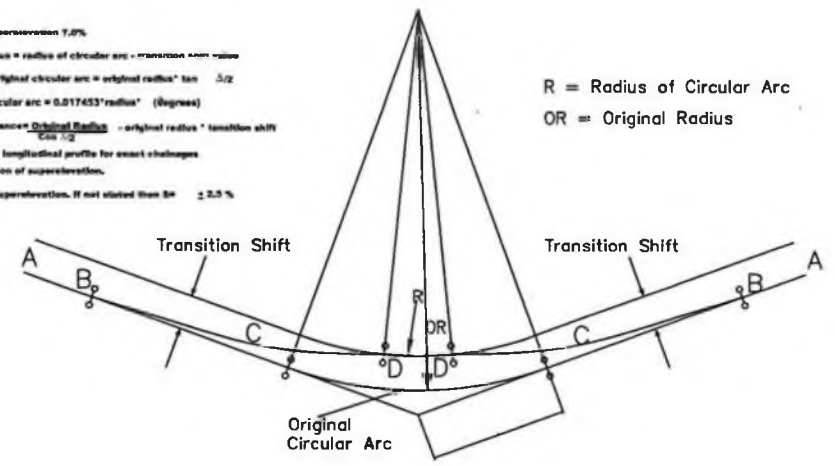
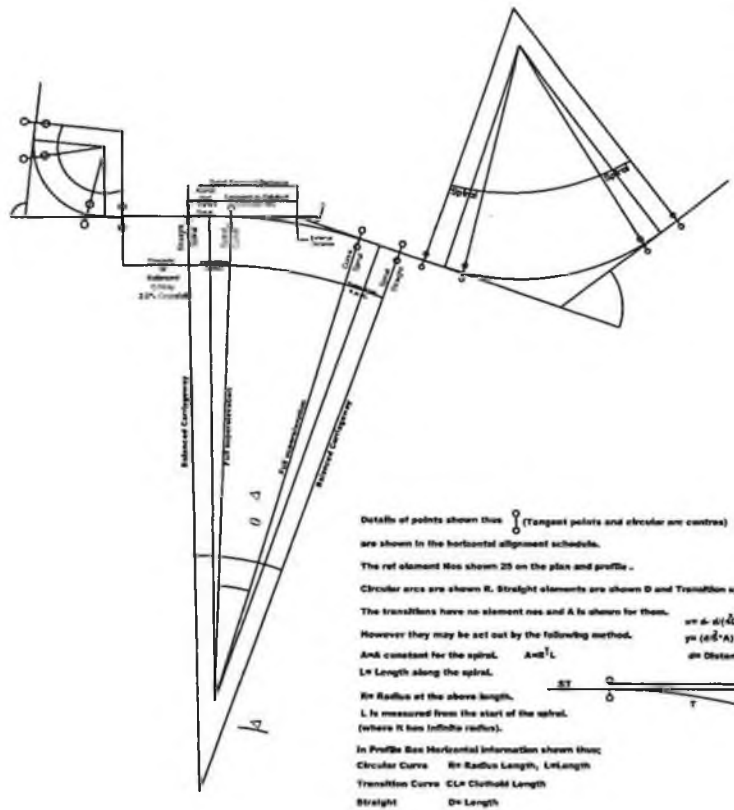
PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

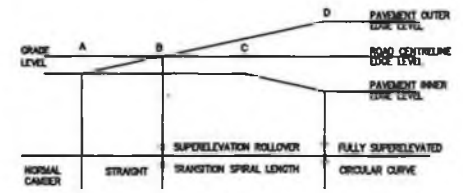
DRAWING TITLE :
 STANDARD DRAWINGS TYPICAL CROSS DRAIN SINGLE LANE BT ROAD/ EARTHEN ROAD (SHEET 1 OF 11)
 DWG. NUMBER : OSRP/CEG/SH9/P02B/ 3 REV: 00

- NOTES:
1. maximum superelevation 7.0%
 2. Original Radius = radius of circular arc - transition curve radius
 3. Tangent to original circular arc = original radius * tan Δ/2
 4. Length to circular arc = 0.217453 * radius * (degrees)
 5. External distance = Original Radius - original radius * tan(Δ/2)
 6. See Plan and longitudinal profile for exact alignments for application of superlevation.
 7. 3% value of superlevation. If not stated then 3% ± 2.5 %

R = Radius of Circular Arc
OR = Original Radius



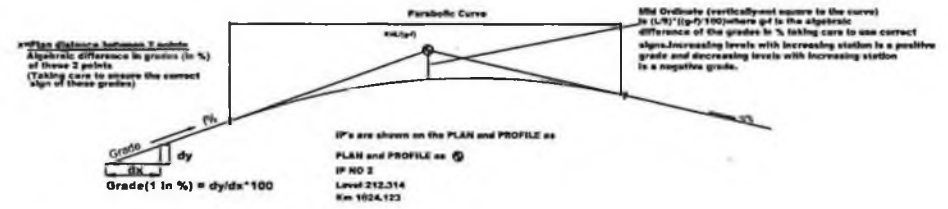
APPLICATION OF SUPERELEVATION



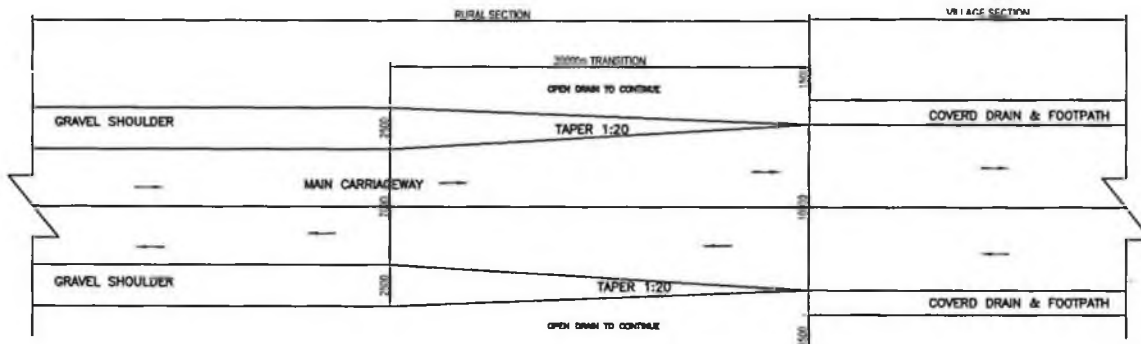
LONGITUDINAL SECTION THROUGH HORIZONTAL CURVE

ROTATION ABOUT PAVEMENT CENTRELINE

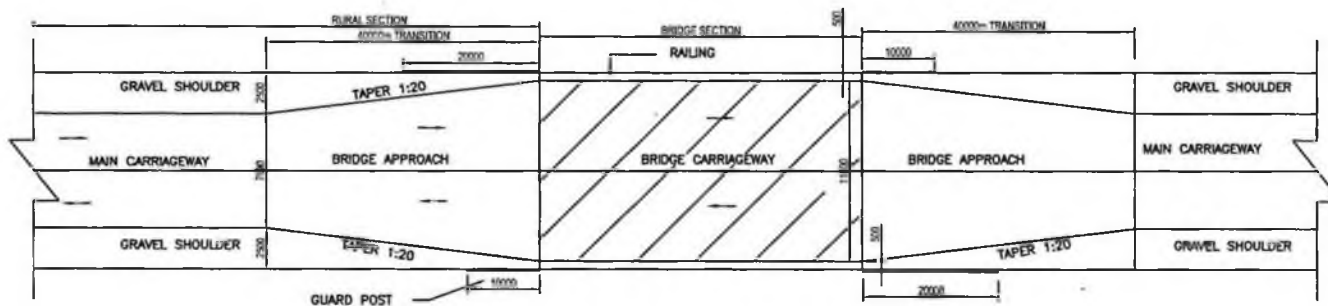
SPAVED SHOULDERS	INNER SURFACE	INNER SURFACE	PAVED SHOULDERS
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			
3.0 X	2.5 X	2.5 X	2.5 X 3.0 X
GRADE LEVEL			



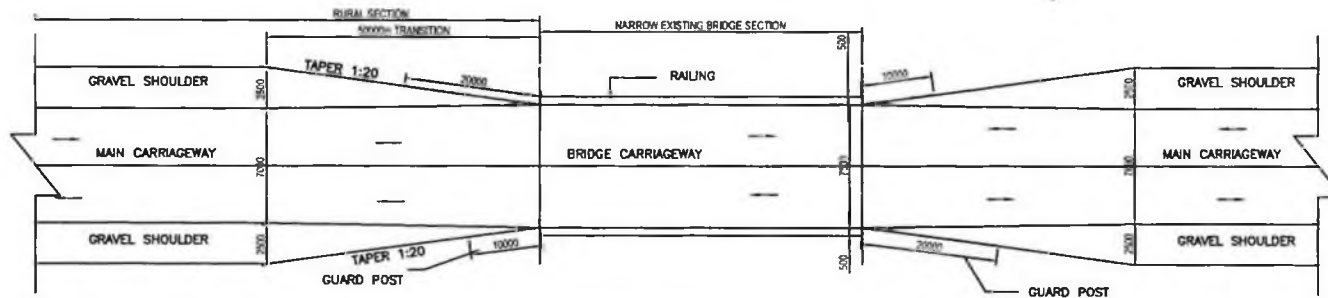
NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED		DPE CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: cag@cegltd.com			CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S		DRAWING TITLE : DETAILS OF APPLICATION OF SUPERELEVATION	
OSRP/CEG/SH/9/P02B/ 3											REV. NO.	



TRANSITION BETWEEN RURAL 12m SECTION TO VILLAGE 10m WITH DRAIN SECTION 10m



TRANSITION BETWEEN RURAL 12m SECTION TO BRIDGES WITH 11m CLEAR CARRIAGEWAY



TRANSITION BETWEEN RURAL 12m SECTION TO NARROW EXISTING BRIDGES SECTION

- NOTES**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS INDICATED OTHERWISE.
 2. FOR DETAILS OF STRUCTURES REFER STRUCTURAL DRGS.
 3. GUARD POSTS ARE INSTALLED WHERE EMBANKMENT HEIGHT IS MORE THAN 3 METRES & AT BRIDGE APPROACHES.
 4. FOR GUARD POST DETAIL REFER DWG. NO. OSRP/CEG/KM & GP
 5. FOR HAZARD MARKER DETAIL REFER TYPICAL ROAD SIGN & DETAILS OF ROAD DELINEATORS
 6. DRAWING TO BE READ WITH TCS- 1 TO TCS-16 AND DWG. NO. OSRP/CEG/RIGID/02

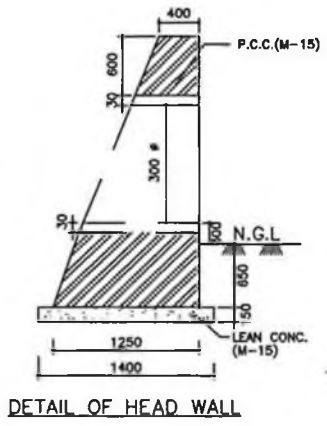
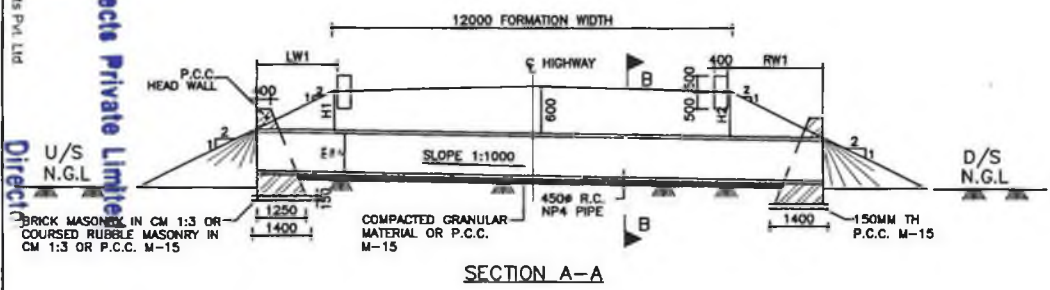
For NKC Projects Private Limited

Mal NKC Projects Pvt. Ltd

Director

Chief Engg. Civil Engineer
OSRP-CW-IG-P02B (Encl:over 1)

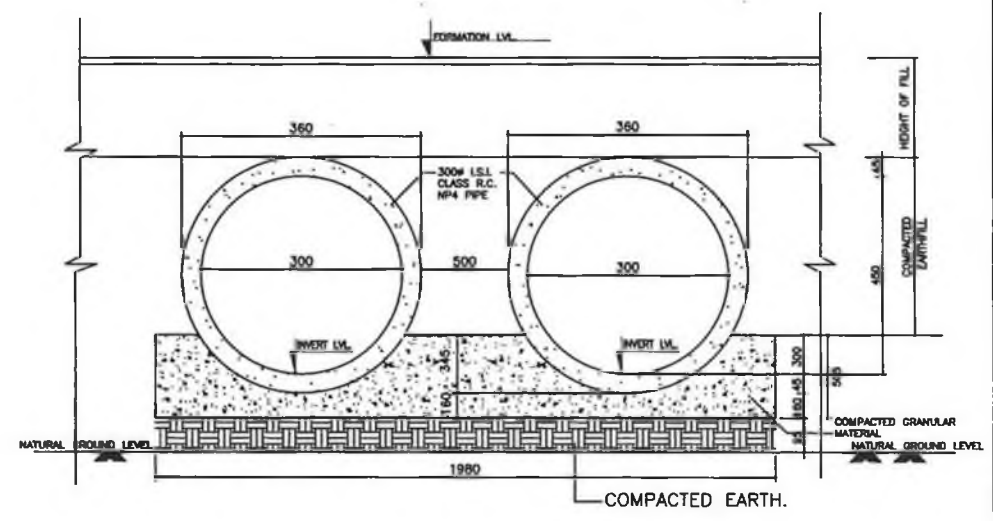
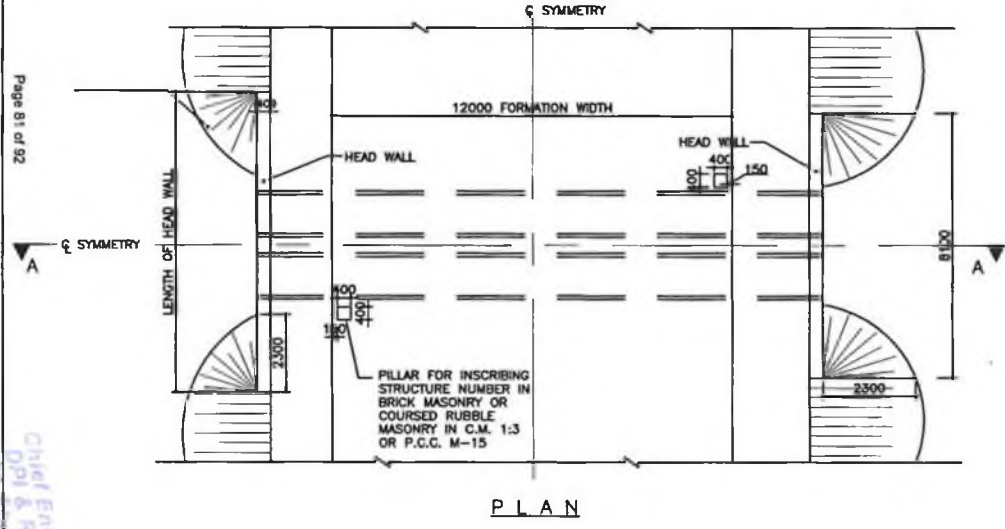
NO.	DATE	REVISION	BY	GRADE	PREPARED :	CHECKED :	APPROVED :	OPR CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginia.com	DESIGN ENGINEER CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S	DRAWING TITLE : TYPICAL DETAILS OF TRANSITION OF DIFFERENT ROAD SECTION (SHEET 1 OF 1)	
R2	SEP-2018	SECOND REVISION	LARA		RAJU MATHUR	S.R. MISHRA (EC)	G.P. PATEL (CE)							
R1	JAN-2017	FIRST REVISION	OND	VRAY	PK.MISHRA (AE)	S.R. MISHRA (EC)	S.K. PRADHAN (CE)							
-	JUNE 2008	ORIGINAL	OND											
NO.	DATE	REVISION	BY	GRADE	PREPARED :	CHECKED :	APPROVED :							



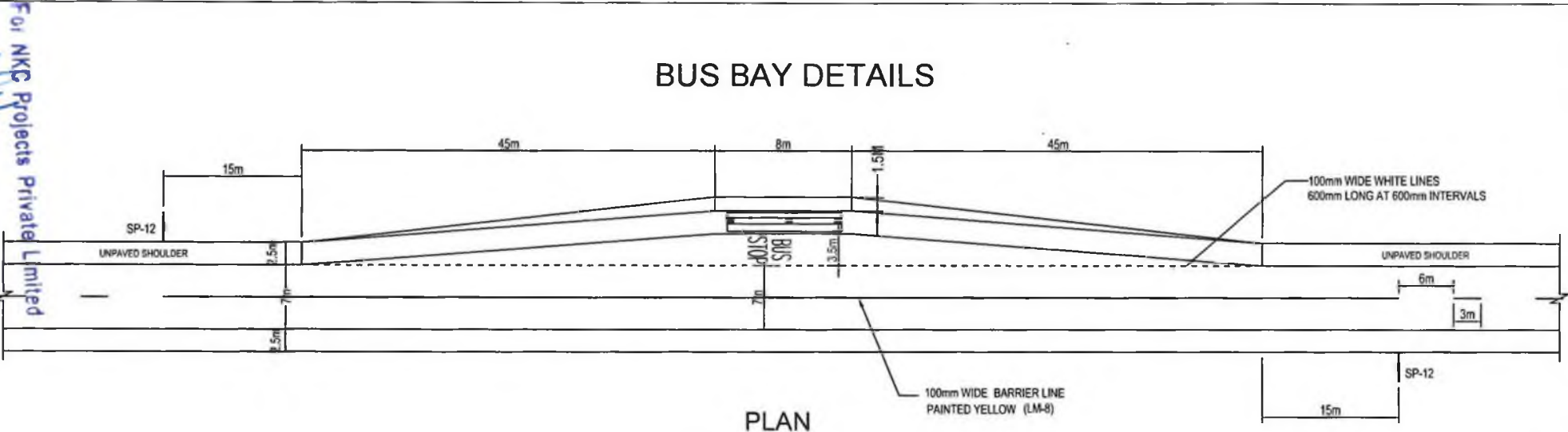
- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DO NOT SCALE THE DIMENSIONS.
 3. LOOSE / UNSUITABLE SOIL BELOW DUCT IS REPLACED WITH COMPACTED EARTH.
 4. LONGITUDINAL SLOPE OF PIPE SHALL BE MIN. 1 IN 1000.
 5. THE FINISHED ROAD LEVEL SHALL BE VERIFIED WITH ALIGNMENT DRAWING & GROUND LEVEL WITH SITE CONDITIONS BEFORE EXECUTION.
 6. HEIGHT OF FILL SHALL NOT BE LESS THAN 0.8M.

SCHEDULE OF UTILITY DUCTS

Sl. No.	Chainage	Sl. No.	Chainage
1	14840	10	44980
2	15225	11	49900
3	20300	12	50340
4	21050	13	56880
5	26940	14	57340
6	27200	15	60620
7	43120	16	61860
8	44080	17	65600
9	44500	18	66060



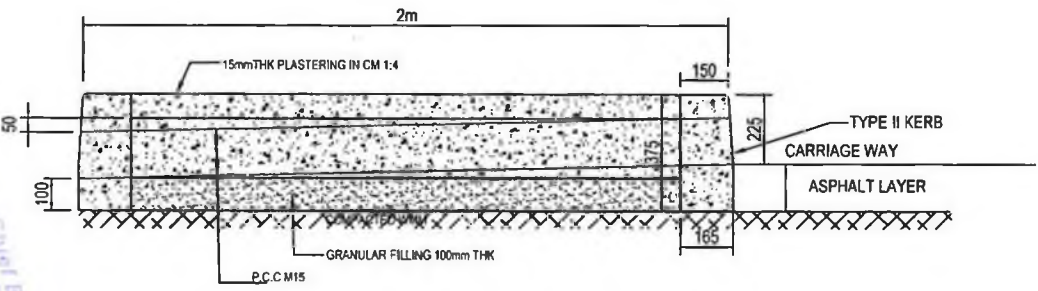
DPC CONSULTANT 1 CEG CONSULTING ENGINEERS GROUP LTD. E-12/MOJ COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginia.com				DESIGN REVIEW CONSULTANT 1 CEG LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : H.T.S		DRAWING TITLE : UTILITY DUCT	
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	DWG. NUMBER	OSRP/CEG/SH9/P02B/ 1	REV	02				



BUS BAY DETAILS

PLAN

BUS BAY DETAILS

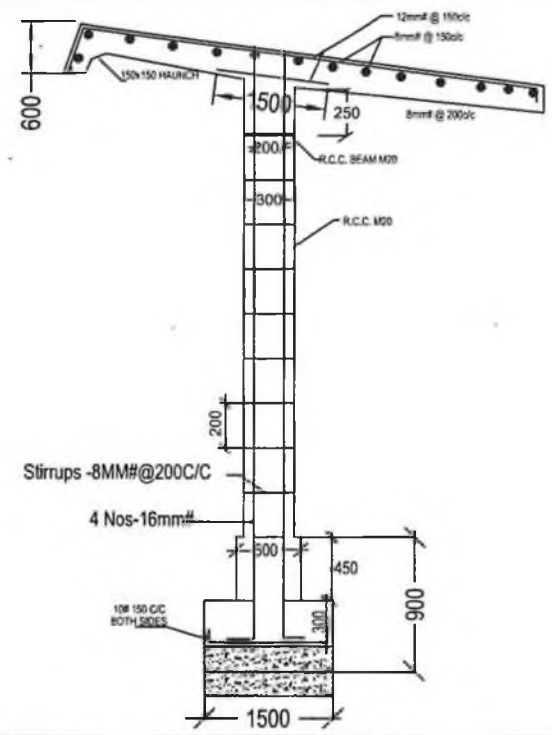
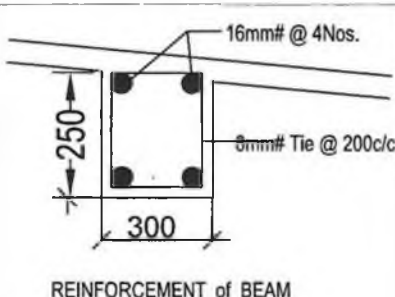
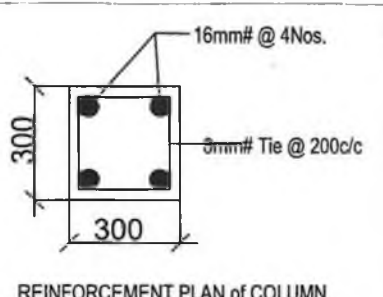
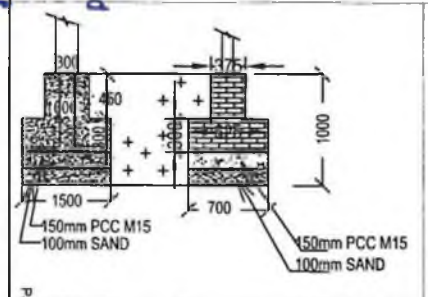
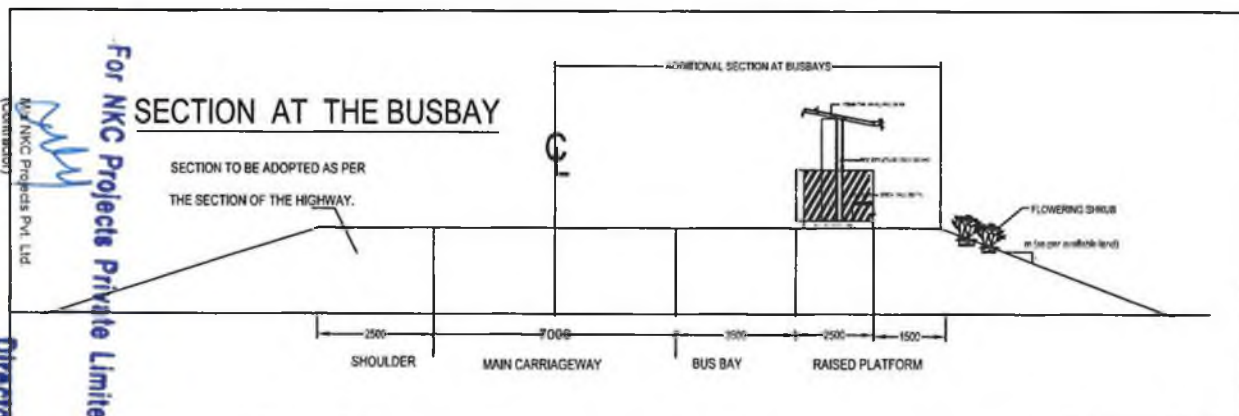


SECTION ON A-A

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED
2. PAVEMENT LAYERS OF CARRIAGEWAY SHALL BE EXTENDED IN THE BUS BAY AREA. AS PER THE CONTINUING TCS.
3. REFER IRC-35 FOR BUS STOP DRAWING AND DETAILS
4. THE LOCATION OF THE BUSBAY ARE THE TENTATIVE ONLY. THE EXACT LOCATION SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

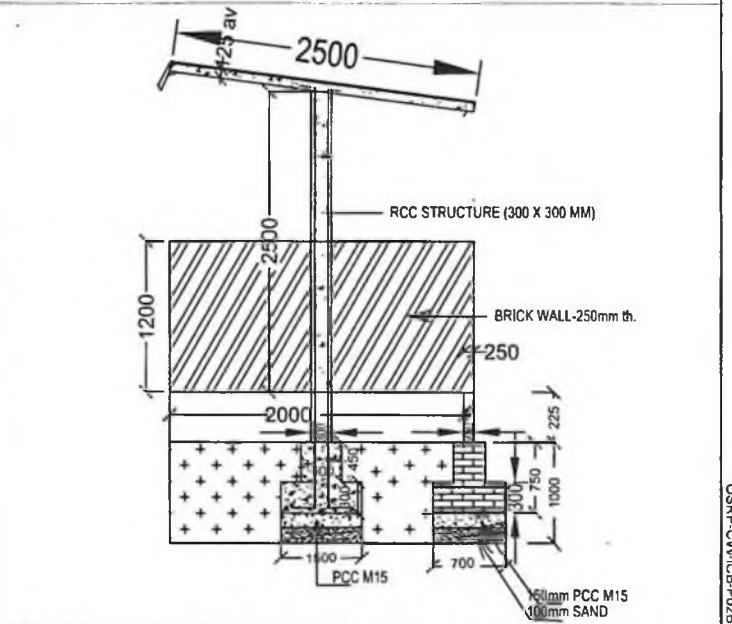
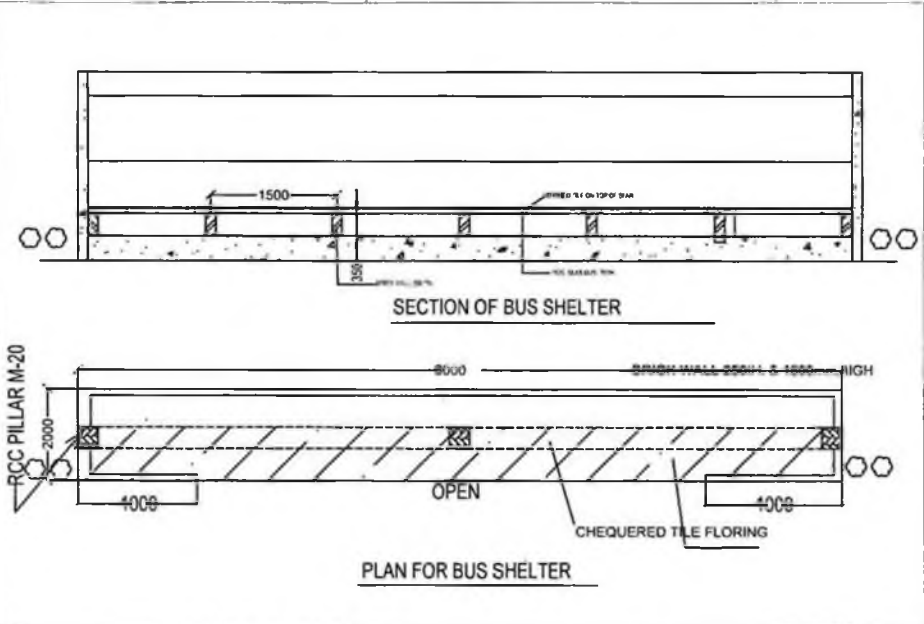
REVISIONS NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			DPR CONSULTANT : CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520899, 2521899, 2520556 Fax: 2521348, e-mail: ceg@ceginia.com			DESIGN REVIEW CONSULTANT : LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044			CLIENT : ODISHA WORKS DEPARTMENT			PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B			SCALE : N.T.S.			DRAWING TITLE : TYPICAL BUS BAY (SHEET 4 OF 2)		
NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED			NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED								



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SCHEDULE OF BUSBAYS			
SL NO.	START	END	SIDE
1	30500	30605	LHS
2	31195	31300	RHS
3	32750	32855	LHS
4	33095	33200	RHS
5	36295	36400	RHS
6	37195	37300	RHS
7	39500	39605	LHS
8	40195	40300	RHS
9	41900	42005	LHS
10	42595	42700	RHS
11	43100	43205	LHS
12	43295	43400	RHS
	44500	44605	LHS

NOTE:
 1. THE DETAILS OF BUS BAYS REFER DRAWING NO. OSRP/CEG/B/01 AND 02.
 2. DIMENSIONS OF THE BUS BAYS MAY BE CHANGED AT SITE AS PER THE REQUIREMENTS.
 3. LOWER HEIGHT STANDARDS SHALL BE ADOPTED AS PER THE REQUIREMENTS.
 4. TO PROVIDE PROTECTION, RETAINING WALL SHALL BE ADOPTED AT STAND.
 5. THE REINFORCEMENTS MODIFIED BY ENGINEER MUST BE ADHERED TO.
 6. ALL REINFORCEMENTS SHALL BE CONFIRMED TO FF-500.



NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
01	SEP-2018	SECOND REVISION	LASA		RAJU MATHUR	M.R. MISHRA (DC)	G.P. PATIL (CC)
02	JAN-2019	FIRST REVISION	OND	VMAY	PK.MISHRA (AC)	M.R. MISHRA (DC)	BLK. PRADHAN (CC)
03	JUNE 2020	ORIGINAL	OND				

DPR CONSULTANT :
CONSULTING ENGINEERS GROUP LTD.
 E-12, MIDH COLONY, MALVIYA NAGAR
 JAIPUR-17 Tel: +91-141-2520899, 2521898, 2520556 Fax: 2521348, e-mail: ceg@sogndia.com

DESIGN REVIEW CONSULTANT :
LEA Associates South Asia Pvt. Ltd., India
 B-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 .

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
 CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
 N.T.S.

DRAWING TITLE :
TYPICAL BUS BAY
 SHEET NO. 2 OF 2
 DRAWING NUMBER : OSRP/CEG/SH9/P02B/ 1

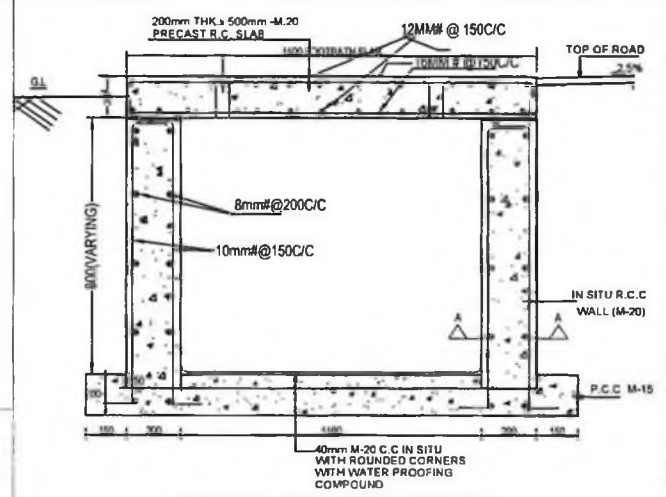
For MNC Projects Private Limited
 Director
 Page 83 of 92
 O.S.R.P. (Employer)

Volume - IV, Drawings
 OSRP-CW/IB-P02B

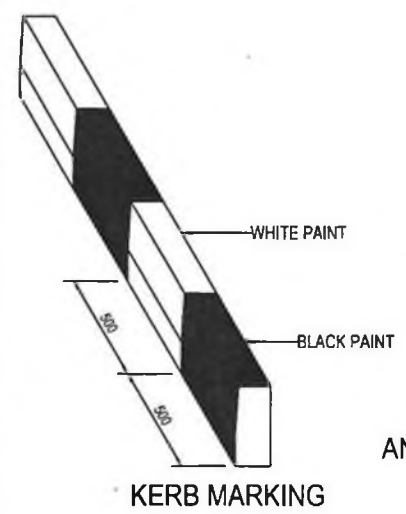
SCHEDULE OF LINED DRAIN				
FROM	TO	LENGTH	LXS/DR	
30300	30500	200	BOTH	
32900	33200	300	BOTH	
37100	37400	300	BOTH	
39100	40300	1200	BOTH	
44600	45000	400	BOTH	

NOTE:-

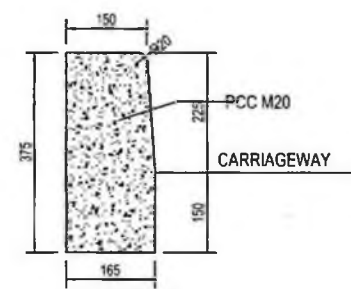
FOR DETAILS OF LINED DRAINS REFER DWG NO. OSRP/CEG/DR. THE PROVISION AND LENGTH OF THE LINED DRAIN SHALL BE REASSESSED DURING THE TIME OF CONSTRUCTION. FOOTPATH BARRIER SHALL BE PROVIDED AS PER DWG. NO. OSRP/CEG/FB FOR BARRICADES OPENING SHALL BE PROVIDED. LINED DRAIN SCHEDULE SUPERSEED THE PLAN. ALL REINFORCEMENTS SHALL BE CONFIRMED TO FE-500. THE LOCATION OF LINED DRAIN ARE TENTATIVE ONLY. IT MAY BE CHANGE AS PER SITE REQUIREMENT/CONDITION.



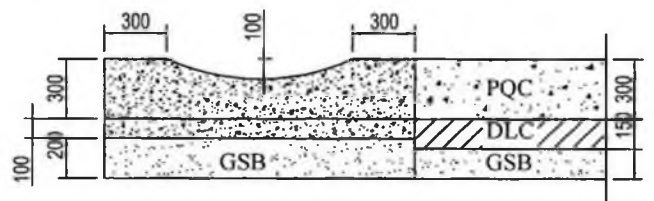
DETAIL OF BOX DRAIN



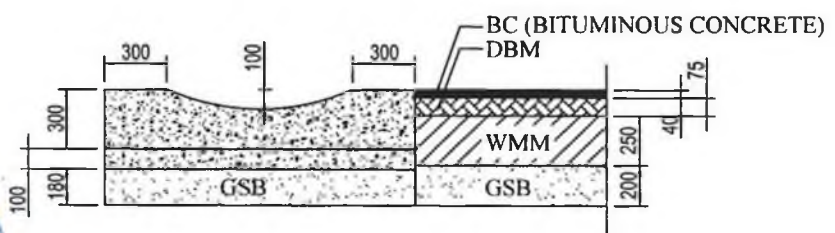
KERB MARKING



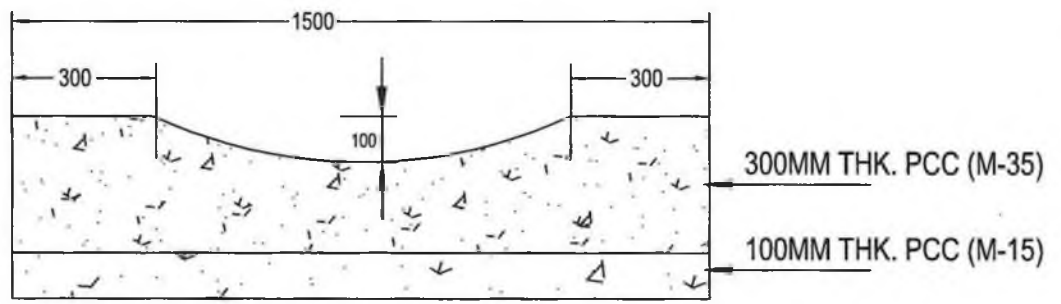
**TYPE - I
KERB FOR CENTRAL
AND DIRECTIONAL ISLAND**



**PRECAST SAUCER DRAIN IN RIGID PAVEMENT
(Scale 1:20)**



**PRECAST SAUCER DRAIN IN FLEXIBLE PAVEMENT
(Scale 1:20)**



PRECAST SAUCER DRAIN

M/s NKC Projects Pvt. Ltd. (Contractor) Director

For NKC Projects Private Limited

Page 84 of 92

D.P. Chait Engineer (Civil & Roads, Odisha) (Employer)

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
R2	SEP-2018	REVISION	JASH		RAJU MATHUR	MR. MEHRA (JC)	G.P. PATEL (JC)
R1	JAN-2018	FIRST REVISION	ONB	VRAYAT	PLAKSHIKA (JC)	MR. MEHRA (JC)	HELE PRADHAN (JC)
-	JUNE 2020	ORIGINAL	ONB				

CEG CONSULTANT :
CONSULTING ENGINEERS GROUP LTD.
E-12, MOJI COLONY, MALVIYA NAGAR JAPUR-17 Tel: +91-141-2520899, 2521899, 2520530 Fax: 2521348, e-mail: ceg@cegindia.com

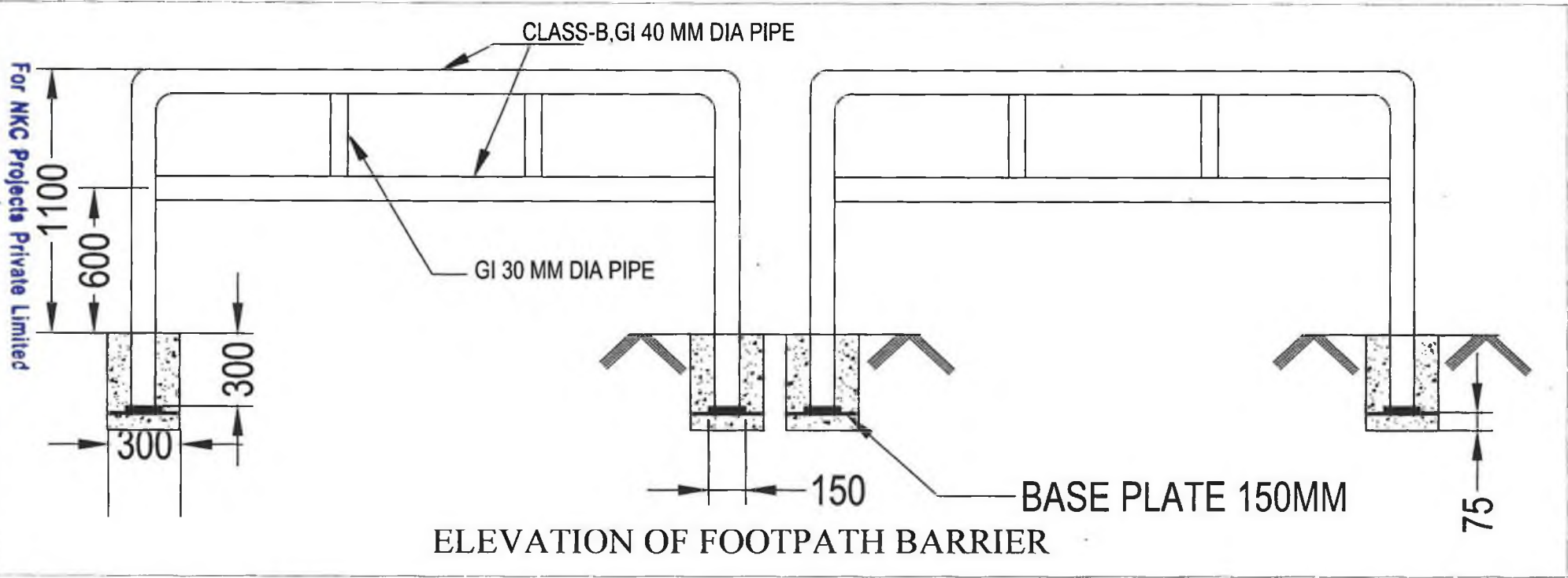
DESIGN REVIEW CONSULTANT :
LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044.

CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBAU - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
N.T.S.

DRAWING TITLE :
STANDARD DRAWINGS DETAILS OF DRAIN AND KERB
(SHEET 1 OF 1)
DRAFTER : OSRP/CEG/SH/P02B/3



ELEVATION OF FOOTPATH BARRIER

NOTES:-

1. LENGTH OF FOOTPATH BARRIER AT EACH BUSBAY SHALL BE 15 M(MIN).
2. TOTAL LENGTH OF FOOTPATH BARRIER AT BUILTUP/VILLAGE AREA SHALL BE 3498 M.
3. THE LOCATION OF FOOTPATH BARRIER AT BUILTUP/VILLAGE AREA SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

M/s NKC Projects Pvt. Ltd.
(Contractor)

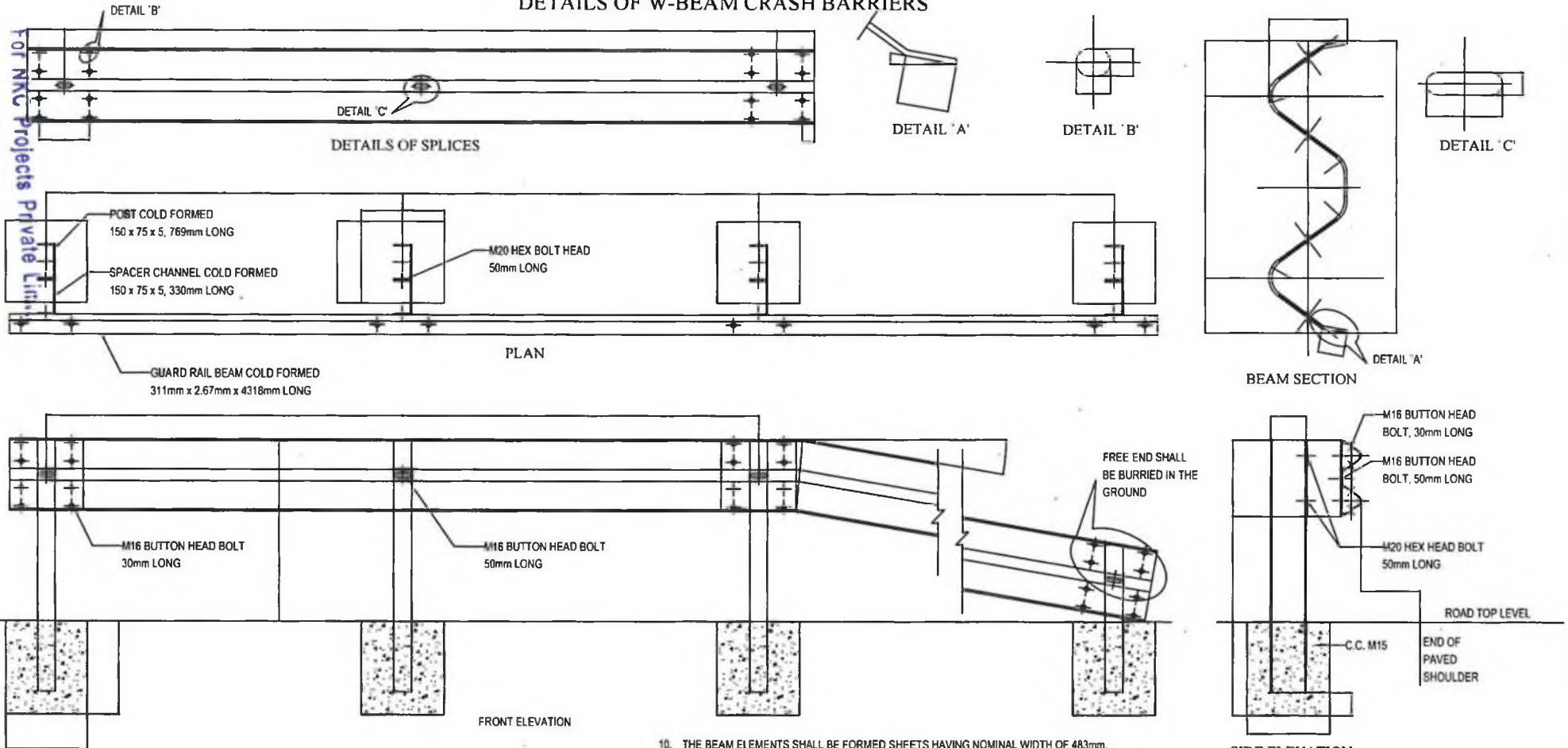
Director

Page 85 of 92

Chief Engineer,
DIP & Roads, Odisha
(Employer)

NO. DATE REVISION BY DRAWN PREPARED BY CHECKED BY APPROVED BY				DPC CONSULTANT : CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAPPUR - 754001 +91-141-2520089, 2521089, 2520556 Fax: 2521348. e-mail: ceg@cegindia.com			DESIGN ADVISORY CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044			CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S.		DRAWING TITLE : STANDARD DRAWINGS DETAILS OF FOOTPATH BARRIER (SHEET 1 OF 1)	
									DWG. NUMBER : OSRP/CEG/SH9/P02B/ 3		REV. NO.						

DETAILS OF W-BEAM CRASH BARRIERS



NOTE:

1. HEIGHT OF POSTS SHOULD BE 785mm LONG ABOVE THE FINISHED ROAD LEVEL.
2. SPACING OF POSTS SHOULD BE 2.0m C/C
3. 1 No. SPACER CHANNEL SHOULD BE PLACED AT EACH POST
4. W-PROFILE FORMED CORRUGATED BEAMS (EFFECTIVE LENGTH OF 4318mm). 311mm x 83mm.
5. POST CONSISTS OF FORMED CHANNEL OF SIZE 150 x 75 x 5, 785mm LONG ABOVE GROUND LVL.
6. SPACER CONSISTS OF FORMED CHANNEL OF SIZE 150 x 75 x 5, 330mm LONG.
7. BUTTON HEAD BOLTS M16 x 30mm LONG, 8 Nos FOR THE SPLICING OF THE W PROFILE AT EACH LOCATION.
8. 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.

10. THE BEAM ELEMENTS SHALL BE FORMED SHEETS HAVING NOMINAL WIDTH OF 483mm.
11. 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.
12. ALL MEMBERS OF THE SYSTEM SHOULD BE HOT DIPPED GALVANIZED AND TO HAVE A MINIMUM COATING OF 550g/Sq m, EACH FACE IN CONFORMANCE TO M.O.R.T & H. SPECIFICATIONS (CLAUSE 810).
13. BEAMS TO BE ERECTED ON A RADIUS OF 46m (150') OR LESS SHALL BE SHAPE CURVED TO APPROPRIATE CURVATURE.
14. 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.
15. BEAM SURFACE FACING THE TRAFFIC IS PAINTED WITH ALTERNATE BANDS (500mm WIDE) OF BLACK & YELLOW COLOR REFLECTORIED PAINT CONFORMING CL.803.5 OF M.O.R.T & H SPEC.

SCHEDULE :

THE LOCATION OF THE METAL BEAM CRASH BARRIER ARE TENTATIVE ONLY. THE EXACT LOCATION SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION

REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DPR CONSULTANT: RAJU SAHAR S.R. MEHTA (CE) G.P. PATEL (CE)				DESIGN REVIEW CONSULTANT: LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT: ODISHA WORKS DEPARTMENT		PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE: N.T.S.		DRAWING TITLE: STANDARD DRAWINGS METAL BEAM CRASH BARRIER DETAILS	
NO. 001 DATE SECOND REVISION BY DRAWN PREPARED CHECKED APPROVED				CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAMPUR-17 Tel: +91-141-2520899, 2521899, 2320556 Fax: 2521348, e-mail: cec@cecgindia.com				PROJECT NUMBER: OSRP/CEG/SH9/P02B/ 3		SHEET 1 OF 11		REV. NO.							

M/s NKC Projects Pvt. Ltd. (Contractor)

Director

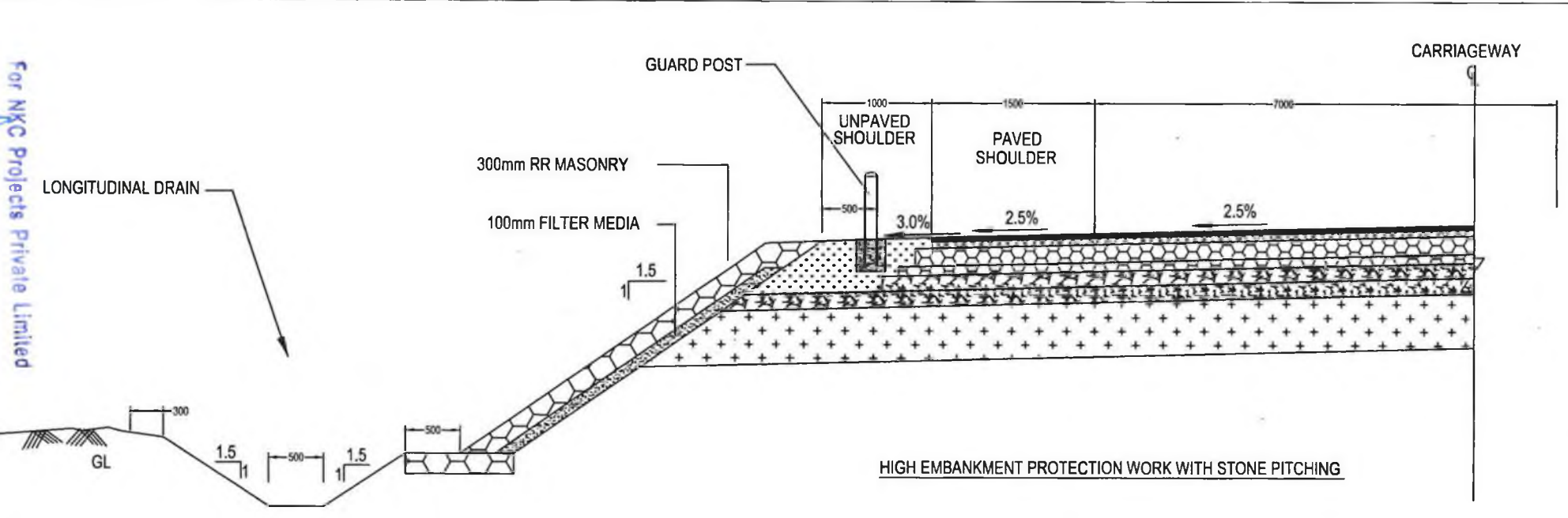
Page 86 of 92

Chief Engineer, O.P.I. & Roads, Odisha (Employer)

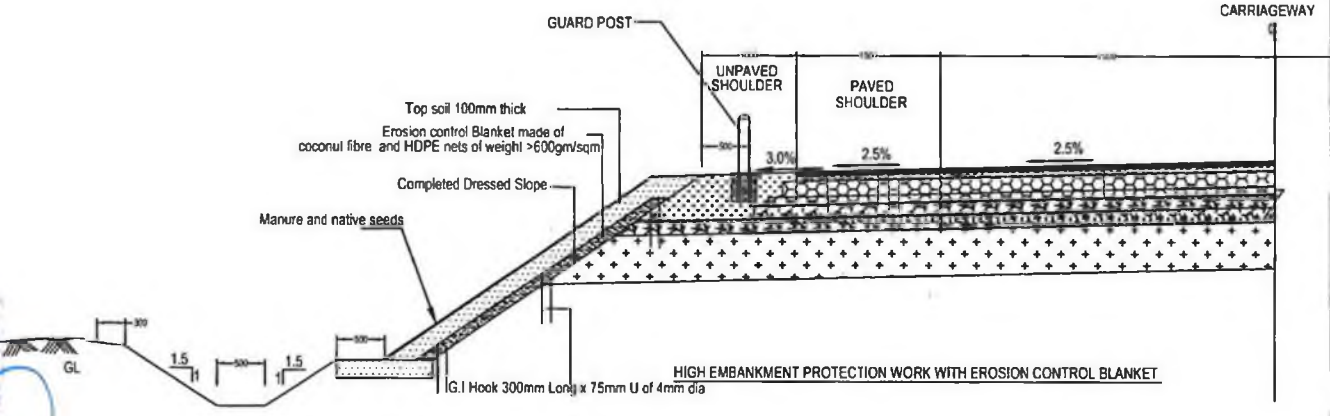
Mrs NKC Projects Pvt. Ltd
(Contractor)

Director

Page 87 of 92



HIGH EMBANKMENT PROTECTION WORK WITH STONE PITCHING



HIGH EMBANKMENT PROTECTION WORK WITH EROSION CONTROL BLANKET

NOTES:-

1. THE LOCATION OF HIGH EMBANKMENT PROTECTION WORK SHALL BE FINALISED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

Col. S. K. Sahoo
Chief Engineer
Dist. Roads, Odisha
(Employer)

NO.	DATE	REVISION	BY	DRWN	PREPARED	CHECKED	APPROVED
01	JAN-2013	SECOND REVISION	LADA		RAAJ MATHAR	RAJ MOHNA (CE)	D.P. PATEL (CE)
02	JAN-2013	FIRST REVISION	IND	VRAY	PKASHINRA (AO)	RAJ MOHNA (CE)	RAJ PRADHAN (CE)
03	JUNE 2013	ORIGINAL	CE				

SPR CONSULTANT :
CFC
CONSULTING ENGINEERS GROUP LTD.
E-12, MOJI COLONY, MALVIYA NAGAR
JAPUR-17 Tst
+91-141-2520899, 2521809, 2520556 Fax
2521348, e-mail: ceg@cegltd.com

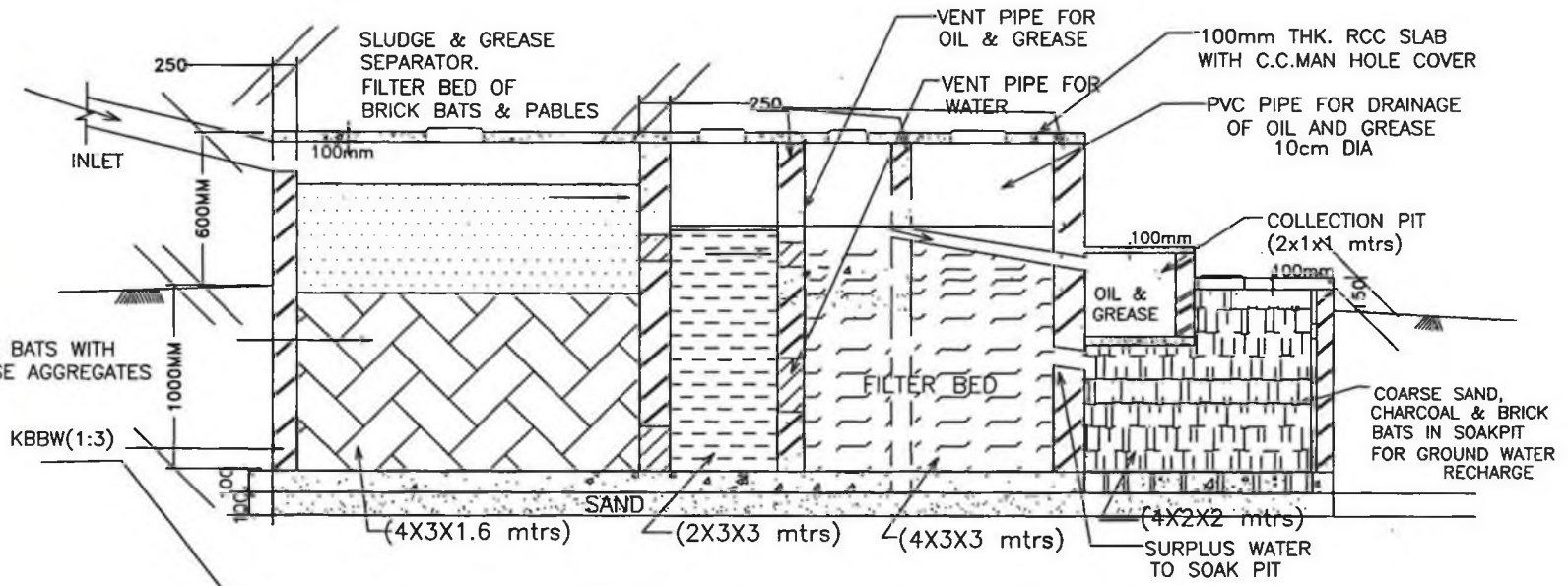
DESIGN REVIEW CONSULTANT :
LEA
LEA Associates South Asia Pvt. Ltd., India
9-1, E-27, 2nd FLOOR, MOHAN COOPERATIVE
INDUSTRIAL ESTATE, MATHURA ROAD, NEW
DELHI-110044

CLIENT :
ODISHA WORKS DEPARTMENT

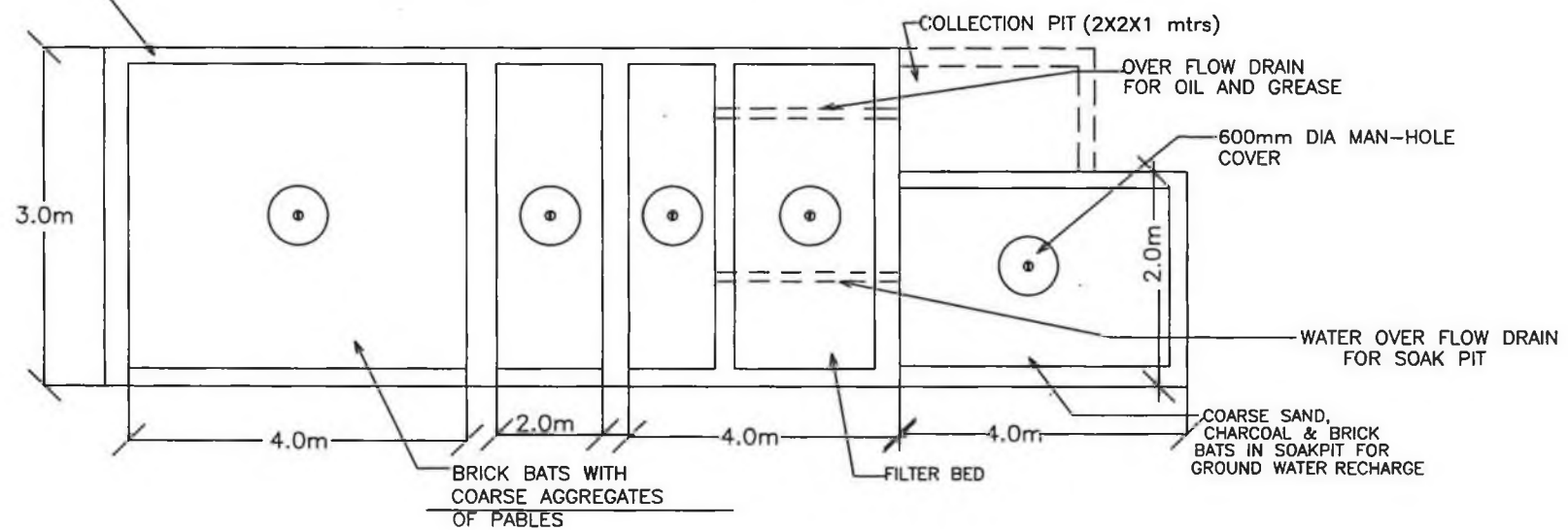
PROJECT :
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
N.T.S

DRAWING TITLE :
STANDARD DRAWINGS PROTECTION WORK & WITH EROSION BLANKET
(SHEET 1 OF 1)
DRL NUMBER : OSRP/CEG/SH9/P02B/03



SECTION OF SOAK PIT



PLAN OF SOAK PIT

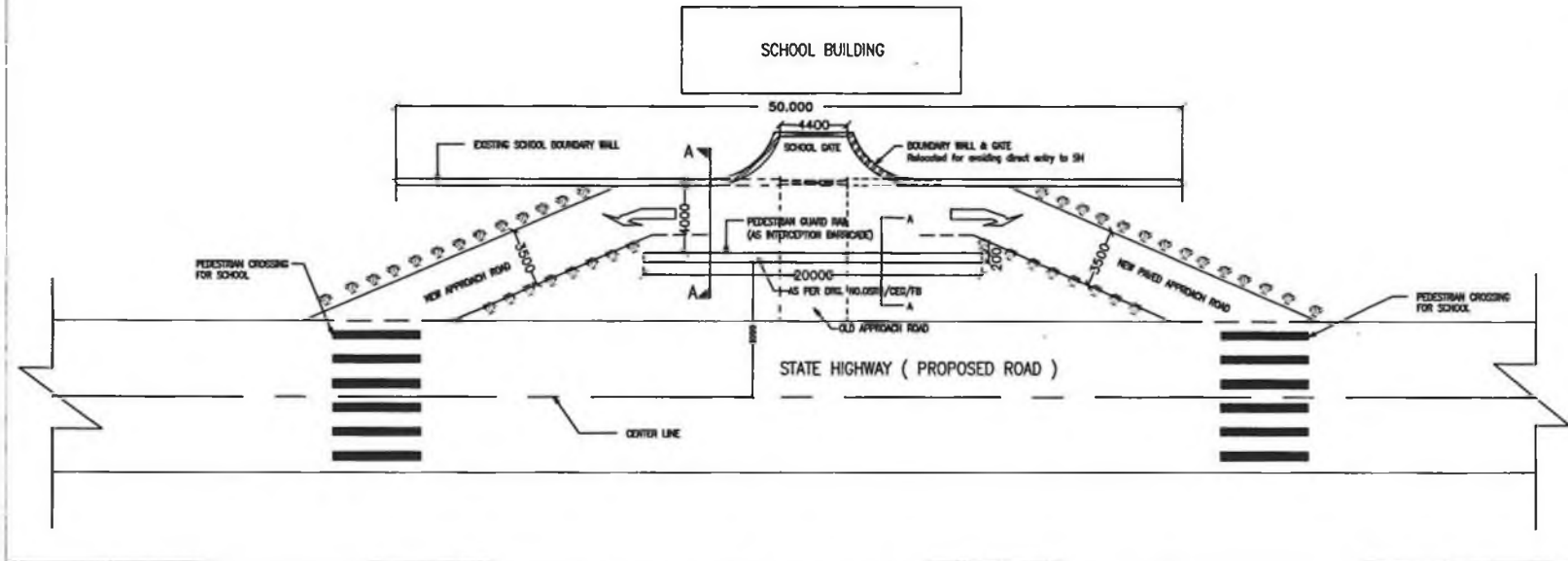
NOTE: PROVIDE AT CONTRACTOR'S PLANT SITE.

OSRP-CW/ICB-P02B
 (Employer)

R2 SEP-2013 SECOND REVISION JADA RAJU MATHUR MUR MISHRA (CC) S.P. PATEL (CE)		DPR CONSULTANT : CBC		CLIENT : ODISHA WORKS DEPARTMENT		PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B		SCALE : N.T.S.		DRAWING TITLE : OIL & GREASE TRAP FOR PLANT SITE	
R1 JAN-2013 FIRST REVISION END VINAY PULMISHRA (AC) MUR MISHRA (CC) S.K. PRADHAN (CE)		CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR - 17 Tel: +91-141-2520889, 2521889, 2520556 Fax: 2521348, e-mail: ceg@cegdia.com		LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		OSRP-CW/ICB-P02B/ENV/		(SHEET 1 OF 1)		REV. NO.	
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED				

SCHEDULE FOR INTERCEPTIVE BARRICADE

School	29.950
School	40.720
School	41.800



- THERE SHALL BE RUMBLER STRIPS & SPEED BREAKERS 150m & 10m AWAY FROM PEDESTRIAN CROSSINGS NEAR SCHOOLS, COLLEGES, HOSTELS, TEMPLES, HOSPITALS, DISPENSARIES AND OLD AGE HOMES, WEEKLY MARKET AREA, G.P MARKET COMPLEX ADJACENT TO THE ROAD WITHIN 25m TO 50m DISTANCE FROM CENTRE LINE. THE BOUNDARY WALL SHOULD HAVE G.I ANGLE POSTS WITH G.I WIRE MESH GRILL/ STRINGS FOR GROWING CREEPERS TO MUFFLE NOISE AND DUST.
- CREEPERS WITH SCENTED/COLOURFUL FLOWERS TO BE PLANTED WHICH HAVE TOMENTOSE LEAVES TO ABSORB MORE DUST AND NOISE.
- THE BOUNDARY WALL PLASTERING TO HAVE VERTICAL GROOVES TO DEFELECT NOISE TOWARDS THE ROAD WHICH WILL ACT AS A COUNTER NOISE SOURCE TO DAMPEN THE HIGH WAY NOISE LEVEL.
- VEGETATIVE SHRUBS AND BUSHES WHICH ARE NON BROWSABLE AND HAVING SCENTED FLOWERS TO BE PLANTED ON THE PERIPHERY OR EDGE OF THE APPROACH ROAD TO SUCH PLACES. THE BOUNDARY ENTRY POINT TO BE SHIFED IN WORDS IN CASE OF CLOSE WITH NAME OF THE INSTITUTION ENGRAVED.
- PROXIMITY AND DIRECT ENTRY TO THE ROAD WITH AND A BARRICADE WALL SHALL BE ERECTED 4m FROM THE ENTRY POINT INFRONT OF THE GATE

NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED
02	SEP-2015	SECOND REVISION	JADA		RAJU MATHUR	RAJ MEHRA (EC)	S.P. PATEL (CC)
01	JAN-2013	FIRST REVISION	OND	VINAY	PRAMENKA (AC)	RAJ MEHRA (CC)	RAJ PRADHAN (CC)
-	JUNE 2008	ORIGINAL	CC				

UPP CONSULTANT :
CONSULTING ENGINEERS GROUP LTD.
E-12, MOH COLONY, MALVIYA NAGAR
JAMPUR-17 Tel: +91-141-2520899, 2521899, 2520558 Fax: 2521348, e-mail: ceg@ceghdla.com

DESIGN REVIEW CONSULTANT :
LEA Associates South Asia Pvt. Ltd., India
B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044

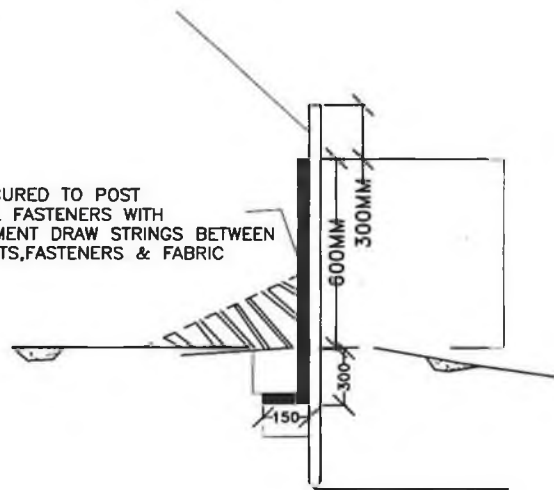
CLIENT :
ODISHA WORKS DEPARTMENT

PROJECT :
CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B

SCALE :
N.T.S

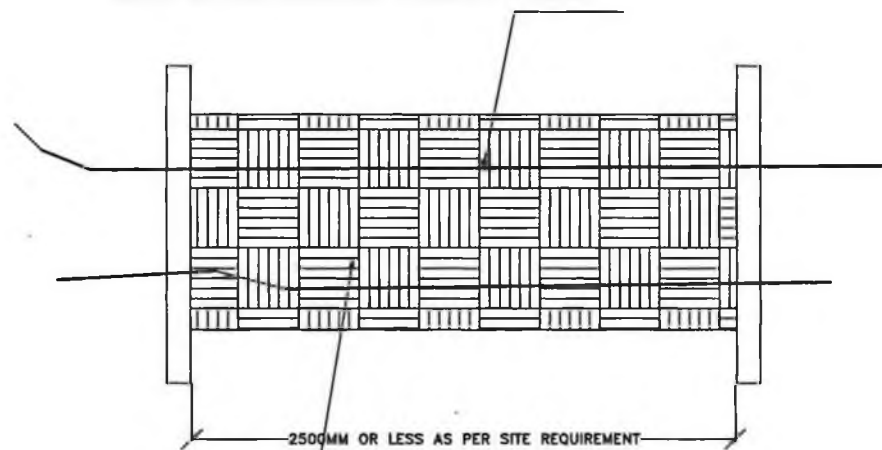
DRAWING TITLE :
METAL BARRICADES FOR EDUCATIONAL AND MEDICAL INSTITUTIONAL APPROACHES AS ENVIRONMENTAL MITIGATION PLAN
SHEET 1 OF 11
DRAWING NUMBER : OSRP/CEG/SH9/P02B/ENV/
REV : 02

FENCE POST 75MM DIA @ 2500MM C/C



FABRIC SECURED TO POST WITH METAL FASTENERS WITH REINFORCEMENT DRAW STRINGS BETWEEN FENCE POSTS, FASTENERS & FABRIC

DRAW STRING RUNNING THROUGH FABRIC



SHEET MADE OF COCONUT FIBER WITH HDPE NETS OF WEIGHT >600GM/SQM

SILT FENCE SEDIMENT BARRIER

NO SCALE

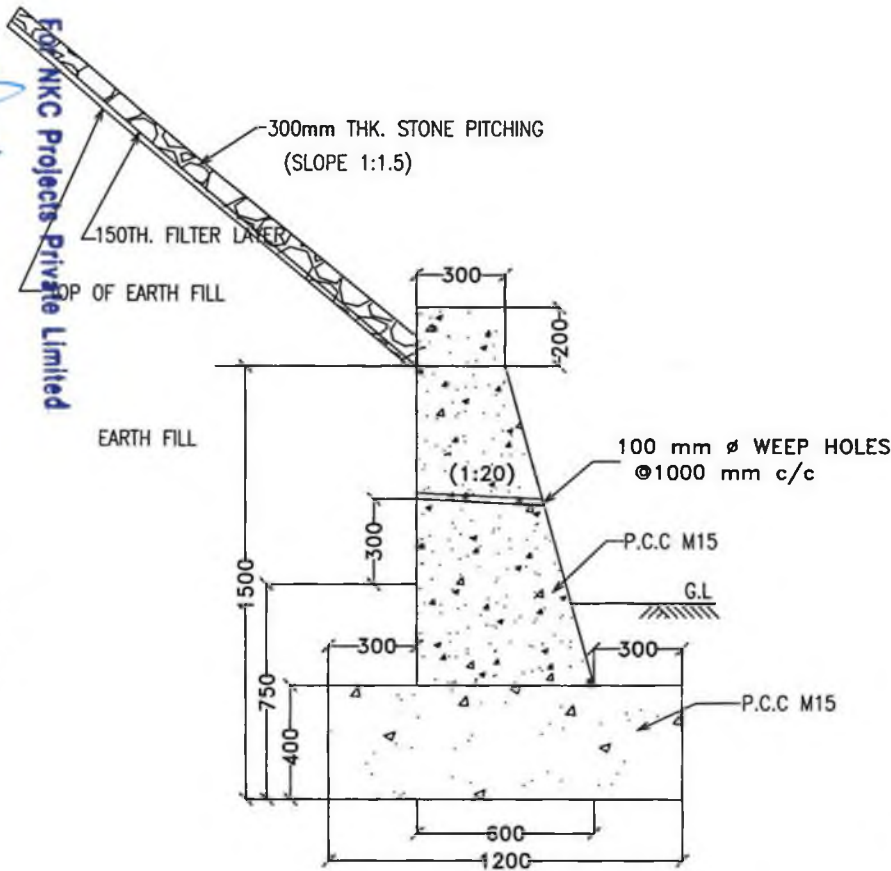
SCHEDULE:

LENGTH :- LUMP SUM QNTY-2000M

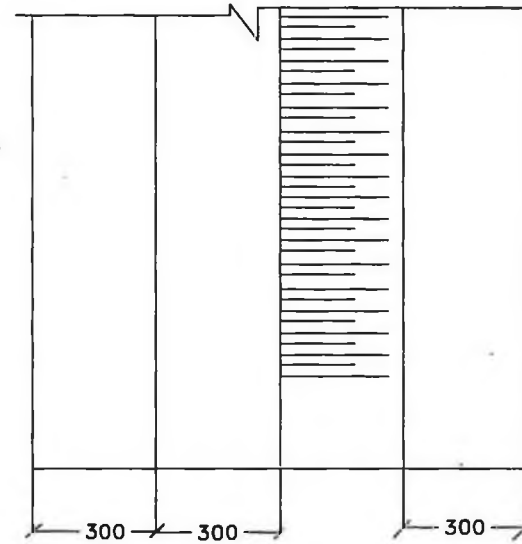
Director
 MNC Projects Private Limited
 Connected

Civil Engineer
 (E-15000000)

REVISION NO. DATE REVISION BY DRAWN: PREPARED: CHECKED: APPROVED:		DATE: 2023-01-17 TIME: 10:00 AM ORIGINAL		DATE: 2023-01-17 TIME: 10:00 AM FIRST REVISION		DATE: 2023-01-17 TIME: 10:00 AM SECOND REVISION		DATE: 2023-01-17 TIME: 10:00 AM THIRD REVISION		DATE: 2023-01-17 TIME: 10:00 AM FOURTH REVISION		DATE: 2023-01-17 TIME: 10:00 AM FIFTH REVISION		DATE: 2023-01-17 TIME: 10:00 AM SIXTH REVISION		DATE: 2023-01-17 TIME: 10:00 AM SEVENTH REVISION		DATE: 2023-01-17 TIME: 10:00 AM EIGHTH REVISION		DATE: 2023-01-17 TIME: 10:00 AM NINTH REVISION		DATE: 2023-01-17 TIME: 10:00 AM TENTH REVISION									
CLIENT: ODISHA WORKS DEPARTMENT				PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE: N.T.S.				DRAWING TITLE: TYPICAL STANDARD DRAWING FOR SILT FENCE.				SHEET NUMBER: OSRP/CEG/SH9/P02B/ENV/				SHEET 1 OF 1											
DPM CONSULTANT: CEC CONSULTING ENGINEERS GROUP LTD. E-12, MQ3 COLONY, MALVIYA NAGAR JAMPUR - 17 Tel: +91-141-2520899, 2521899, 2520566 Fax: 2521348, e-mail: ceg@cegn.co.in				DPM CONSULTANT: LEA LEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI - 110044				CLIENT: ODISHA WORKS DEPARTMENT				PROJECT: CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B				SCALE: N.T.S.				DRAWING TITLE: TYPICAL STANDARD DRAWING FOR SILT FENCE.				SHEET NUMBER: OSRP/CEG/SH9/P02B/ENV/				SHEET 1 OF 1			



**TOE WALL FOR POND
(CROSS SECTION)**



PLAN OF TOE WALL FOR WATER BODY

TO MINIMISE IMPACT ON STORAGE CAPACITY & WATER SPREAD OF PONDS, WATER BODY, 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

Sl. No.	Items	Chainage at km	Location left /right	Length of toe wall in meters
1	Pond	27.7	R	20
2	Pond	27.705	L	65
3	Pond	27.79	R	30
4	Pond	28	L	270
5	Pond	28.062	R	115
6	Pond	28.8	L	80
7	Pond	29.147	R	315
8	Pond	29.25	L	55
9	Pond	29.3	L	70
10	Pond	29.4	L	30
11	Pond	29.5	R	15
12	Pond	29.555	L	75
13	Pond	29.715	L	50
14	Pond	29.7	R	45
15	Pond	30.013	L	30
16	Pond	30.565	R	30
17	Pond	30.683	L	15
18	Pond	30.97	L	45
19	Pond	31.3	L	40
20	Pond	31.417	R	30
21	Pond	31.823	R	15
22	Pond	31.96	R	440
23	Pond	32.1	L	30
24	Pond	32.45	R	25
25	Pond	32.49	L	210
26	Pond	33.2	L	25
27	Pond	33.6	L	55
28	Pond	33.87	L	135
29	Pond	34	R	45
30	Pond	36.1	L	40
31	Pond	36.104	R	70
32	Pond	36.428	L	15
33	Pond	39.1	R	55
34	Pond	39.263	L	20
35	Pond	39.64	R	20
36	Pond	40.266	R	25
37	Pond*	40.26	L	30
38	Pond	41.5	L	25

<table border="1"> <tr><td>R2</td><td>SEP-2012</td><td>SECOND REVISION</td><td>LASH</td><td></td><td>RAJU NATHAN</td><td>RAJ MISHRA (EC)</td><td>G.P. PATEL (DC)</td></tr> <tr><td>R1</td><td>JAN-2012</td><td>FIRST REVISION</td><td>OND</td><td>YASAT</td><td>PALESHRA (AC)</td><td>RAJ MISHRA (EC)</td><td>RAJ PRADHAN (DC)</td></tr> <tr><td>-</td><td>JUNE 2009</td><td>ORIGINAL</td><td>DCD</td><td></td><td></td><td></td><td></td></tr> <tr><td>NO.</td><td>DATE</td><td>REVISION</td><td>BY</td><td>DRAWN</td><td>PREPARED</td><td>CHECKED</td><td>APPROVED</td></tr> </table>	R2	SEP-2012	SECOND REVISION	LASH		RAJU NATHAN	RAJ MISHRA (EC)	G.P. PATEL (DC)	R1	JAN-2012	FIRST REVISION	OND	YASAT	PALESHRA (AC)	RAJ MISHRA (EC)	RAJ PRADHAN (DC)	-	JUNE 2009	ORIGINAL	DCD					NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED	DPR CONSULTANT : CEC CONSULTING ENGINEERS GROUP LTD. E-12, MOJI COLONY, MALVIYA NAGAR JAIPUR-17 Tel: +91-141-2520899, 2521898, 2520556 Fax: 2521348, e-mail: cec@cegindia.com	DESIGNER CONSULTANT : LEA LEA Associates South Asia Pvt. Ltd., India E-1, E-27, 1st FLOOR, BIGHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044	CLIENT : ODISHA WORKS DEPARTMENT	PROJECT : CONSTRUCTION FOR WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRAHAT TO CHANDBALI - KM 27+500 TO KM 45+000 OF SH-09 (BALANCE WORK) PACKAGE - P02B	SCALE : N.T.S.	DRAWING TITLE : TYPICAL PCC TOE WALL WITH STONE PITCHING FOR WATER BODIES AS ENVIRONMENTAL MITIGATION (SHEET 1)
R2	SEP-2012	SECOND REVISION	LASH		RAJU NATHAN	RAJ MISHRA (EC)	G.P. PATEL (DC)																															
R1	JAN-2012	FIRST REVISION	OND	YASAT	PALESHRA (AC)	RAJ MISHRA (EC)	RAJ PRADHAN (DC)																															
-	JUNE 2009	ORIGINAL	DCD																																			
NO.	DATE	REVISION	BY	DRAWN	PREPARED	CHECKED	APPROVED																															
DRG. NUMBER : OSRP/CEG/SH9/P02B/ENV/ 3						REV. NO.																																

NOTES

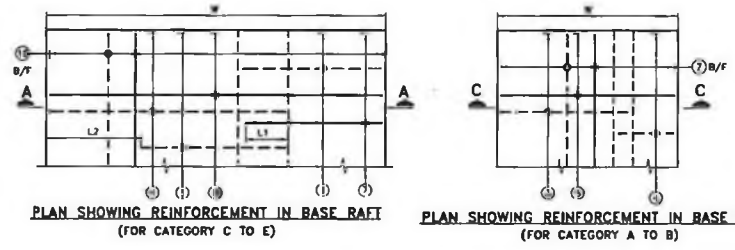
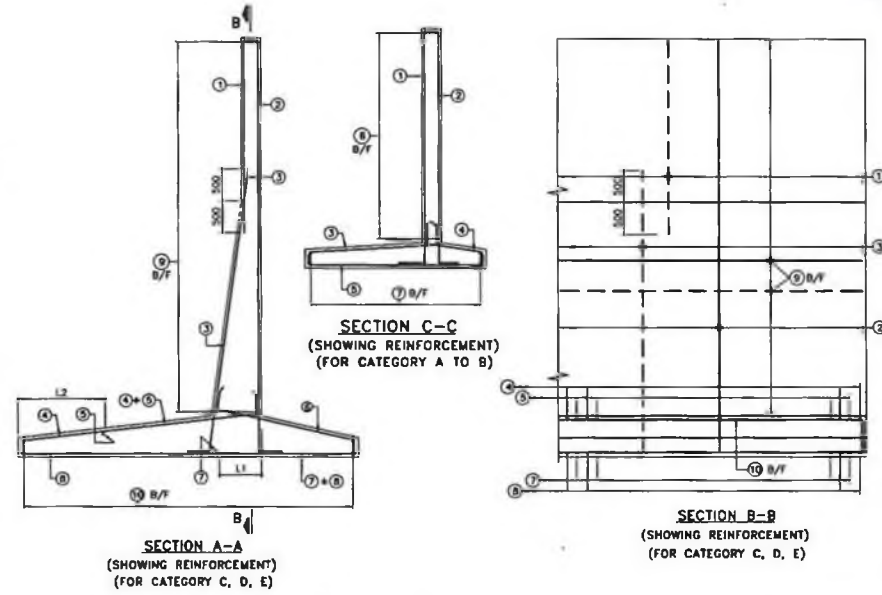
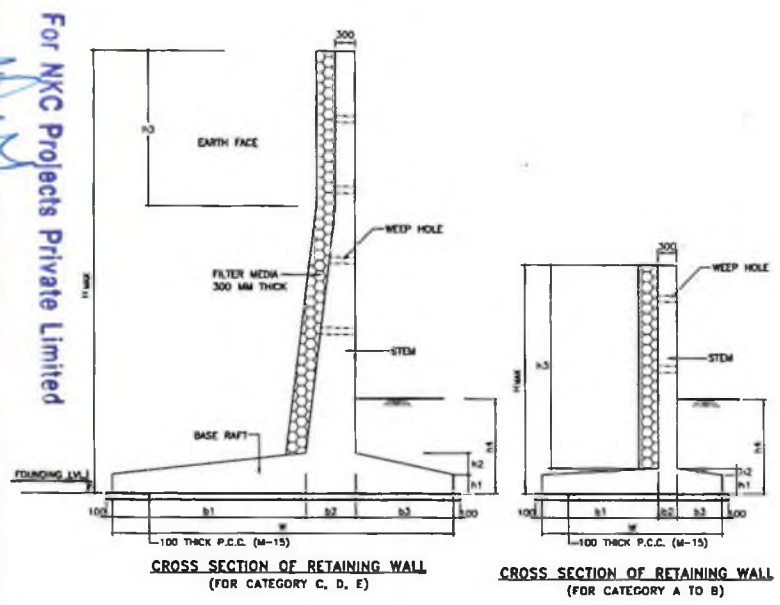
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. GRADE OF CONC. FOR R.C.C. WORKS — M25.
GRADE OF CONC. FOR P.C.C. WORKS — M15.
4. ALL HYSD BARS IS CONFORMED TO IS 1786 GRADE Fe-415.
5. CLEAR COVER TO ANY REINF. IN BASE RAFT = 75 mm.
ALL OTHER COMPONENTS = 40mm.
6. LAPPHQ IS STAGGERED AND NOT MORE THAN 50% OF BAR IS LAPPED AT A SECTION.
7. THE BEARING CAPACITY SHALL NOT BE LESS THAN THE FOLLOWING.
CATEGORY - A = 7/m²
CATEGORY - B = 10/m²
CATEGORY - C = 12.5/m²
CATEGORY - D = 13/m²
CATEGORY - E = 18/m²

REFERENCE DRAWING:-

1. OSRP/CEG/SH-9/BOX CUL-01
2. OSRP/CEG/SH-9/BR/1+005/01
3. OSRP/CEG/SH-9/BR/1+800/01
4. OSRP/CEG/SH-9/BR/8+200/01
5. OSRP/CEG/SH-9/BR/13+600/01
6. OSRP/CEG/SH-9/BR/28+100/01
7. OSRP/CEG/SH-9/BR/28+800/01
8. OSRP/CEG/SH-9/BR/32+100/01
9. OSRP/CEG/SH-9/BR/33+500/01
10. OSRP/CEG/SH-9/BR/33+900/01
11. OSRP/CEG/SH-9/BR/36+005/01
12. OSRP/CEG/SH-9/BR/42+400/01
13. OSRP/CEG/SH-9/BR/43+500/01
14. OSRP/CEG/SH-9/BR/46+700/01
15. OSRP/CEG/SH-9/TRIPLE BOX/01

For NKC Projects Private Limited
 Director

Page 92 of 92



LENGTH OF CURTAILMENT

CATEGORY	L1	L2
C	-	-
D	-	800
E	500	1200

DIMENSIONAL DETAILS

CATEGORY	Hmax	W	r1	r2	h3	h4	b1	b2	b3
A	2000	2000	300	-	1700	1000	1300	300	400
B	3000	2650	300	-	2700	1200	1750	300	600
C	4000	3150	300	150	2400	1200	2040	410	700
D	5000	4230	300	200	2400	1500	2650	550	1000
E	6000	4935	300	300	2400	1500	3060	700	1175



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	18 # @150C/C	16 # @180C/C	-	10 # @200C/C	-	12 # @180C/C	10 # @200C/C	10 # @200C/C
D	12 # @150C/C	10 # @200C/C	20 # @150C/C	16 # @200C/C	12 # @200C/C	10 # @200C/C	10 # @200C/C	12 # @200C/C	10 # @200C/C	10 # @200C/C
E	12 # @150C/C	10 # @200C/C	20 # @130C/C	18 # @200C/C	18 # @200C/C	10 # @200C/C	10 # @150C/C	12 # @150C/C	10 # @200C/C	10 # @200C/C

BHAORAK - CHANDBALI

S. no.	Proposed Chaining	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	27525.0	3 x 3 m Triple Box	4.26	4.22	4.42	5.0	5.5	D
2	28168.0	2 x 6.0 m Box	5.30	5.30	5.30	4.0	4.0	E
3	28937.0	3 x 3 m Triple Box	4.85	4.85	4.85	4.75	4.75	D
4	28900.0	3 x 3 m Triple Box	4.31	4.31	4.31	5.0	5.0	D
5	30154.0	3 x 3 m Triple Box	4.62	4.27	4.62	4.1	4.1	D
6	31050.0	3 x 3 m Triple Box	3.77	3.77	3.77	4.5	4.5	C
7	31150.0	3 x 3 m Triple Box	3.68	3.68	3.68	4.5	4.5	C
8	32100.0	1 x 6.0 m Box	4.08	4.06	4.06	3.5	3.5	D
9	32380.0	3 x 3 m Triple Box	3.72	3.72	3.72	4.5	4.5	C
10	33543.0	3 x 3 m Triple Box	4.79	4.79	4.79	6.1	6.1	D
11	33907.0	3 x 3 m Triple Box	4.04	4.04	4.04	4.0	4.0	D
12	34025.0	3 x 3 m Triple Box	4.03	4.03	4.03	5.0	5.0	D
13	34375.0	3 x 3 m Triple Box	3.97	3.82	3.97	5.0	5.0	C
14	35000.0	3 x 3 m Triple Box	4.33	4.33	4.33	5.0	5.0	D
15	35040.0	3 x 3 m Triple Box	4.74	4.58	4.74	6.0	6.0	D
16	35280.0	3 x 3 m Triple Box	3.94	3.94	3.94	5.0	5.0	C
17	35625.0	3 x 3 m Triple Box	5.28	5.28	5.28	5.0	5.0	E
18	37000.0	3 x 3 m Triple Box	4.64	4.64	4.64	5.0	5.0	D
19	37075.0	3 x 3 m Triple Box	4.40	4.40	4.40	6.5	6.5	D
20	41750.0	3 x 3 m Triple Box	4.04	4.88	4.88	5.0	5.0	D
21	42487.0	1 x 6.0 m Box	5.63	5.63	5.63	3.8	3.8	E
22	43558.0	1 x 6.0 m Box	3.76	4.44	4.44	3.8	3.8	D

REVISIONS: NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED				DPC CONSULTANT: RAJU MATHUR, N.R. MEHRA (CC), G.P. PATEL (CC) CEG CONSULTING ENGINEERS GROUP LTD. E-12, MOJ COLONY, MALVIYA NAGAR JAMPUR-17 Tel: 491-141-2570869, 2521869, 2520554 Fax: 2521348, e-mail: ceg@ceginfos.com				DESIGN REVIEW CONSULTANT: UEA Associates South Asia Pvt. Ltd., India B-1, E-27, 1 st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044				CLIENT: ODISHA WORKS DEPARTMENT				PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM PIRHAT TO CHANDBALI - KM 27+500 TO KM 45+000 (BALANCE WORK) PACKAGE - P02B				SCALE: N.T.S.				DRAWING TITLE: DIMENSION & REINFORCEMENT DETAILS OF RETURN WALL			
NO. DATE REVISION BY DRAWN PREPARED CHECKED APPROVED												DPC NUMBER: OSRP/CEG/P02B/STR/3				SHEET 1 OF 31											

Civil Engineer
 Dip. Awaras Odisha
 DPE & P.O. (In-charge)
 Odisha Works Department

AGREEMENT No. 05 of 2016-17



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P02B

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Pirhat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9)

(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, DPI & Roads, Odisha

on behalf of

Odisha Works Department, Government of Odisha

and

M/s NKC Projects Pvt. Ltd.,

Plot No. 63, Udyog Vihar Phase-IV, Gurgaon, Haryana-122016

Tel : +91-124-4852828 Fax : +91-124-2340017

E-mail: rohit@nkcproject.com

[VOLUME-V: Price Schedules]

Agreement Value: Rs. 104,23,29,840

Project Management Unit, Odisha State Roads Project

Office of the Engineer-in-Chief (Civil), Odisha,

Nirman Soudha, Keshari Nagar, Unit – V, Bhubaneswar – 751 001

October 14, 2016

For NKC Projects Private Limited

Director

Chief Engineer
DPI & Roads
Odisha Works Department

CONTENTS of CONTRACT

Volume – I	:	Letter of Acceptance, Letter of Bid and Addenda
Volume – II	:	Particular Conditions and the General Conditions;
Volume – III	:	Specifications
Volume – IV	:	Drawings
Volume – V	:	Completed Schedules

CONTENTS of VOLUME V

Sl.	Description	Page No.
1	Grand Summary of Price Schedule	1
2	Daywork Summary	2
3	Price Schedule	3-18

For NKC Projects Private Limited

Director


Chief Engineer
DPI & Roads
Coke's Engineering

Grand Summary of Price Schedule

Contract Name:- Construction for Widening and Strengthening of existing carriageway to 2-lane road from Pirhat Bazar to Chandbali (Km.27/500 to Km.45/000 of SH-9) (Balance Work)

Contract No:- Agreement No. 05 of 2016-17

General Summary	Page	Amount
BILL NO.1 : SITE CLEARANCE		1,936,024.00
BILL NO.2 : EARTH WORKS		151,750,620.00
BILL NO.3 : SUB-BASE AND BASE COURSES		296,447,600.00
BILL NO.4 : BITUMINOUS COURSES		229,699,447.00
BILL NO.5 : CULVERTS AND UNDERPASSES		57,536,830.00
BILL NO.6 : BRIDGES		221,199,556.00
BILL NO.7 : RETAINING WALL, DRAINAGE AND PROTECTIVE WORKS		33,482,634.00
BILL NO.8 : ROAD SAFETY AND AMENITIES		35,032,560.00
BILL NO.9 : MAINTENANCE, REPAIR AND REHABILITATION		12,533,024.00
BILL NO.10 : ENVIRONMENTAL MITIGATION MEASURES		34,180,901.73
Subtotal of Bills	(A)	1,073,799,196.73
Total for Daywork (Provisional Sum)	(B)	767,649.00
Final Bid Price (A + B)	(C)	1,074,566,845.73
Discount @3% from all items of Bill of Quantity i.e. Bill No.1 to 10 and Daywork (Provisional Sum)	-3%	(32,237,005.37)
		1,042,329,840.36
	Say,	1,042,330,000.00

Rupees One Hundred Four Crores Twenty Three Lakhs Thirty Thousand Only

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

Daywork Summary

Contract Name: Construction for Widening & Strengthening of existing carriageway to 2-lane road from Pirahat to Chandbali (Km. 27/500 to Km. 45/000 of SH – 9)(Balance Work)- ICB No: OSRP-CW-ICB-P02B
--

Contract No:- Agreement No. 05 of 2016-17

	<i>Amount</i>	<i>% Foreign</i>
	<i>(Rs.)</i>	
1. Total for Daywork: Labour	207,385.00	NIL
2. Total for Daywork: Materials	315,178.00	NIL
3. Total for Daywork: Contractor's Equipment	245,086.00	NIL
Total for Daywork (Provisional Sum)	767,649.00	

(carried forward to Bid Summary)

Rupees Seven Lakhs Sixty Seven Thousand Six Hundred Forty Nine Only

For NKC Projects Private Limited


Director
 M/s NKC Projects Pvt. Ltd.
 (Contractor)


 Chief Engineer,
 DPI & Roads, Odisha
 (Employer)

Chief Engineer
 DPI & Roads
 Odisha

Contract Name: Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Pirahat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Work)- ICB Package OSRP-CW-ICB-P02B					
Sl. No.	Description	Unit	Quantity	Rate	Amount
B. Work Items					
BILL NO.1 : SITE CLEARANCE					
1.01	Clearing and Grubbing for road land complete as per Technical Specification Clause 201 and as per the direction of Engineer-in-charge.	Hectare	30.00	38887.00 Rupees Thirty Eight Thousand Eight Hundred Eighty Seven	1,166,610.00
1.02	Dismantling structures and pavement including disposal of resulting material and/or salvaging useful materials complete as per Technical Specification Clause 202, 2809 and as per the direction of Engineer-in-charge.				
	a) Brick/ Stone Structures of dry or in lime/ cement mortar	Cum	226.00	299.00 Rupees Two Hundred Ninety Nine Only	67,574.00
	b) Concrete/Reinforced concrete/ Pre-stressed concrete structures including cleaning straightening & cutting of bars and separating them out from RCC/PSC. For Slab Culverts & Box Culverts and Bridges				
	i) P.C.C.	Cum	350.00	299.00 Rupees Two Hundred Ninety Nine Only	104,650.00
	ii) R.C.C.	Cum	740.00	523.00 Rupees Five Hundred Twenty Three Only	387,020.00
	c) Hume pipe	Lm	73.00	224.00 Rupees Two Hundred Twenty Four Only	16,352.00
	d) CC Kerb	Lm	206.00	15.00 Rupees Fifteen Only	3,090.00
	e) Dry Stone pitching	Cum	60.00	224.00 Rupees Two Hundred Twenty Four Only	13,440.00
	f) RCC railing	Lm	316.00	150.00 Rupees One Hundred Fifty Only	47,400.00
	g) Expansion joint	Lm	126.00	748.00 Rupees Seven Hundred Forty Eight Only	94,248.00
	h) Wearing Coat				
	i) Bituminous Concrete	Sqm	400.00	75.00 Rupees Seventy Five Only	30,000.00
	j) Cement Concrete	Sqm	60.00	94.00 Rupees Ninety Four Only	5,640.00
Total for Bill No. 1					1,936,024.00

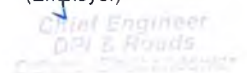
For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director



Chief Engineer,
DPI & Roads, Odisha
(Employer)



Chief Engineer
DPI & Roads
Odisha

Sl. No.	Description	Unit	Quantity	Rate	Amount
BILL NO.2 : EARTH WORKS					
2.01	Roadway excavation in all kinds of soil necessary for construction of roadway, utilization of suitable soil, and disposal of unsuitable soil with all lead and lift complete as per Technical Specification Clause 301 and as per the direction of Engineer.	Cum	52,536.00	80.00 Rupees Eighty Only	4,202,880.00
2.02	Roadway excavation in granular base necessary for construction of roadway, utilization of suitable soil, and disposal of unsuitable soil with all lead and lift complete as per Technical Specification and as per the direction of Engineer.	Cum	10,103.00	160.00 Rupees One Hundred Sixty Only	1,616,480.00
2.03	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 Engineer-in-charge.	Cum	176,243.00	190.00 Rupees One Hundred Ninety Only	33,486,170.00
2.04	Construction of embankment with sand from approved borrow areas with all leads and lifts complete as per Drawing and Technical Specification Clause 305 and as per the direction of Engineer-in-charge.	Cum	8,130.00	550.00 Rupees Five Hundred Fifty Only	4,471,500.00
2.05	Construction of Rockfill embankment with broken hard fragments of size not exceeding 300mm laid in layers not exceeding 500mm thick including filling of surface voids with stone spalls binding top layer with granular material rolled with vibratory road roller complete as per clause 313.	Cum	855.00	2243.00 Rupees Two Thousand Two Hundred Forty Three Only	1,917,765.00
2.06	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 Engineer-in-charge.	Cum	139,643.00	735.00 Rupees Seven Hundred Thirty Five Only	102,637,605.00
2.07	Construction of Subgrade with granular material having CBR value 10% or more obtained from roadway excavation with all leads and lifts all complete as per Drawing and Technical Specification Clause 305 and as per the direction of Engineer-in-charge.	Cum	1,282.00	80.00 Rupees Eighty Only	102,560.00
2.08	Construction of embankment with suitable material obtained from roadway excavation and structure excavation with all leads and lift all complete as per Drawing and Technical Specification Clause 305 and as per the direction of Engineer-in-charge.	Cum	36,775.00	80.00 Rupees Eighty Only	2,942,000.00
2.09	Loosening and re-compacting the existing subgrade in all kinds of soil up to 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.	Cum	3,125.00	80.00 Rupees Eighty Only	250,000.00
2.10	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 Engineer-in-charge.	Sqm	8,244.00	15.00 Rupees Fifteen Only	123,660.00
Total for Bill No. 2					151,750,620.00
BILL NO.3 : SUB-BASE AND BASE COURSES					
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 Engineer-in-charge.	Cum	49,778.00	3000.00 Rupees Three Thousand Only	149,334,000.00
3.02	Construction of wet mix macadam complete as per Technical Specification Clause 406 and as per the direction of Engineer-in-charge.	Cum	45,973.00	3200.00 Rupees Three Thousand Two Hundred Only	147,113,600.00
Total for Bill No. 3					296,447,600.00

Sl. No.	Description	Unit	Quantity	Rate	Amount
BILL NO.4 : BITUMINOUS COURSES					
4.01	Providing bituminous Primer coat over granular surface complete all as per Technical Specification Clause 502 and as per the direction of Engineer-in-charge.	Sqm	177,261.00	30.00 Rupees Thirty Only	5,317,830.00
4.02	Providing Tack coat complete as per Technical Specification clause 503 and as per the direction of Engineer-in-charge.				
	(a) Over granular Surface treated with primer	Sqm	177,261.00	15.00 Rupees Fifteen Only	2,658,915.00
	b) Over normal bituminous surface.	Sqm	177,261.00	12.00 Rupees Twelve Only	2,127,132.00
4.03	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.	Cum	12,603.00	9000.00 Rupees Nine Thousand Only	113,427,000.00
4.04	Providing bituminous concrete wearing course using CRMB-55 complete as per Technical Specification Clause 507 and as per direction of the Engineer-in-charge.	Cum	6,722.00	10500.00 Rupees Ten Thousand Five Hundred Only	70,581,000.00
4.05	Providing and laying 20 mm thick Close Graded Premix Mixed Seal Surfacing type A complete as per Technical Specification Clause 508.	Sqm	9,221.00	170.00 Rupees One Hundred Seventy Only	1,567,570.00
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 with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing as per Technical Specification Section 600 and as per the direction of Engineer-in-charge.	Cum	1,890.00	4000.00 Rupees Four Thousand Only	7,560,000.00
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.	Cum	3,780.00	7000.00 Rupees Seven Thousand Only	26,460,000.00
Total for Bill No. 4					229,699,447.00
BILL NO.5 : CULVERTS AND UNDERPASSES					
5.01	Earthwork in excavation of foundation for structures complete as per drawing and technical specifications clause 304 including all leads and lifts and as per the direction of Engineer-in-charge-in-charge.	Cum	5,547.00	90.00 Rupees Ninety Only	499,230.00
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.	Cum	2,710.00	274.00 Rupees Two Hundred Seventy Four Only	742,540.00
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, direction of the Engineer-in-charge and Technical Specification Clause 304 and as per the direction of Engineer-in-charge.	Cum	1,669.00	720.00 Rupees Seven Hundred Twenty Only	1,201,680.00
5.04	Providing filter media behind abutment, wing wall and return wall complete as per drawing and Technical Specification clause 2504, 2509, 2510 and as per the direction of Engineer-in-charge.	Cum	727.00	3305.00 Rupees Three Thousand Three Hundred Five Only	2,402,735.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 5 of 18

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

Sl. No.	Description	Unit	Quantity	Rate	Amount
5.05	Cement Concrete M-15 grade in levelling course etc. including centering and shuttering all complete to produce a finished concrete true to shape, line, levels and dimensions as per Drawings and Technical Specification Sections 1500 and 1700 and as per the direction of Engineer-in-charge.	Cum	890.00	6249.00 Rupees Six Thousand Two Hundred Forty Nine Only	5,561,610.00
5.06	Cement Concrete M-20 grade in substructure & headwall including centering and shuttering all complete to produce a finished concrete true to shape, line, levels and dimensions as per Drawings and Technical Specification Sections 1500, 1700, 2200 and as per the direction of Engineer-in-charge.	Cum	311.00	7084.00 Rupees Seven Thousand Eighty Four Only	2,203,124.00
5.07	Reinforced Cement Concrete M-35 grade in all types of culverts all complete to produce a finished concrete true to shape, line, levels and dimensions as per drawing and technical specification Section 1500, 1700 & 2200 and as per the direction of Engineer-in-charge.	Cum	2,321.00	8525.00 Rupees Eight Thousand Five Hundred Twenty Five Only	19,786,525.00
5.08	HYSD (TMT) bar reinforcement of Grade Fe-500 complete as per drawing and technical specifications clause 1600 and as per the direction of Engineer-in-charge.	MT	139.00	71807.00 Rupees Seventy One Thousand Eight Hundred Seven Only	9,981,173.00
5.09	Providing laying and joining NP-4(I.S 458) hume pipes for culverts on concrete cradle bedding excluding cost of concrete complete as per Drawing Tech. Specification section 2900 and IRC special publication No.13 and as per the direction of the Engineer-in-charge.				
	a) 1000 mm dia.	Lm	375.00	8143.00 Rupees Eight Thousand One Hundred Forty Three Only	3,053,625.00
	b) 300 mm dia. In Single Row	Lm	390.00	2465.00 Rupees Two Thousand Four Hundred Sixty Five Only	961,350.00
5.10	Providing and laying filter material with moorum/ gravel 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.	Cum	337.00	3305.00 Rupees Three Thousand Three Hundred Five Only	1,113,785.00
5.11	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.	Cum	674.00	2902.00 Rupees Two Thousand Nine Hundred Two Only	1,955,948.00
5.12	Providing rubble stone flooring in Cement Mortar (1 Cement:3 Sand) and joints complete as per Drawing and Technical Specification Section 1400, 2504 and as per the direction of Engineer-in-charge.	Cum	967.00	3865.00 Rupees Three Thousand Eight Hundred Sixty Five Only	3,737,455.00
5.13	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.	No	1,792	232.00 Rupees Two Hundred Thirty Two Only	415,744.00
5.14	Reinforced cement concrete railing complete as per Drawing and Technical Specification Section 2700 (Including cost of Reinforcement) and as per the direction of Engineer-in-charge.	Lm	368.00	2243.00 Rupees Two Thousand Two Hundred Forty Three Only	825,424.00
5.15	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.	Sqm	2,514.00	885.00 Rupees Eight Hundred Eighty Five Only	2,224,890.00
5.16	Synthetic enamel painting of culvert no. and span arrangement as per IRC - 7 - 1971 and as per the direction of Engineer-in-charge	Nos	68	374.00 Rupees Three Hundred Seventy Four Only	25,432.00
5.17	Sand Filling in Foundation Trenches as per Drawing & Technical Specification Clause 304 and as per the direction of Engineer-in-charge.	Cum	1,173.00	720.00 Rupees Seven Hundred Twenty Only	844,560.00
Total for Bill No. 5					57,536,830.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

Sl. No.	Description	Unit	Quantity	Rate	Amount
	BILL NO.6 : BRIDGES				
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.	Cum	32,390.00	90.00 Rupees Ninety Only	2,915,100.00
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.	Cum	1,477.00	720.00 Rupees Seven Hundred Twenty Only	1,063,440.00
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.	Cum	684.00	3305.00 Rupees Three Thousand Three Hundred Five Only	2,260,620.00
6.04	Cement Concrete M-15 grade in levelling course etc. including centering and shuttering all complete to produce a finished concrete true to shape, line, levels and dimensions as per Drawings and Technical Specification Sections 1500 and 1700 and as per the direction of Engineer-in-charge.	Cum	1,459.00	6398.00 Rupees Six Thousand Three Hundred Ninety Eight Only	9,334,682.00
6.05	Reinforced cement concrete M-20 in foundation and substructure etc including centering and shuttering all complete as per drawing and Technical specification Section 1600, 1700, 2100, 2200 and as per the direction of Engineer-in-charge.	Cum	5,717.00	6486.00 Rupees Six Thousand Four Hundred Eighty Six Only	37,080,462.00
6.06	Reinforced cement concrete M-35 grade in all types of structures complete to produce a finished concrete true to shape, line, levels and dimensions as per drawing & Technical specification sections 1500, 1700, 2200 and as per the direction of Engineer-in-charge.	Cum	8,501.00	8525.00 Rupees Eight Thousand Five Hundred Twenty Five Only	72,471,025.00
6.07	HYSD (TMT) bar reinforcement of Grade-Fe500 complete as per drawing and technical specifications clause 1600 and as per the direction of Engineer-in-charge.	MT	846.00	71807.00 Rupees Seventy One Thousand Eight Hundred Seven Only	60,748,722.00
6.08	Providing and fixing Elastomeric bearing complete as per Drawing and technical specification 2000 and the direction of Engineer-in-charge.	CuCm	144,000.00	2.00 Rupees Two Only	288,000.00
6.09	Bituminous wearing course 56mm thick comprising 50mm thick asphaltic Concrete in a single layer over Bituminous mastic course 6 mm thick with a prime Coat Complete as per drawing and Technical Specification Section 509 & 2700 and as per the direction of Engineer-in-charge.	Sqm	6,373.00	885.00 Rupees Eight Hundred Eighty Five Only	5,640,105.00
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.	No	230.00	2991.00 Rupees Two Thousand Nine Hundred Ninety One Only	687,930.00
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.	Cum	1,391.00	2902.00 Rupees Two Thousand Nine Hundred Two Only	4,036,682.00
6.12	Providing and laying fitter material with moorum/ gravel underneath Stone pitching in slopes Complete as per drawing and Technical Specification clause 2504 and as per the direction of Engineer-in-charge.	Cum	678.00	3305.00 Rupees Three Thousand Three Hundred Five Only	2,240,790.00
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.	No	2,458	232.00 Rupees Two Hundred Thirty Two Only	570,256.00
6.14	Providing rubble Stone flooring in Cement mortar (1Cement:3 sand) and joints Complete as per drawing and Technical Specification Section 1400 and 2500 and as per the direction of Engineer-in-charge.	Cum	1,321.00	3865.00 Rupees Three Thousand Eight Hundred Sixty Five Only	5,105,665.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Page 7 of 18

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

Sl. No.	Description	Unit	Quantity	Rate	Amount
6.15	Supplying and fixing Strip Seal Expansion Joints Complete as per Drawing and direction of Engineer-in-charge.	Lm	515.00	1279.00 Rupees One Thousand Two Hundred Seventy Nine Only	658,685.00
6.16	Synthetic enamel painting of culvert no. and span arrangement as per IRC - 7 - 1971 and as per the direction of Engineer-in-charge.	No	112	374.00 Rupees Three Hundred Seventy Four Only	41,888.00
6.17	Carrying and Conirmatory bores up to required depth at locations of bridges as directed by Engineer-in-charge complete in all respects, conducting all the tests required as directed by the Engineer-in-charge and as per Technical Specification Section 2400 and interpretation of the bore data and presentation of the results and as per the direction of Engineer-in-charge.				
	i) depth from 0m to 10m (in all types of soil except rock)	Lm	150.00	2991.00 Rupees Two Thousand Nine Hundred Ninety One Only	448,650.00
6.18	Providing and painting of flood gauge on substructure is fall height and 500mm width and as per the direction of Engineer-in-charge.	Lm	465.00	566.00 Rupees Five Hundred Sixty Six Only	263,190.00
6.19	Providing and laying 150mm dia HDPE Service pipes as per drawing and as per the direction of Engineer-in-charge.	Lm	6,270.00	300.00 Rupees Three Hundred Only	1,881,000.00
6.20	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.	Cum	1,715.00	190.00 Rupees One Hundred Ninety Only	325,650.00
6.21	Providing Sand Filling in Foundation Trenches as per Drawing & Technical Specification Clause 304, 305 and as per the direction of Engineer-in-charge.	Cum	8,906.00	720.00 Rupees Seven Hundred Twenty Only	6,412,320.00
6.22	Providing PCC in flooring as per Drawing & Technical Specification section 1700, 2500 and as per the direction of Engineer-in-charge.				
	a) M-15 Grade	Cum	219.00	6847.00 Rupees Six Thousand Eight Hundred Forty Seven Only	1,499,493.00
	b) M-20 Grade	Cum	36.00	7084.00 Rupees Seven Thousand Eighty Four Only	255,024.00
6.23	Reinforced cement concrete crash barrier including cost of steel and its fabrication to bridge structures as per the approved drawing and Technical Specification clause 809, and section 1500, 1600, 1700 and as per the direction of Engineer-in-charge.	Lm	1,330.00	3727.00 Rupees Three Thousand Seven Hundred Twenty Seven Only	4,956,910.00
6.24	Plastering with cement mortar (1:3) on brick work in sub-structure as per Technical Specifications.	Sqm	73.00	179.00 Rupees One Hundred Seventy Nine Only	13,067.00
Total for Bill No. 6					221,199,556.00
BILL NO.7 : RETAINING WALL, DRAINAGE AND PROTECTIVE WORKS					
7.01	Providing and laying stone pitching on embankment slopes as per drawing and Technical Specification Clause 2504 and as per the direction of Engineer-in-charge.	Cum	2,079.00	2902.00 Rupees Two Thousand Nine Hundred Two Only	6,033,258.00
7.02	Providing and laying filter material with moorum/ gravel underneath stone pitching on embankment slopes as per drawing and Technical Specification Clause 2504 and as per the direction of Engineer-in-charge.	Cum	1,040.00	3305.00 Rupees Three Thousand Three Hundred Five Only	3,437,200.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Sl. No.	Description	Unit	Quantity	Rate	Amount
7.03	Turfing side slopes of main road and service road with grass sods complete as per Technical Specification Clause 307 and as per the direction of Engineer-in-charge.	Sqm	27,596.00	37.00 Rupees Thirty Seven Only	1,021,052.00
7.04	Constructing precast saucer drain to the required lines and grades as per Drawing and Technical Specification and as per the direction of Engineer-in-charge.	Lm	5,300.00	3988.00 Rupees Three Thousand Nine Hundred Eighty Eight Only	21,136,400.00
7.05	Providing and construction of Unlined earthen surface drain to proper line and grade as per Drawing and as per the direction of Engineer-in-charge.	Cum	13,850.00	90.00 Rupees Ninety Only	1,246,500.00
7.06	Plane cement concrete for gap filler between main carriageway and drain with M-35 Grade complete as per drawing & Technical specification and as per the direction of Engineer-in-charge.	Cum	83.00	7328.00 Rupees Seven Thousand Three Hundred Twenty Eight Only	608,224.00
Total for Bill No. 7					33,482,634.00
BILL NO-8 : ROAD SAFETY AND AMENITIES					
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.	Lm	160.00	378.00 Rupees Three Hundred Seventy Eight Only	60,480.00
8.02	Providing service ducts with 150mm dia GI pipes over concrete base of M-15 under existing and proposed carriageways including cutting of trenches through existing roadway and reinstatement of the same as per design and specification and as per the direction of Engineer-in-charge.	Lm	600.00	2401.00 Rupees Two Thousand Four Hundred One Only	1,440,600.00
8.03	Providing and fixing RCC boundary posts complete as per drawing and Technical Specification Clause 806 and as per the direction of Engineer-in-charge.	No	30	1197.00 Rupees One Thousand One Hundred Ninety Seven Only	35,910.00
8.04	Providing and fixing RCC/PCC hectometer, Kilometer and 5th kilometer stones complete as per Technical Specification Clause 804 and as per the direction of Engineer-in-charge.				
	a) No of (200) Hectometer Stone	No	70	400.00 Rupees Four Hundred Only	28,000.00
	b) No of Kilometer stone	No	14	2000.00 Rupees Two Thousand Only	28,000.00
	c) No. of 5th Kilometer Stone	No	4	3067.00 Rupees Three Thousand Sixty Seven Only	12,268.00
8.05	Constructing footpath/ paved separator at toll plaza, passenger platform / paved part of medians and islands complete as per drawing and Technical Specifications Clause 409 and 407 and as per the direction of Engineer-in-charge.	Sqm	120.00	2000.00 Rupees Two Thousand Only	240,000.00
8.06	Providing passenger shelters for Bus Bays as per drawing and Technical Specifications Section 1500, 1600, 1700, 2100, 2200, 2300 and as per the direction of Engineer-in-charge.	No	16	160000.00 Rupees One Lakh Sixty Thousand Only	2,560,000.00
8.07	Pavement marking with hot applies thermoplastic paints conforming to ASTM D86/BS3262-Part as per drawing and Technical Specifications Clause 803.4 and as per the direction of Engineer-in-charge.				

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Sl. No.	Description	Unit	Quantity	Rate	Amount
	(a) Lane line / Edge marking	Sqm	6,701.00	464.00 Rupees Four Hundred Sixty Four Only	3,109,264.00
	(b) Directional arrows and lettering etc.	Sqm	190.00	696.00 Rupees Six Hundred Ninety Six Only	132,240.00
8.08	Supplying and fixing sign boards complete as per Technical Specifications Clause 801 and IRC:67-2012 including the cost of Posts, Fitting & fixing. Sheeting will be retro reflective type of high intensively grade and messages / boarders and as per the direction of Engineer-in-charge.				
	(a) Informatory Signs				
	(i) Facility Information (800 x 600)mm	No	8	4916.00 Rupees Four Thousand Nine Hundred Sixteen Only	39,328.00
	(ii) Direction Signs (1200 x 700 mm)	No	2	7617.00 Rupees Seven Thousand Six Hundred Seventeen Only	15,234.00
	(iii) Advance Direction (size 1800 x 1200mm)	No	2	18766.00 Rupees Eighteen Thousand Seven Hundred Sixty Six Only	37,532.00
	(iv) Re-Assurance Sign (1800 X 1200 mm)	No	1	18766.00 Rupees Eighteen Thousand Seven Hundred Sixty Six Only	18,766.00
	(v) Destination Sign (1500 X 900 mm)	No	1	11729.00 Rupees Eleven Thousand Seven Hundred Twenty Nine Only	11,729.00
	(vi) Place Identification (1500 X 900 mm)	No	24	11729.00 Rupees Eleven Thousand Seven Hundred Twenty Nine Only	281,496.00
	(vii) Bus Lane Sign (450mm x 600mm)	No	31	3796.00 Rupees Three Thousand Seven Hundred Ninety Six Only	117,676.00
	(viii) Route Marker Sign (450mm x 600mm)	No	10	3796.00 Rupees Three Thousand Seven Hundred Ninety Six Only	37,960.00
	(ix) Other Informatory Signs (2100 x 1500mm)	No	15	27367.00 Rupees Twenty Seven Thousand Three Hundred Sixty Seven Only	410,505.00
	(b) Cautionary Signs (triangular 900mm side)	No	8	4223.00 Rupees Four Thousand Two Hundred Twenty Three Only	33,784.00
	(c) Mandatory Signs				
	(i) Circular 600mm dia	No	40	1132.00 Rupees One Thousand One Hundred Thirty Two Only	45,280.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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Chief Engineer,
DPI & Roads, Odisha
(Employer)

Sl. No.	Description	Unit	Quantity	Rate	Amount
	(ii) Octagon 900 mm height	No	25	5940.00 Rupees Five Thousand Nine Hundred Forty Only	148,500.00
	(iii) Triangular 900 mm side	No	70	3167.00 Rupees Three Thousand One Hundred Sixty Seven Only	221,690.00
8.09	Providing & fixing retro - reflectorised road delineators complete as per drawing, Technical specifications clause 805 and as per the direction of Engineer-in-charge.				
	(i) Roadway delineator	No	450	800.00 Rupees Eight Hundred Only	360,000.00
	(ii) Hazard Marker	No	248	2458.00 Rupees Two Thousand Four Hundred Fifty Eight Only	609,584.00
8.10	Providing and fixing RCC Guard post with reflective paint marking on the top 25mm width band complete including end anchorage as per drawing and Technical Specifications Clause 806 and as per the direction of Engineer-in-charge	No.	5,403	748.00 Rupees Seven Hundred Forty Eight Only	4,041,444.00
8.11	Providing and fixing of metal beam crash barrier made out of cold rolled steel strip W profile of 3 mm thick having a minimum yield strength of 2400 kg/sqcm, width of 313 mm and depth of corrugation as 83 mm hot dip galvanized of zinc coating @ 550 gm/sq.m. 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 galvanized of zinc coating @ 550 gm/sq.m. The total length of post shall be 1900 mm and minimum height of post above concrete foundation shall be 800 mm. The length of spacer channel shall be 330 mm. Job includes neatly fixing new post in cement concrete of M-20 grade complete (cost included) as directed by the Engineer-in-charge including fasteners and fixing etc. complete. The spacing of the Steel posts shall be about 2 m. The guard rail reflectors of 100 mm dia circular made out of 2 mm thick GI sheet duly fixed with micro-prismatic type sheeting with Type 9 ASTM D 4956-01 standards @ every 5 meters. The work is to be executed as per drawing, Specifications and as per the direction of Engineer-in-charge.	Lm	2,450.00	3235.00 Rupees Three Thousand Two Hundred Thirty Five Only	7,925,750.00
8.12	Providing and fixing Pedestrian guard rails in modules including painting with approved paint complete as per drawing and Technical Specification Clause 803, 1008, 1300 & 1700.	Lm	1,300.00	2545.00 Rupees Two Thousand Five Hundred Forty Five Only	3,308,500.00
8.13	Supply of colour video coverage in digital format during construction as per Technical Specifications Clause 120 As per requirement and as per the direction of Engineer-in-charge.	Set	18	20000.00 Rupees Twenty Thousand Only	360,000.00
8.14	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.	Lm	244.00	5430.00 Rupees Five Thousand Four Hundred Thirty Only	1,324,920.00
8.15	Providing road hump complete at required places as per Drawing and as per the direction of Engineer-in-charge.	No	290.00	23098.00 Rupees Twenty Three Thousand Ninety Eight Only	6,698,420.00
8.16	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 as per the direction of Engineer-in-charge.	No	4,459	300.00 Rupees Three Hundred Only	1,337,700.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Sl. No.	Description	Unit	Quantity	Rate	Amount
Total for Bill No. 8					35,032,560.00
BILL NO.9 MAINTENANCE, REPAIR AND REHABILITATION					
9.01	Restoration of Rain Cuts (Restoration of rain cuts with soil, moorum, gravel or a mixture of these, clearing the loose soil, benching for 300 mm width, laying fresh material in layers not exceeding 250 mm and compacting with plate compactor or power rammers to restore the original alignment, levels and slopes) as per the direction of Engineer-in-charge.	Cum	142.00	735.00 Rupees Seven Hundred Thirty Five Only	104,370.00
9.02	Maintenance of Earthen Shoulder (filling with fresh soil) (Making up loss of material/ irregularities on shoulder to the design level by adding fresh approved soil and compacting it with appropriate equipment.) as per direction of Engineer-in-charge.	Sqm	6,300.00	38.00 Rupees Thirty Eight Only	239,400.00
9.03	Maintenance of Earth Shoulder (stripping excess soil) (Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor) as per direction of Engineer-in-charge.	Sqm	6,300.00	16.00 Rupees Sixteen Only	100,800.00
9.04	Filling Pot- holes and Patch Repairs with open - graded Premix 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.	Sqm	8,663.00	213.00 Rupees Two Hundred Thirteen Only	1,845,219.00
9.05	Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1., sand and coarse aggregates conforming to IS: 383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6. and as per direction of the Engineer-in-charge	Sqm	85.00	523.00 Rupees Five Hundred Twenty Three Only	44,455.00
9.06	Sealing of cracks/porous concrete by injection process through nipples/Grouting complete as per Technical Specification, and as per direction of the Engineer-in-charge	Kg	295.00	224.00 Rupees Two Hundred Twenty Four Only	66,080.00
9.07	Construction of Temporary diversion including temporary cross drainage works for plying of traffic in both directions, where necessary and maintenance there of including traffic control and safety complete till the operation of the original road/structure including dismantling and clearing debris disposing off at suitable place as per Technical Specification Clause 112 and as per the direction of Engineer. (Construction up to GSB Top)	Lm	2,350.00	882.00 Rupees Eight Hundred Eighty Two Only	2,072,700.00
9.08	Providing Temporary passage for plying of traffic in both direction where ever necessary by widening existing pavement /strengthening roadway with Granular Sub-base course using crushed stone aggregate by providing the materials conforming to Grading-V of Table 400-1 and maintenance including traffic control and safety as per drawing and Technical Specification and as per the direction of Engineer.				
(i)	With New Material (Thickness 150 mm)	Cum	2,500.00	3000.00 Rupees Three Thousand Only	7,500,000.00
(ii)	With Salvaged Material obtained from dismantling roadway and /or diversion (Thickness 150 mm)	Cum	2,500.00	224.00 Rupees Two Hundred Twenty Four Only	560,000.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha, Bhubaneswar

Sl. No.	Description	Unit	Quantity	Rate	Amount
Total for Bill No. 9					12,533,024.00
BILL NO.10 ENVIRONMENTAL MITIGATION MEASURES					
10.01	Earthwork in excavation of foundation for structures complete as per the direction of Engineer-in-charge.	Cum	3,003.00	90.00 Rupees Ninety Only	270,270.00
10.02	Sand filling below foundation of wing wall and return wall, pipe bed in layers not exceeding 150mm thick including All leads and lifts complete as per the direction of Engineer-in-charge.	Cum	890.00	720.00 Rupees Seven Hundred Twenty Only	640,800.00
10.03	Providing & laying in position Cement Concrete M-15 grade in foundation, levelling course etc. including centering and shuttering all complete and Technical Specification Sections 1500 and 1700 and as per the direction of Engineer-in-charge.	Cum	2,562.00	6249.00 Rupees Six Thousand Two Hundred Forty Nine Only	16,009,938.00
10.04	Providing weep holes in PCC toe wall with 100mm dia AC pipe at 1mtrs horizontal interval all complete and Technical Specification section, 2700& 2200 and as per the direction of Engineer-in-charge.	Nos	2,472	232.00 Rupees Two Hundred Thirty Two Only	573,504.00
10.05	Providing and laying in position Reinforced cement concrete of M-20 Grade in foundation complete & Technical specification sections 1700, 2100 & 2200 and as per the direction of Engineer-in-charge.	Cum	28.00	6486.00 Rupees Six Thousand Four Hundred Eighty Six Only	181,608.00
10.06	HYSD(TMT) of Fe-500 grade bar reinforcement with anti-corrosive treatment coating complete and technical specifications clause 1600 and as per the direction of the Engineer-in-charge.	MT	1.39	71807.00 Rupees Seventy One Thousand Eight Hundred Seven Only	99,811.73
10.07	Providing and laying filter material with moorum/ gravelly soil underneath pitching in slopes at water bodies and ponds as per technical specification Section 2500 and as per the direction of Engineer-in-charge.	Cum	1,483.00	3305.00 Rupees Three Thousand Three Hundred Five Only	4,901,315.00
10.08	Providing and laying stone pitching on slopes over filter media as per technical specification Section 2500 and as per the direction of Engineer-in-charge.	Cum	2,966.00	2902.00 Rupees Two Thousand Nine Hundred Two Only	8,607,332.00
10.09	Stripping of top soil from borrow areas located in agriculture fields, storing at a suitable place, spreading and re-laying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels and satisfaction of the farmer.(LS)Rate as per clause 305 & MoRT&H analysis 3.21	Cum	15,000.00	155.00 Rupees One Hundred Fifty Five Only	2,325,000.00
10.10	Providing and maintenance of oil & Grease traps detailed as per the Drawing No OSRP/SH/ENV/06	No	1	171323.00 Rupees One Lakh Seventy One Thousand Three Hundred Twenty Three Only	171,323.00
10.11	Providing silt fence and sediment arrestor in the construction zones and stock piles of top soil by fixing wooden posts of 100mm diameter firmly to the ground at required intervals and placing closely woven fabric of coconut fibre reinforced with HDPE materials/suitable geosynthetic fabric complete as per drawing, technical specifications including cost of all materials, labour, transportation, taxes, sundries, curing, T&P etc. and as per the direction of the Engineer-in-charge.	Lm	1,000.00	400.00 Rupees Four Hundred Only	400,000.00
Total for Bill No. 10					34,180,901.73

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Contract Name: Construction for Widening & Strengthening of Existing Carriageway to 2-lane road from Pirahat to Chandbali (Km. 27/500 to Km. 45/000 of SH-9) (Balance Work)- ICB Package OSRP-CW-ICB-P02B (Dayworks)					
Sl. No.	Description	Unit	Quantity	Rate	Amount
Schedule of Daywork Rates: 1. Labour					
D101	Labour (Un-skilled)	Day	100.00	350.00 Rupees Three Hundred Fifty Only	35,000.00
D102	Mason (Special)	Day	10.00	450.00 Rupees Four Hundred Fifty Only	4,500.00
D103	Carpenter (Special)	Day	5.00	450.00 Rupees Four Hundred Fifty Only	2,250.00
D104	Mason (Second Class)	Day	10.00	400.00 Rupees Four Hundred Only	4,000.00
D105	Carpenter (Second Class)	Day	5.00	400.00 Rupees Four Hundred Only	2,000.00
D106	Steelworker Erector	Day	15.00	500.00 Rupees Five Hundred Only	7,500.00
D107	Driver for vehicle up to 10 tons	Day	10.00	500.00 Rupees Five Hundred Only	5,000.00
D108	Operator for excavator, dragline, shovel or crane	Day	10.00	700.00 Rupees Seven Hundred Only	7,000.00
D109	Operator for tractor with dozer blade or ripper	Day	10.00	700.00 Rupees Seven Hundred Only	7,000.00
D110	Operator grader	Day	10.00	700.00 Rupees Seven Hundred Only	7,000.00
D111	Operator in other construction equipment	Day	10.00	700.00 Rupees Seven Hundred Only	7,000.00
D112	Chowkidars for watch & ward	Day	125.00	700.00 Rupees Seven Hundred Only	87,500.00
				SubTotal	175,750.00
D113	Allow 18% (Percent) of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above			18%	31,635.00
Total for Daywork (Labour):					207,385.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Chief Engineer,
DPI & Roads, Odisha
(Employer)

Chief Engineer
DPI & Roads
Odisha

Sl. No.	Description	Unit	Quantity	Rate	Amount
Schedule of Daywork Rates: 2. Materials					
D201	Cement, ordinary Portland or equivalent in bags conforming to IS:269:1989 and IS 455:1989	Per Mt	5.00	7000.00 Rupees Seven Thousand Only	35,000.00
D202	HYSD reinforcing bars upto 25 mm dia conforming to IS:1786:1989	Per Mt	1.00	45000.00 Rupees Forty Five Thousand Only	45,000.00
D203	Bricks of class designation 75 as per IS:1077:1992	Per 1000 Nos	5,000	6000.00 Rupees Six Thousand Only	30,000.00
D204	Anti Corrosive Bituminous paint	Per Lit	2.00	200.00 Rupees Two Hundred Only	400.00
D205	Enamel Paint of any shade & colour (IS:2932-1964 & IS 137-1975)	Per Lit	2.00	600.00 Rupees Six Hundred Only	1,200.00
D206	Coarse Sand as per IS 1542	Per Cum	10.00	800.00 Rupees Eight Hundred Only	8,000.00
D207	R.R. Stone for masonry	Per Cum	10.00	1500.00 Rupees One Thousand Five Hundred Only	15,000.00
D208	Crusher broken stone aggregates up to 25 mm nominal size	Per Cum	10.00	2000.00 Rupees Two Thousand Only	20,000.00
D209	Crusher broken stone aggregates Above 25 mm nominal size	Per Cum	10.00	2000.00 Rupees Two Thousand Only	20,000.00
D210	Potable water at site	KL	1,250.00	30.00 Rupees Thirty Only	37,500.00
D211	Gravel/ Moorum for Road Work	Per Cum	10.00	1500.00 Rupees One Thousand Five Hundred Only	15,000.00
D212	Bitumen-VG-30	Per MT	1.00	40000.00 Rupees Forty Thousand Only	40,000.00
					267,100.00
D213	Allow 18% (Percent) of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 4 (b) above			18%	48,078.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)Chief Engineer,
DPI & Roads, Odisha
(Employer)Chief Engineer
DPI & Roads
Odisha

Sl. No.	Description	Unit	Quantity	Rate	Amount
Total for Daywork : Materials					315,178.00
Schedule of Daywork Rates: 3. Contractor's					
D301	Excavator, face shovel, or dragging including the cost of operator:				
D301.1	Up to and including 1 m ³	Hour	10.00	2000.00 Rupees Two Thousand Only	20,000.00
D301.2	Over 1 m ³ to 2 m ³	Hour	5.00	3000.00 Rupees Three Thousand Only	15,000.00
D301.3	Over 2 m ³	Hour	2.00	5000.00 Rupees Five Thousand Only	10,000.00
D302	Tractor, including bull or angle dozer including the cost of operator:				
D302.1	Up to and including 150 kW	Hour	10.00	350.00 Rupees Three Hundred Fifty Only	3,500.00
D302.2	Over 150 kW to 200 kW	Hour	5.00	400.00 Rupees Four Hundred Only	2,000.00
D302.3	Over 200 kW to 250 kW	Hour	2.00	600.00 Rupees Six Hundred Only	1,200.00
D303	Tractor with ripper including the cost of operator:				
D303.1	Up to and including 200 kW	Hour	5.00	400.00 Rupees Four Hundred Only	2,000.00
D303.2	Over 200 kW to 250 kW	Hour	2.00	600.00 Rupees Six Hundred Only	1,200.00
D304	Motor grader including the cost of operator:	Hour	10.00	2000.00 Rupees Two Thousand Only	20,000.00
D305	Crane- 5 tonne including the cost of operator:	Hour	10.00	2000.00 Rupees Two Thousand Only	20,000.00
D306	Diesel Road Roller, or Vibratory Compactor upto 10 t including the cost of operator:	Hour	10.00	1500.00 Rupees One Thousand Five Hundred Only	15,000.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

Sl. No.	Description	Unit	Quantity	Rate	Amount
D307	Trucks, or Truck tipper, or Truck with mounted water tank or truck with crane for removal of accidental vehicles.	Hour	25.00	2000.00 Rupees Two Thousand Only	50,000.00
D308	Tractor with trolley, or tractor with water tanker trailer, tractor with ripper Tractor with hydraulic scraper including the cost of operator				
	(a) upto 25 HP	Hour	10.00	350.00 Rupees Three Hundred Fifty Only	3,500.00
	(b) For 25-40 HP	Hour	5.00	400.00 Rupees Four Hundred Only	2,000.00
D309	Bitumen mixture (10-14 Cft.) C.C including the cost of operator:	Hour	5.00	500.00 Rupees Five Hundred Only	2,500.00
D310	Water pumping sets mounted on trolley (diesel driven)with inlet & outlet pipes including the cost of operator:				
	a) Sets up to 10 HP	Hour	2.00	300.00 Rupees Three Hundred Only	600.00
	b) Sets 11 to 20 HP	Hour	2.00	500.00 Rupees Five Hundred Only	1,000.00
	c) Sets above 20 HP	Hour	2.00	700.00 Rupees Seven Hundred Only	1,400.00
D311	Generator sets mounted on trolley including the cost of operator:				
	a) Sets upto 5 Kva	Hour	2.00	500.00 Rupees Five Hundred Only	1,000.00
	b) Sets 5-15 Kva	Hour	2.00	800.00 Rupees Eight Hundred Only	1,600.00
D312	Mobile Crane / Power winch including the cost of operator:	Hour	2.00	1200.00 Rupees One Thousand Two Hundred Only	2,400.00
D313	Bull Dozer 100/110 Hp including the cost of operator:	Hour	2.00	5000.00 Rupees Five Thousand Only	10,000.00
D314	Plate compactors including the cost of operator:	Hour	2.00	200.00 Rupees Two Hundred Only	400.00
D315	Jack hammers for dismantling including the cost of operator:	Hour	2.00	500.00 Rupees Five Hundred Only	1,000.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

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

SI. No.	Description	Unit	Quantity	Rate	Amount
D316	Utility Vehicles including the cost of operator:	Hour	2.00	200.00 Rupees Two Hundred Only	400.00
D317	Mini Hot Mix Plant (5TPH) including the cost of operator:	Hour	2.00	10000.00 Rupees Ten Thousand Only	20,000.00
					207,700.00
D318	Allow 18% (Percent) of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above			18%	37,386.00
Total for Daywork: Contractor's Equipment					245,086.00

For NKC Projects Private Limited

M/s NKC Projects Pvt. Ltd.
(Contractor)

Director

Chief Engineer,
DPI & Roads, Odisha
(Employer)

G.P.O. 5
Cuttack, Bhubaneswar