



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P04A1

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, World Bank Projects, Odisha
on behalf of
Odisha Works Department, Government of Odisha

and

M/s Backbone-Utkal JV,
IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010, Odisha
Tel : +91-674-2580100/3051000, Fax : +91-674-2580021
E-mail: info@umsl.in

[VOLUME-I: Agreement]

Agreement Value: Rs. 107,38,63,577

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

December 23, 2015

CONTENTS of CONTRACT

Volume – I	:	Letter of Acceptance. Letter of Bid and Addenda
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ଓଡ଼ିଶା ओडिशा ODISHA

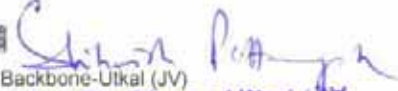
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CIVIL WORKS CONTRACT

For

Construction for Widening & Strengthening of existing carriageway to 2-lane road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance Works)

THIS AGREEMENT made the 23rd day of December, 2015, between the Chief Engineer, World Bank Projects, 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 Backbone-Utkal JV, IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010, Odisha, Tel : +91-674-2580100/3051000, Fax : +91-674-2580021, E-mail: info@umsl.in , (hereinafter "the Contractor"), of the other part for an amount of Rs. 107,38,63,577 (Indian Rupees One Hundred Seven Crore Thirty Eight Lakh Sixty Three Thousand Five Hundred Seventy Seven)only.


Backbone-Utkal (JV)
Chief Engineer


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Of the E.I.C.(C), Odisha, BBSR

WHEREAS the Employer desires that the Works known as "Construction for Widening & Strengthening of existing carriageway to 2-lane road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (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.

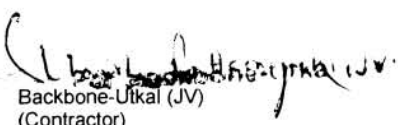
The Employer and the Contractor agree as follows:

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.

<p>Volume - I</p> <p>(i) the Letter of Acceptance</p> <p>(ii) of the Letter Bid</p> <p>(iii) the addenda 1-104 Pages</p> <p>Volume - II</p> <p>(iv) the Particular Conditions</p> <p>(v) the General Conditions;</p>	<p>Volume - III</p> <p>(vi) the Specification</p> <p>Volume - IV</p> <p>(vii) the Drawings; and</p> <p>Volume - V</p> <p>(viii) the Priced Schedules,</p>
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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.


 Backbone-Utkal (JV)
 (Contractor)

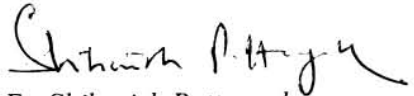

 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 On the F.I.C.I.C. Odisha, BBSR

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

For and on behalf of M/s Backbone-Utkal JV.


Er. Om Prakash Patel
Chief Engineer, World Bank Projects,
Odisha


Er. Shibaish Pattnayak
Authorized Representative
for M/s Backbone-Utkal (JV)

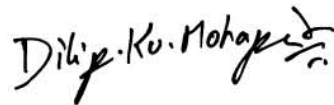
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

Witness :

1. Er. Bhanu Pratap Sahoo,
Assistant Manager (Quantity), UMSL Ltd.


B. Sahoo


2. Mr. Dilip Kumar Mohapatra, S/o- Late -Pramod Kumar Mohapatra
At/Po-Pramod Bhawan, Kapaleswar, Choudwar, Dist-Cuttack

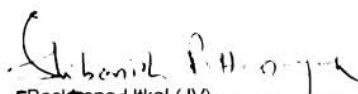

Dilip K. Mohapatra


3. Er. Bimal Chandra Dash,
Superintending Engineer-cum-Employer's Representative-P04,
Cuttack (R&B) Circle, Cuttack, Odisha


23/12/15

4. Mr. Sibashis Dhal,
Financial Advisor, Project Management Unit,
Odisha State Roads Project


23/12/2015


Er. Shibaish Pattnayak
Authorized Representative
(Contractor)


Chief Engineer,
World bank Projects, Odisha
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

NO OBJECTION OF THE WORLD BANK



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

RE: Bid for the work "Widening & Strengthening of existing carriageway to 2-lane Road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance Work)" - Package No- OSRP-CW-ICB-P04A1 - Involvement of M/s Backbone Enterprises Ltd as the Lead

Rajesh Rohatgi <rrohlatgi@worldbank.org> Wed, Oct 21, 2015 at 12:15 PM
To: "Chief Engineer, World Bank Projects, Orissa" <pmuosrp@gmail.com>, Swayamsiddha Mohanty <smohanty1@worldbank.org>
Cc: Aruna Aysha Das <adas@worldbank.org>, "sujit.bulu1@gmail.com" <sujit.bulu1@gmail.com>

Dear Mr Patel

Thank you for sending the Bid Evaluation Report for Package P04A1 "Widening & Strengthening of existing carriageway to 2-lane Road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance Work)", through your email dated September 30, 2015 and further clarification through your email dated October 5, 2015.

Based on the information provided, we have no objection to OWD's recommendation for award of work to the JV of M/s. Backbone-Utkal, at a total contract amount of INR 107,38,63,577.00 subjected to OWD handing over encumbrance free mile stone 1 to the contractor.

Please send the copy of duly signed contract agreement along with copy of performance security and additional Bank Guarantee towards unbalanced items and prior-review checklist to enable us to issue WBR No. for this contract. Please also publish contract award details on UNDB and Project website within 15 days from Bank's no objection.

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

<https://mail.google.com/mail/u/1/?ui=2&ik=ce14ed4782&view=pt&search=inbox&msg=1503225800166ef1&siml=1503225800166ef1>

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Backbone-Utkal (JV)
(Contractor)

Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
at Bhubaneswar, Odisha, BBSR

APPROVAL OF THE GOVERNMENT OF ODISHA

GOVERNMENT OF ODISHA
WORKS DEPARTMENT

No. 13464 /W., Bhubaneswar, Dated, the 27th Nov 2015
AC-1/ 0718040123-2015

From
Sri A. Mahalik,
FA-cum-Additional Secretary to Govt.

To
The Chief Engineer, World Bank Projects, Odisha.
Nirman Soudha, Bhubaneswar.

Sub:- Widening & Strengthening of existing carriageway to 2-lane Road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance Works) Package No-OSRP-CW-ICB-P04A1.

Sir,
I am directed to invite a reference to your Letter No.43547 dated 26.10.2015 and convey the approval of State Cabinet for acceptance of the lowest responsive evaluated bid of **M/s Backbone-Utkal JV, Bhubaneswar amounting to ₹107,38,63,577.00 (Rupees one hundred seven Crore thirty eight lakh sixty three thousand five hundred seventy seven) which is 0.75% less than the estimated cost of ₹108,19,41,810.00.**

A copy of the proceedings of the Tender Committee meeting held on 30.10.2015 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,

S. A. Mahalik
27/11/2015
FA-cum-Additional Secretary to Govt.

Memo No. 13465 /W., Dated. 27.11.15
Copy forwarded to Superintending Engineer, PMU, Works Department for information and appropriate action.

S. A. Mahalik
27/11/2015
FA-cum-Additional Secretary to Govt.

S. A. Mahalik
Backbone-Utkal (JV)
(Contractor)

S. A. Mahalik
Chief Engineer,
World Bank Projects, Odisha
(Employer)
World Bank Project
In the Office of Chief Engineer, Odisha, P.O.

NOTIFICATION OF AWARD

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

Letter No. PMU-WB-114/2015- 49111

November 27, 2015

From

Er. Om Prakash Patel
Chief Engineer, World Bank Projects, Odisha
Tel.: + 91 – 674 – 239 6783 / Fax: + 91 674 – 239 0080
Email: pmuosrp@gmail.com

To

M/s Backbone-Utkal JV,
IMFA Building,
Bomikhal, Rasulgarh,
Bhubaneswar -751010
Email:- admin@backboneworld.com; info@urmsl.in

Sub: Civil Works ICB Package No- OSRP-CW-ICB-P04A1 under Odisha State Roads Project with World Bank Assistance

- Widening & Strengthening of existing carriageway to 2-lane Road from Jagatpur to Nischintakoilli (Km. 0/00 to Km. 25/00 of MDR) (Balance Works)

- LETTER OF ACCEPTANCE

Ref: i. IFB No: PMU/WB/114/2015 - 32819 of August 07, 2015
ii. Your BID submitted on September 26, 2015

Sir,

This is to notify you that, your Bid dated September 26, 2015 for execution of the Civil Works ICB Package No- OSRP-CW-ICB-P04A1 under Odisha State Roads Project with World Bank Assistance for "Widening & Strengthening of existing carriageway to 2-lane Road from Jagatpur to Nischintakoilli (Km. 0/00 to Km. 25/00 of MDR) (Balance Works)" amounting to Indian Rs. 107,38,63,577 (Indian Rupees One Hundred Seven Crore Thirty Eight Lakh Sixty Three Thousand Five Hundred Seventy Seven) 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 an unconditional Bank Guarantee in favour of the Chief Engineer, World Bank Projects, Odisha, Bhubaneswar on any Nationalized Bank located in India, valid till July 31, 2017 amounting not less than Indian Rs.10,73,87,000/- (Indian Rupees Ten Crore Seventy Three Lakh Eighty Seven 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
World Bank Projects, Odisha

For Backbone-Utkal JV

Authorized Signatory
Backbone-Utkal JV
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Projects
The P.O. (C), Odisha - 751001

LETTER of BID & ADDENDA

Bid Submission Sheet

(Agreed & Modified as per the evaluated bid)

Date: .26.09.2015

ICB No.: OSRP-CW-CBP04A1

Invitation for Bid No.: PMU/ WB/114/2015-32819/07.08.2015

To:
 Chief Engineer,
 World Bank Projects, Odisha
 O/o the E.I.C.(Civil), Odisha,
 Nirman Soudh, Unit- V,
 Keshari Nagar, Bhubaneswar, Odisha
 India
 Tel No: 91-674-2396783
 Fax No: 91-674-2390080
 E-mail: pmuosrp@gmail.com

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 Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance Works)”**
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is:
Rupees 107,38,63,577/- (Rupees One Hundred Seven Crore Thirty Eight Lakh Sixty Three Thousand Five Hundred Seventy Seven Only)
- (d) The discounts offered and the methodology for their application are:-
 NIL
- (e) Our bid shall be valid for a period of 27/01/2016 (120 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;
- (f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;

For Backbone-Utkal JV
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Nirman Soudh, Odisha, BBSR

- (g) We, including any subcontractors or suppliers for any part of the contract, have or will have nationalities from eligible countries, in accordance with ITB 4.2;
- (h) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3;
- (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 ITB 13;
- (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, but meet the requirements of ITB-4.5;6
- (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

(If none has been paid or is to be paid, indicate "none".)

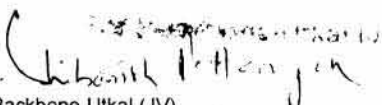
- (m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (n) We understand that you are not bound to accept the lowest evaluated bid 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: **S N Srivastava in the capacity of Power of Attorney Holder**

Signed: Sd/- (S N Srivastava)

**Duly authorised to sign the bid for and on behalf of
BACKBONE-UTKAL (JV)**

Dated on 26th Day of September 2015


Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
World Bank Project
On the 3rd Floor, Odisha, BBSR

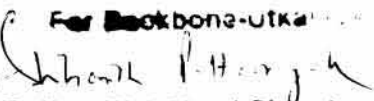
Appendix to Bid

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: 0.150
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.	144.9 Aug'15	-do-	b: 0.030
c	Cement	Whole sale price index for Cement as published by the office the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.	171.3 Aug'15	do	c: 0.128
d	Bitumen (VG-30)	Official retail price of bulk bitumen at IOC depot at Haldia	31043.00 per MT 29.08.2015	do	d: 0.114
e	Labour	Minimum Wage notified by the Labour and Employee's State Insurance Department of Government of Odisha, India	200.00 per Day 29.08.2015	do	e: 0.150
f	POL	Official retail price of HSD at IOCL/ HPCL/ BPCL Consumer pump depot at Jagatpur/ Cuttack, Odisha.	47.78 per Ltr 29.08.2015	do	f: 0.154
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.	176.5 Aug'15	do	g: 0.274
Total					1.00

For Backbone-Utka

 Authorized Signatory
 Backbone-Utka
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Projects,
 Odisha
 On the 29th day of August 2015

Reference for Base Index of Steel



Office of the Economic Adviser
Govt. of India, Ministry of Commerce & Industry
Department of Industrial Policy & Promotion (DIPP)



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Wholesale Price Index (WPI)

- Monthly Wholesale Price Index
- Name of Commodity : Steel Rods
- Type : Individual Commodity
- Weight : 0.06939
- Base Year : 2004-05 = 100

Month/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	161.1	154.9	155.3	153.8	153.7	152.2	149.8	144.9	147.4	147.4	145.1	

1. Figure 9999.9 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 Backbone-Utkal
 Shikhar P. H. Sengupta
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

Reference for Base Index of Cement



Office of the Economic Adviser
Govt. of India, Ministry of Commerce & Industry
Department of Industrial Policy & Promotion (DIPP)



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Wholesale Price Index (WPI)

- Monthly Wholesale Price Index
- Name of Commodity : Grey Cement
- Type : Individual Commodity
- Weight : 1.26347
- Base Year : 2004-05 = 100

Month/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	171.7	174.2	178.3	175.5	172.2	173.7	169.9	171.3	174.3	173.4	173.5	

1. Figure 9999.9 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 more details visit
 Chitwanil Pathak
 Backbone-Utkal (IV)
 (Contractor)

Chief Engineer,
 World Bank Projects, Odisha
 (Employee)
 Chief Engineer
 World Bank Project
 On the F.I.C.I., Odisha, BBSR

Reference for Base Index of Bitumen

Indian Oil Corporation Limited

A/2, Chandasekharpur, Bhubaneswar-751024

E Mail: swekruti@indianoil.in

Ref: OSO/CS/BBSR/ PRICING



IndianOil

Date: 16.08.2015

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 60/70 (VG-30)	BULK 30/40 (VG-40)	PACKE D 80/100 (VG-10)	PACKE D 60/70 (VG-30)	PACKE D 30/40 (VG-40)	EMULSIO N RS	CRMB-50	CRMB-55	CRMB- 60
01.01.15	37143.00	37943.00	39953.00	40243.00	41043.00	43053.00	30363.00	38743.00	39033.00	39123.00
01.02.15	33143.00	33943.00	35383.00	36243.00	37043.00	38483.00	27333.00	35063.00	35433.00	35603.00
16.02.15	29773.00	30573.00	31513.00	32873.00	33673.00	34613.00	25033.00	31963.00	32493.00	32633.00
01.03.15	29773.00	30573.00	31563.00	32873.00	33673.00	34663.00	25163.00	31963.00	32403.00	32633.00
16.03.15	29443.00	30243.00	31173.00	32543.00	33343.00	34273.00	24943.00	31663.00	32103.00	32343.00
01.04.15	29743.00	30543.00	31513.00	32843.00	33643.00	34613.00	25123.00	31933.00	32373.00	32603.00
16.04.15	30253.00	31053.00	32093.00	34153.00	34953.00	35993.00	25473.00	32403.00	32833.00	33053.00
01.05.15	31013.00	31813.00	32963.00	34913.00	35713.00	36863.00	26023.00	33103.00	33513.00	33723.00
16.05.15	31553.00	32353.00	33583.00	35453.00	36253.00	37483.00	26383.00	33603.00	34003.00	34203.00
01.06.15	31553.00	32353.00	33583.00	35453.00	36253.00	37483.00	26383.00	33603.00	34003.00	34203.00
16.06.15	31923.00	32723.00	34003.00	35823.00	36623.00	37903.00	26783.00	33943.00	34333.00	34523.00
01.07.15	32093.00	32893.00	34203.00	35993.00	36793.00	38103.00	26833.00	34103.00	34483.00	34673.00
16.07.15	31873.00	32673.00	33943.00	35773.00	36573.00	37843.00	26683.00	33893.00	34293.00	34483.00
01.08.15	30963.00	31763.00	33033.00	34863.00	35663.00	36933.00	26063.00	33053.00	33473.00	33673.00
16.08.15	30243.00	31043.00	32203.00	34143.00	34943.00	36103.00	25403.00	32393.00	32823.00	33043.00
DECREASE	720.00	720.00	830.00	720.00	720.00	830.00	660.00	660.00	650.00	630.00

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

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

For Backbone-Utkal
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
On the F.O.C.I, Odisha, BBSR

The Odisha Gazette

EXTRAORDINARY
PUBLISHED BY AUTHORITY

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

LABOUR & E.S.I. DEPARTMENT

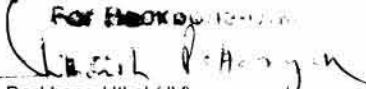
NOTIFICATION


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;

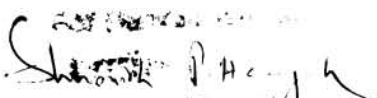
Now, therefore, in exercise of the powers conferred by clause(b) of sub-section (1) of Section 3 readwith Section 4 and sub-section (2) of Section 5 of the said Act and in supersession of all previous notifications issued in this regard, the State Government do hereby revise the minimum rates of wages 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 Honorable

Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
Employment
World Bank Project
On the F.I.C.(C), Odisha, BBSR

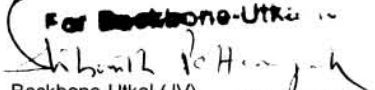
SCHEDULE


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..		


 Backbone, Udaipur
 (Contractor)

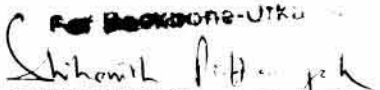

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 On the F.I.C.G. Odisha, BBSR


(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 Backbone-Utkal

 Backbone-Utkal (JV)
 (Contract) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the F.I.C.(C), Odisha, BBSR

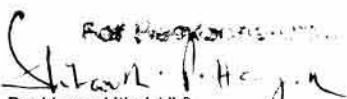
(1)	(2)	(3)	(4)
43.	Local Authority		
44.	Manufacture of brush and brooms		
45.	Manufacture of Coke and Burning Coals		
46.	Manufacture of Cold drinks, Soda and other allied products.		
47.	Manufacture of Electrical Bulbs and all allied electrical equipments.		
48.	Manufacture of matches, fireworks and 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.		


For Backbone-Utkal

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer,
 World Bank Project
 O/o the F.I.C.(C), Odisha, BBSR

(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.	Sial leaf pluckers and Sal 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		


 Anand Kumar
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 On the F.I.C.(C), Odisha, BBSR

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.

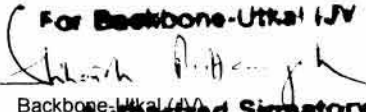
[No.6502-LL-I(AR)-1/15/LESI.]


By Order of the Governor

G. SRINMAS

Principal Secretary to Government

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

For Backbone-Utkal JV

 Authorized Signatory
 Backbone-Utkal JV
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the F.I.C.(C), Odisha, OSRP

Reference for Base Index of POL

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
 इंडियन ऑयल भवन, ओडिशा राज्य कार्यालय
 उपभोक्ता विक्रय कक्ष, तृतीय मंजिल
 प्लॉट नं- A/2, चन्द्रशेखरपुर, भुवनेश्वर-751024
 फोन: 0674-2745847/2745861, फैक्स: 2745835
Indian Oil Corporation Limited
Indian Oil Bhavan, Odisha State Office
Consumer Sales Department, 3rd Floor
 Plot No. A/2, Chandrasekharpur, Bhubaneswar - 751024
 Phone: 0674 - 2745847 / 2745861, Fax : 2745835



IndianOil
 A Maharatna
 Company

विक्रय प्रभाग
Marketing Division

Indian Oil Corporation Limited

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

Ref: OSO/CS/BBSR/ PRICING- DIESEL

Date: 28.08.2015

Condition type	Pricing DRC	Material	Valid to	Valid From	Amount	Unit of measure
RETAIL	JAGATPUR	HSD- 58000	15/08/15	31/08/15	47.78	L

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 भारतीय ऑयल कॉर्पोरेशन लिमिटेड (बी.ओ.आई.)
 भारतीय ऑयल भवन, ओडिशा राज्य कार्यालय
 उपभोक्ता विक्रय कक्ष, तृतीय मंजिल
 प्लॉट नं- A/2, चन्द्रशेखरपुर, भुवनेश्वर-751024
 फोन: 0674-2745847/2745861, फैक्स: 2745835
 भारतीय ऑयल लिमिटेड, इंडिया
 भारतीय ऑयल लिमिटेड, इंडिया
 भारतीय ऑयल लिमिटेड, इंडिया

पंजीकृत कार्यालय: जी-9, अली यादव जंग मार्ग, बान्द्रा, (पूर्व) मुम्बई-400051(भारत)
 Regd. Office: G-9, All Yavar Jung Marg, Bandra, (East), Mumbai - 400051 (India)
 L23201MH1959G01011388

For Backbone-Utkal JV
[Handwritten signature]
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

[Handwritten signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief (Employer)
 World Bank Project
 On the F.I.C.(C), Odisha, BBSR

Reference for Base Index of All Commodities



Office of the Economic Adviser
Govt. of India, Ministry of Commerce & Industry
Department of Industrial Policy & Promotion (DIPP)



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- Eight Core Industries (ICI)
- Key Economic Indicators
- Discussion Papers
- Handbook of Industrial Policy and Statistics
- RTI
- Tenders
- Recruitment
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Wholesale Price Index (WPI)

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

Month/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	177.3	175.6	176.1	176.4	178	179.1	177.6	176.5	176.5	176.7	177.6	

1. Figure 9999.9 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 REVISIONS...
Backbone-UKA (A)zed Shri...
(Contractor)

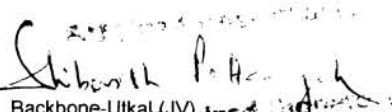
Chief Engineer,
World Bank Project, Odisha
World Bank (Employer)
On the F.I.C.I.C., Odisha, BBSR

Table C. Summary of Payment Currencies

Table: Alternative A

For "(Construction for Widening & Strengthening of existing carriageway to 2-lane road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance Works))"

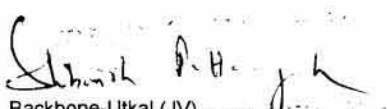
Name of payment currency	A Amount of currency	B Rate of exchange (local currency per unit of foreign)	C Local currency equivalent $C = A \times B$	D Percentage of Net Bid Price (NBP) $\frac{100 \times C}{NBP}$
Local currency INR	100.00	1.00	100	$100 \times 100 / 100 = 100$ INR
Foreign currency #1				Not Applicable
Foreign currency #2				NA
Foreign currency #				NA
Net Bid Price				107,38,63,577.00
Provisional sums expressed in local currency	NIL			NIL
BID PRICE				107,38,63,577.00


 Subir K. Patra
 Backbone-Utkal W. Infra. Co. Pvt. Ltd.
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 On the F.I.C.I.C., Odisha, BRS-2

Form ELI – 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	M/s Backbone-Utkal (JV)
In case of JV, legal name of each partner	Lead Partner: BACKBONE ENTERPRISES LIMITED Partner: UMSL LTD
Bidder's country of constitution	India
Bidder's year of constitution	2015
Bidder's legal address in country of constitution	M/s Backbone-Utkal (JV) IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	Name: S.N.Srivastava Address: 209, Akik Tower, 2 nd Floor, Opp: Rajpath Club, S.G.Highway, Ahmedabad-380015 Telephone: +91-79-26871678/79, Fax: +91-79-40040710 E-mail: pankilshah@backboneworld.com , vijaymathur@backboneworld.com
Attached: 1) Joint Venture Agreement 2) Power of Attorney	


Shankar P. H. Singh
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
Employer
World Bank Project
On the F.I.C.(O), Odisha, Proj:

Excise Exemption Certificate

BACKBONE-UTKAL(JV)
Kalinga Bazar, Kapaleswar, Choudwar,
Cuttack-754071, Odisha,
Ph.No.+91-9437086502, +91-9437476502,+91-7894413788

Ref: Backbone-Utkal(JV)/WBP/15-16/01

Date: 24th Sept2015

ODISHA STATE ROADS PROJECT

**(Declaration regarding customs/excise duty exemption for materials to be purchased
Consumption on works**

(Bidder's Name and Address: - BACKBONEEL – UTKAL (JV), Kalinga Bazar, Kapaleswar, Choudwar,
Cuttack-754071)

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

Dear Sir,

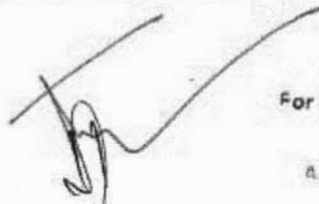
Ref: Widening & strengthening of existing carriageway to 2-lane road from Jagatpur- Nischintakoili
(Km. 0/0 to Km. 25/0 of MDR)(Balance Works) - Certificate for Import/Procurement of
Goods/Construction Equipment.

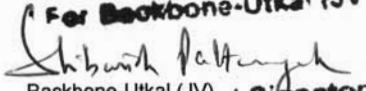
1. We confirm that we are solely responsible for obtaining customs/excise duty waivers which we have
considered in our bid and in case of failure to receive such waivers for reasons whatsoever, the
Employer will not compensate us.


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 along with all
subsequent amendments including the amendment dt.01-03-2008 and Customs Notification No.
85/99.

3. The goods for which certificates are required is as under:

Items	Make/ Brand Name /Class	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


For Backbone-Utkal (JV);
Authorized Signatory

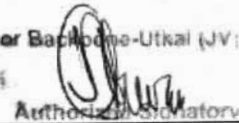
For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

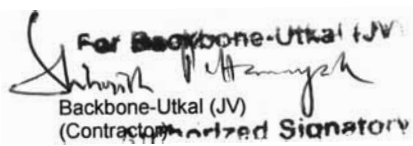
Goods						
[a] Bitumen (grade)	IOCL/HPCL/VG-30 / CRMB-55	VG-30 FOR DBM & CRMB-55 FOR BC	VG-30 = 1800 MT & CRMB-55 = 1000 MT	11.20 Cr.		DBM QTY. 15707 CUM @ 4.5 % WEIGHT OF MIX & BC QTY. 6985 CUM @ 5.5 % WEIGHT OF MIX
[b] Emulsion	IOCL/HPCL/M/S/RS/SS	PRIME COAT & TACK COAT	320 MT	1.12 Cr		PRIME COAT @ .60KG/SQM & TACK COAT 0.25 KG/SQM
[c] HSD	IOCL/HPCL/BPCL	ALL ACTIVITY OF CONSTRUCTION WORKS	31,000,00 LTR.	14.60 Cr		
[d] LDO	IOCL/HPCL/BPCL		4, 00,000 LTR.	1.80 Cr		
[e] Cement	OCL/LAFARG		4,80,000 BAG	13 Cr.		
[f] Steel	SAIL/RINL/TATA/JINDAL		760 MT.	3.05 Cr.		
[g] Others						
Metal beam crash barrier			9540 RM	2.2 Cr.		
Hume pipes in diff. Size as per BOQ	LOCAL as per ISO			1.6 Cr.		
Signage & thermoplastic compound as per BOQ	LOCAL as per ISO			1.0Cr.		
Hydraulic Excavator 60 cum/ Hr.			02 NOS	1.0Cr		
Motor Grader 200 Cum/Hr			2 NOS	2.5 Cr.		
Earth Compactor 8-10 T			2 NOS	0.50 Cr.		
Pneumatic Tyred Roller			1 NOS	0.47 Cr.		
Hot Mix Plant (Batch Mix only) - 100 TPH			1 NOS	2.5 Cr.		
Tipper (of different capacities)			40 NOS	10.00 Cr.		
WMM Plant 175 TPH			1 NOS	0.35 Cr.		



For Backbone-Utkal (JV):



Authorized Signatory

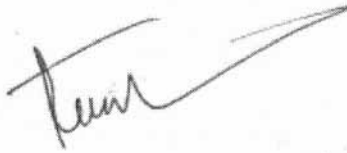
For Backbone-Utkal (JV):

 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory



 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

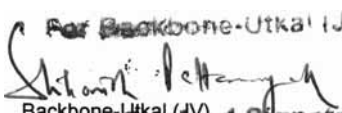
Concrete Fixed form paver 100 TPH			1 NOS	0.30 Cr.		
Mechanical Paver - 100 TPH			2 NOS	0.50 Cr.		
Total Station	SOKIA		1 NOS	0.07 Cr.		
Generator 500 KVA , 250 KVA & 125 KVA			EACH 2 NOS	1.3 Cr.		


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 reasonable by the Employer for the work, based on the Bill of Quantities and the construction programme and methodology as furnished by us along with the bid.
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.

DT.24.09.2015
Place: Bhubaneswar



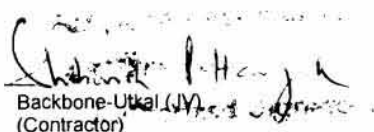
For Backbone-Utkal (JV)

Authorized Signatory

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
Chief (Employer)
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's Legal Name	UMSL Limited
In case of JV, legal name of each partner	Lead Partner: Backbone Enterprises Limited JV Partner: UMSL Limited
Bidder's Country of constitution	India
Bidder's Year of Constitution	1990-91
Bidder's Legal address in country of constitution	Kalinga Bazar, Kapaleswar, Choudwar, Cuttack, Odisha
Tender's authorized representative (Name, Address, Telephone Numbers, Fax Numbers, E-Mail Address)	Name: Akhaya Kumar Dash Kalinga Bazar, Kapaleswar, Choudwar, Cuttack, Telephone: +91-9438700527, Mail : subasaich@umsl.in


Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
Chief Engineer,
World Bank Project
On the F.I.C.(C), Odisha, BBSR

JOINT VENTURE AGREEMENT



ગુજરાત ગુજરાત GUJARAT

AN 627184
BACKBONE ENTERPRISES LTD.
 209, Akik Tower, 2nd Floor,
 Opp. Rajpath Club,
 S G Highway, Bodakdev,
 AHMEDABAD-380015.
 Phone : +91-79-26871678-79
 Fax : +91-79-4004 0710

ક્રમ: ૪૩૭ રૂ.
 તારીખ: મહં ૨૦૧૫
 તામ: 16 SEP 2015
 સહી:

કે. જી. શેતરીયા
 શ. નં. એસ.બી. ૪૨૮. ૪૨૯/૧૦૦૯
 કે. જી. શેતરીયા, મેઘનગર, અમદાવાદ ના સંબંધે
 કરાયેલું છે.

NOTARY
K. B. VASHELA
 AHMEDABAD DIST.
 GUJARAT STATE
 (REGD. DIST. OFF.)
 AHMEDABAD
 380001

SERIAL No.: ૨૭૧૨ 2015

FORM OF JOINT VENTURE AGREEMENT/CONSORTIUM

NOTARY

BETWEEN M/s. BACKBONE ENTERPRISES LIMITED and M/s UMSL LTD. For ICB No. OSRP-CW- ICB-P04A1 Invitation for Bid No. PMU/WB/114/2015-32819/07.08.2015 of PWD, Orissa under Orissa State Road Project.

The Joint Venture Agreement executed on this day 23rd of September, 2015 between M/s. BACKBONE ENTERPRISES LIMITED, a company under the Laws of Company Act, 1956 and having its registered office at M-43, Gujarat Housing Board, Kalavad Road, Rajkot - 360001, and Corporate Office at 209, Akik Tower, Opp. Rajpath Club, S.G. Highway, Bodakdev, Ahmedabad-380015 (herein after called the LEAD PARTNER, which expression shall include its successors, Executors and permitted Assigns) AND M/s UMSL LTD. a company having its registered office at Kalinga Bazar, Kapaleswar, Choudwar, Cuttack-754071 (herein after called as PARTNER, which expression shall include its successors, Executors and permitted Assigns) for the purpose of making a Bid



For Backbone-Utkal
 Subir K. Pattanayak
 Backbone-Utkal (JV)
 (Contract Authorized Signatory)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

and entering into a contract (in case of award) for "Civil Works for Widening & Strengthening of existing carriageway to 2-lane road from Jagatpur-Nischintakolli)(Km. 0/0 to Km. 25/0 of MDR)(Balance Works)" ICB No. OSRP-CW- ICB-P04A1 of PWD Odisha (herein after called as the EMPLOYER)



WHEREAS, the EMPLOYER invited Bids as per above mentioned tender Document for the "Widening & Strengthening of existing carriageway to 2-lane road from Jagatpur-Nischintakolli)(Km. 0/0 to Km. 25/0 of MDR)(Balance Works)"

WHERE in accordance with Instruction to Bidders - clause 4 "Eligible Bidders" of the Tender Specification. A Bidder may be a private entity or a government-owned entity - subject to ITB 4.5 - or any combination of such entities with the intent to enter into an agreement supported by a letter of intent or under an agreement in the form of a Joint Venture or consortium.

NOW THIS INDENTURE WITNESSETH AS UNDER

In consideration of the above premises and agreements all the partners to this Joint Venture do hereby now agree as follows:

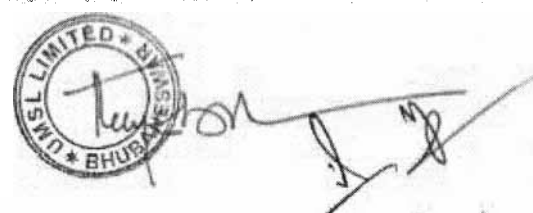
1. In consideration of the award of the Contract by the Employer to the Joint Venture / Consortium partners, we, the Partners to the Joint Venture Agreement do hereby agree that **M/s. BACKBONE ENTERPRISES LIMITED** shall act as **LEAD PARTNER** and further declare and confirm that we shall jointly be bound unto the Employer for the successful performance of the Contract and shall be fully responsible for the works in terms of quality, requirements and timeliness in performance in accordance with the Contract. Irrespective of joint responsibility, it is expressly understood that **LEAD PARTNER** will be present at the site of the works, through its authorized representative at all times and play lead role in mobilizing resources and execution of the contract. The **LEAD PARTNER** will incur liabilities and receive instructions for and on behalf of any or all partners of the Joint Venture and entire execution of the contract shall be done by the **LEAD PARTNER** and payment under the contract shall be received by the **LEAD PARTNER**. The precise responsibility of the members of the Joint Venture in respect of planning, quality, execution of the works are as under :

LEAD PARTNER : 51% (BACKBONE ENTERPRISES LIMITED)
PARTNER : 49% (UMSL LTD)

If in the determination of the Employer that the **LEAD PARTNER** is unable to fulfill its responsibility as above, the Employer shall be at liberty to terminate the contract which shall be binding on all partners of the Joint Venture.

2. In case of any breach of the said Contract by the **LEAD PARTNER** or other Partners of the Joint Venture Agreement, the Partner(s) do hereby agree to fully responsible for successful performance of the Contract and to carry out all the obligations and responsibilities under the Contract in accordance with the requirements of the Contract.

3. Further, if the Employer suffers any loss or damage on account of any breach in the Contract or any shortfall in meeting the performance guaranteed as per the works Contract, the Partner(s) of these presents undertake to promptly make good such loss or damages



For Backbone-Utkal
 [Signature]
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 Of the E.I.C.(C), Odisha, BBSR

caused to the Employer, on its demands without any demur. It shall not be necessary or obligatory for the Employer to proceed against LEAD PARTNER to these presents before proceeding against or dealing with other Partner(s).

4. The financial liability of the Partners of this Joint Venture agreement to the Employer, with respect to any of the claims arising out of the performance or non-performance of the obligations set forth in the said Joint Venture Agreement, read in conjunction with the relevant conditions of the Contract shall, however, not be limited in any way so as to restrict or limit the liabilities of any of the Partners of the Joint Venture agreement.

5. It is expressly understood and agreed between the Partners to this Joint Venture agreement that the responsibilities and obligations of each of the Partners has been delineated in clause no. 1 herein above to this agreement. It is further agreed by the Partners that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint responsibilities of the Partners under this Contract.

6. This Joint Venture Agreement shall be construed and interpreted in accordance with the laws of India, courts of CUTTACK ODISHA shall have the exclusive jurisdiction in all matters arising there under.

7. It is further agreed that the Joint Venture agreement shall be irrevocable and shall form an integral part of the contract, and shall continue to be enforceable till the Employer discharges the same. It shall be effective from the date first mentioned above for all purposes and intents.

IN WITNESS WHEREOF, the Partners to the Joint Venture Agreement have through their Authorized Representatives executed these presents and affixed Common Seals of their companies, on the day, month and year first mentioned above.

**LEAD PARTNER
FOR, BACKBONE ENTERPRISES LIMITED**

**PARTNER
FOR, UMSL LIMITED**



**SN SRIVASTAVA
AUTHORISED SIGNATORY & Vice
President (Operations)**




**ARSHAYA KUMAR DASH
AUTHORISED SIGNATORY & Sr. Vice
President**

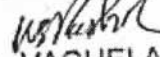


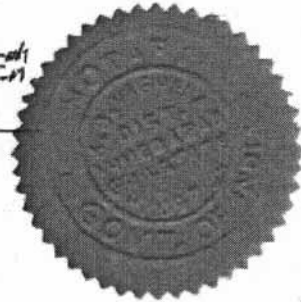
Name and Signature of Witnesses:

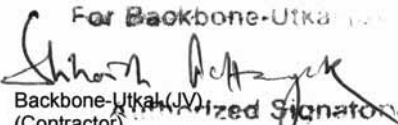
1.  (ALPESH JASKAR)



SIGNED BEFORE ME


**K. B. VAGHELA
NOTARY
GOVT OF INDIA
23/5/15**



For Backbone-Utkal

Backbone-Utkal (Contractor) Authorized Signatory

Chi
World Bank Project s. O' isha
Chief Engineer (Emp)
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

M/s. Backbone Enterprises Limited, and M/s. UMSL LTD (collectively the "Joint Venture") being Members of the Joint Venture are interested in bidding for the Project in accordance with the terms and conditions of the BID documents including agreement in respect of the Project, and



Whereas, it is necessary for the Members of the Joint Venture to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's BID for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, M/s. Backbone Enterprises Limited having our registered office at Backbone House, M-43 Gujarat Housing Board, Kalawad Road, Rajkot-360001 and Corporate Office at 209, Akik Tower, S.G. Highway, Bodakdev, Ahmedabad - 380015, and M/s. UMSL LTD having our registered office at Kalinga Bazar, Kapaleswar, Choudwar, Cuttack-754071, (hereinafter collectively referred to as the "Principals") do hereby irrevocably designate, nominate, constitute, appoint and authorize M/s. Backbone Enterprises Limited having our registered office at Backbone House, M-43 Gujarat Housing Board, Kalawad Road, Rajkot-360001 and Corporate Office at 209, Akik Tower, S.G. Highway, Bodakdev, Ahmedabad - 380015, being one of the Members of the Joint Venture, as the Lead Member and true and lawful attorney of the joint Venture (hereinafter referred to as the "Attorney"). We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Joint Venture and any one of us during the bidding process and, in the event the Joint Venture is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Joint Venture, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the joint Venture and submission of its BID for the Project, including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in pre BID and other conferences, respond to queries, submit information/documents, sign and execute contracts and undertakings consequent to acceptance of the BID of the Joint Venture and generally to represent the Joint Venture in all its dealings with the Authority, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Joint Venture's BID for the in all respect and/ or upon award thereof till the Contract is entered into with the Authority & completed.



For Backbone-Utkal JV
 Sh. ...
 Backbone-Utkal (JV)
 (Contract) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

AND 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/ Joint Venture.

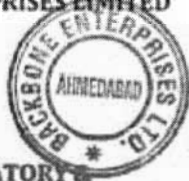


WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS 23rd DAY OF SEPTEMBER 2015.

For and on behalf of
LEAD MEMBER BY
BACKBONE ENTERPRISES LIMITED

For and on behalf of
SECOND PART
UMSL LTD

S N Srivastava
S N SRIVASTAVA
AUTHORISED SIGNATORY &
VICE PRESIDENT (OPERATIONS)



Ashaya Kumar Dash
ASHAYA KUMAR DASH
AUTHORISED SIGNATORY
& SR. VICE PRESIDENT

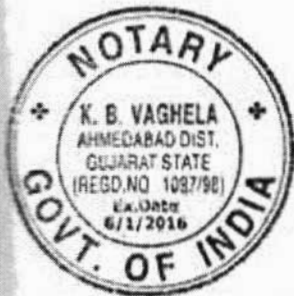


In the presence of:

- Alpesh Jaskar*
(ALPESH JASKAR)
- _____

ACCEPTED BY ME
For BACKBONE ENTERPRISES LIMITED

S N Srivastava
S N SRIVASTAVA
AUTHORISED SIGNATORY &
VICE PRESIDENT (OPERATIONS)



SIGNED BEFORE ME
K. B. Vaghela
K. B. VAGHELA
NOTARY
GOVT. OF INDIA
23/09/15



For Backbone-Utkal JV
Shibanshu Pattanayak
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

[Signature]
Chief Engineer,
World Bank Projects, Odisha
Chief Engineer (Employer)
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

CONTRACTOR'S LICENCE


NOTE

- The contractor shall be liable for the prescribed fee to be paid by means of a challan in favour of the Registering Authority under head '550-Public Works-Other Receipts-Services' fee and the copy of the original copy of the challan has to be attached to the application in Form-C.
- Failure to apply for renewal in due time will render the Contractor liable to a penalty under Rule-10 equal to the prescribed fee for the first three months of default or part thereof. Thereafter the amount of penalty will be equal to the renewal fee for every month of default.
- To apply for renewal means to apply in the prescribed Form-A Application without list of works executed, valid licence and renewal fee as prescribed for each class of contractor under Rule 14 will not be treated as a valid application and render the Contractor liable for penalty.
- Valid Valid Tender Certificate for Renewal to be attached in Form-G duly certified by the concerned authority.
- Attended true copies of up-to-date Income Tax and Sales Tax clearance certificate of appropriate authority to be attached to the renewal application and original copies to be produced to the Registering Authority at the time of renewal.
- Employment certificate of the required number of technical personnel employed and the declaration of the Contractor regarding such employment has to be submitted with the application for renewal as per Rule 7A.


REGISTRATION NO. 277 of 201-0


AAACU22275

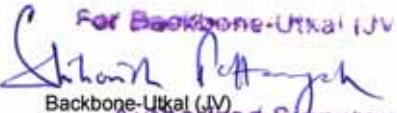
ORISSA STATE



Permanent Address of the Contractor
UMSL Limited,
 Name: Utkal Manufacturing
and Services Limited.
 At: IMEA Building, Bomikhal,
 P.O.: Rasulgarh, Bhubaneswar.
 Va/PS: Sahidnagar
 Dis: Khurda.

For Backbone-Utkal JV
 Author: 



For Backbone-Utkal JV

 Backbone-Utkal JV
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 World Bank Project
 (Employer)
 Via the E.I.C.(C), Odisha, BBSR


FORM - B
CERTIFICATE OF REGISTRATION VIDE
RULE - 3 OF THE P.W.D. CONTRACTORS
REGISTRATION RULES, 1987.

OFFICE OF THE
ENGINEER-IN-CHIEF (CIVIL) ORISSA

Order No. 49997 Date 11-11-2011
 REGISTRATION NO. 277 OF 2011-12
 For No. A. Cent. 156 (Part 2) 2011. Utkal Manufacturing & Services Ltd.
Sri Akshaya Kumar Dash
Vice-President
 At IMEA Building, Bomikhil
 P.O. Kasulgarh, Bhubaneswar
 Dist. Khurda Agency
 registered as Super class contractor
 according to the revised classification prescribed
 under rule - 3 of the P.W.D. contractors registra-
 tion Rules, 1987.

The Committee of the Chief Engineers in their meeting held on dated 26.11.2014 approved the change of name of the Company from Utkal Manufacturing & Services Ltd. Super Class to UMSL Ltd. Super Class. The PAN, assets, liabilities, work credentials, machineries & good wills of business and status of the Company remains unchanged.

[Signature]
 Chairman of the Committee of C.Es
 & Engineer-in-Chief (Civil), Odisha
 CHAIRMAN OF THE COMMITTEE OF C.Es
 & ENGINEER-IN-CHIEF (CIVIL) ODISHA.



For Backbone-Utkal (JV)
[Signature]
 Authorized Signatory

For Backbone-Utkal (JV)
[Signature]
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

The Company has deposited Rs. 10,00,000.00 (Rupees Ten Lacs only) in shape of Post Office Time Deposit/Post Office Savings Bank under Rule - 7 of the P.W.D. Contractors Registration Rules as amended in Works Department Memorandum No. 15337 dated 22.07.06 & No. 1541 dt. 1.8.06.

Signature of Sh. Anshu Kumar President of UMSL Ltd.

Signature of Sh. Anshu Kumar President of UMSL Ltd.

5. He is to deposit earnest money and initial security deposit while tendering or taking up works as laid down under the Rules.

6. This Registration Certificate is valid for a period of three years ending 31.03.2014.
Validity first March Two thousand fourteen and he shall have to apply for renewal to the Registering Authority not less than one month before the expiry date of this certificate duly depositing the renewal fees and submitting necessary particulars as required under Rules.


7. The Special class R.C issued vide this office order No. 53082 dt. 3.12.2010 is hereby cancelled accordingly.

Chairman of the Committee of C.Es & Engineers-in-Charge of the Registering Authority

Chairman of the Committee of C.Es & Engineers-in-Charge of the Registering Authority

*In words (A) (B)

For Backbone-Utkal (JV) Authorized Signatory



For Backbone-Utkal (JV)
Shankar Pattanayak
 Backbone-Utkal (JV)
 (Contractor) **Authorized Signatory**

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Projects
 O/o the E.I.C.(C), Odisha, BBSR

POA LETTER OF MR. S.PATTANAYAK



Ref:- Backbone-Utkal (JV) / JIN-WB/OSRP/15-16/00s

Dt.: 31/12/2015

To

THE CHIEF ENGINEER,
World Bank Projects, Odisha, Bhubaneswar

Sub:- Widening & Strengthening of existing carriageway to 2-Lane Road Jagatpur to Nischintakoili (Km. 0+000 to Km. 25+000)

Dear sir,

We had issued POA in the favour of Mr. S.N. Srivastava for signing of agreement at the time of tendering for the work " Widening & Strengthening of existing carriageway to 2-Lane Road Jagatpur to Nischintakoili (Km. 0+000 to Km. 25+000)" vide LOA No. LOA No-PMU-WB-114/2015-48111, Dated 27.11.2015.

With the changing circumstances, now we are authorizing Mr. Shibaish Pattanayak to sign the agreement & execution of the project on our behalf. The power of attorney is enclosed for your kind reference.

Thanking You,

For Backbone Enterprises Ltd

Yours Faithfully,

Kishor
Kishor Virangama
(Managing Director)

Regd. Office: BACKBONE HOUSE, 4-3/3, Jagatpur, S. Road, Navapada, Bhubaneswar, Odisha-751005
Phone: +91-674-254280
Fax: +91-674-254280
E-mail: info@backboneworld.com

BACKBONE ENTERPRISES LIMITED

Corporate Office: 209, ARK TOWER, 2nd FLOOR, OPP. RAJPATH CLUS, BODANDEY, 66 HIGHWAY, AHMEDABAD-380 015
GUJARAT, INDIA. PHONE: +91-79-26871878 / 79 FAX: +91-79-40040710
E-MAIL: info@backboneworld.com WEB: www.backboneindia.com

For Backbone-Utkal
Shibaish Pattanayak
Backbone-Utkal (J
(Contractor)
Signatory

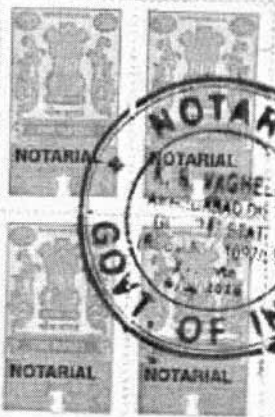
[Signature]
Chief Engineer
World Bank Projects, Odisha
World Bank Project
(Employer)
O/o the E.T.C.O.

SPECIAL POWER OF ATTORNEY



गुजरात गुजरात GUJARAT

AP 015171



नमर: 9 मंग २५
तारीख: २०१५
दिनांक: 20 NOV 2015
के. ए. वाघेली
एल. नं. असे.पी. ४२. ४२/१०००
पोस्ट, अहमदाबाद, गुजरात, भारत

BACKBONE ENTERPRISES LTD.
209, Akik Tower, 2nd Floor,
Opp. Rajpath Club,
S. G. Highway, Bodakdev,
AHMEDABAD-380015.
Phone : +91-79-26871678 79
Fax : +91-79-4004 0710

SERIAL No.: 211/19 2015

NOTARY

SPECIAL POWER OF ATTORNEY

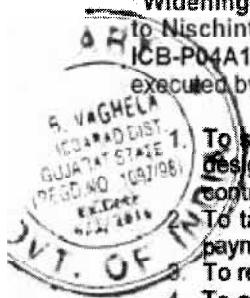
KNOW ALL MEN BY THESE PRESENTS THAT WE, Backbone Enterprises Ltd. having its Registered Office at Backbone House, M-43 Gujarat Housing Board, Kalawad Road, Rajkot-360001 & Corporate office at 209, AKIK Tower, 2nd Floor, Opp. Rajpath Club, Bodakdev, S. G. Highway, Ahmedabad-380015, (hereinafter called "Backbone") and UMSL Limited having its registered office at Door No. 50-40-19, 2nd Floor, TPT Colony, Visakhapatnam-530013 and corporate office at IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010 & office at Kalinga Bazar, Kapaleswar, Choudwar, Cuttack-754071 (hereinafter called "Utkal") registered under the Companies Act, 1956, the members have formed a Joint Venture in the name of Backbone-Utkal (JV) and having its office at Kalinga Bazar, Kapaleswar, Choudwar, Cuttack-754071, Orissa (hereinafter



For Backbone-Utkal JV
Authorized Signatory
Backbone-Utkal (JV)
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

called the "JV") do hereby constitute, nominate and appoint Mr. Shibasish Pattanayak, aged 48 years, son of Mr. Prafulla Kumar Pattanayak and presently residing at Plot No.266, Paika Nagar, Unit-8, Bhubaneswar-751003 to do the following and represent us before the authority on behalf Backbone - Utkal (JV) against BID for the work "Widening & Strengthening of existing carriageway to 2-lane Road from Jagatpur to Nischintakoili(Km.0/0 to Km.25/00 of MDR)(Balance works)" ICB No.OSRP-CW-ICB-P04A1 and LOA No PMU-WB-114/2015-48111 dt.27.11.2015 project to be executed by Chief Engineer, World Bank Projects, Odisha:



- 1. To sign and accept the field levels of roads, level books, laboratory test results, design and drawings, measurement books, receipts, bills etc as per provision of contract ;
- 2. To take and accept measurements, R.A. bills, final bills, deviations and receive payments of Backbone-Utkal (JV);
- 3. To receive and make correspondence with the department for the work.
- 4. To attend to all legal matters including labour, revenue, Public Health, Electrical, Telephone and forest departments;
- 5. To do all other acts, deeds and things wherever necessary for execution of the work efficiently and diligently(except financial matters) ;
- 6. To authorize persons by delegating the authority through an authorization letter to do all acts and deeds required for the execution of work and successful implementation of the contract.

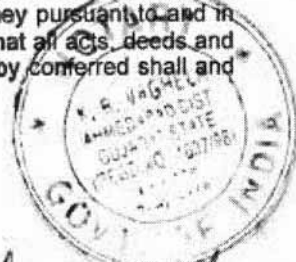
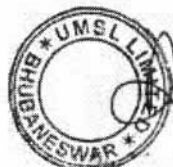
WHEREAS this Power of Attorney does not permit the Attorney to sign and execute any such documents/ financial instruments and/ or borrow/ purchase money or material which will generate financial liabilities on JV and members of the JV.

WHEREAS this Power of Attorney will automatically stand terminated immediately on termination of his services from Utkal and/or completion of project and/or by written notice of termination of this Power of Attorney and/or on violating any of the terms narrated above, whichever is earlier.

WHEREAS any litigation arising out of this Power of Attorney would be under Jurisdiction of competent courts in Ahmedabad only.

The attorney is responsible to submit all the documents, correspondence with client along with present status of work in particular month and work program for next month to Backbone - Utkal (JV), and each partner of JV separately till 15 day of next month till completion of work.

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 Backbone-Utkal (JV):
Shibasish Pattanayak
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

IN WITNESS WHEREOF we, the members of Backbone-Utkal (JV) have executed this power of attorney on this 21st day of December, 2015.

I accept the above.

Shibansh Pattanayak
 (SHIBASISH PATTANAYAK)
 PAN No: AJJPP5511B

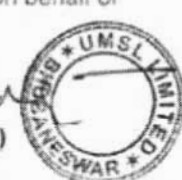
Signed and sealed for and on behalf of
 Backbone Enterprises Ltd

Kishor Viramgama
 (KISHOR VIRAMGAMA)
 MANAGING DIRECTOR
 DIN NO. 00087381
 PAN NO. AAWPV4482D



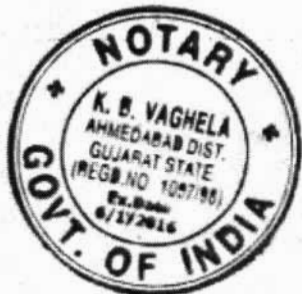
Signed and sealed for and on behalf of
 UMSL Limited.

Paramita Mahapatra
 (PARAMITA MAHAPATRA)
 MANAGING DIRECTOR
 DIN NO. 00143058
 PAN No: ADDPM0917A




WITNESS :

1. Dhaval Mistry *Dhaval Mistry*
 209, Atria Tower, S.G. Highway, Bodaldev, Ahmedabad
2. Subash Ch. Mishra *Subash Ch. Mishra*
 Plot No. 604, Rajulgarh
 Bhubaneswar-75



SIGNED BEFORE ME *K. B. Vaghela*
 K. B. VAGHELA
 NOTARY
 GOVT OF INDIA
 21/12/15

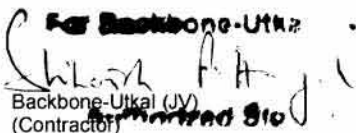


For Backbone-Utkal (JV)
Shibansh Pattanayak
 Backbone-Utkal (JV)
 Authorized Signatory
 (Contractor)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Projects
 O/o the E.I.C.(C), Odisha, BBSR

ELI – 2: JV Information Sheet

JV Information	
Bidder's legal name	UMSL LIMITED
JV Partner's or Subcontractor's legal name	Backbone Enterprises Limited
JV Partner's or Subcontractor's country of constitution	India
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	Address: 209, Akik Tower, Opp: Rajpath Club, S.G.Highway, Ahmedabad, Telephone: +91-79-26871678/79, Fax: +91-79-40040710 E-mail: pankilshah@backboneworld.com , tender@backboneworld.com
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	Name: Address: 209, Akik Tower, Opp: Rajpath Club, S.G.Highway, Ahmedabad, Telephone: +91-79-26871678/79, Fax: +91-79-40040710 E-mail: pankilshah@backboneworld.com , tender@backboneworld.com

For Backbone-Utkal

 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 To the F.I.C.(C), Odisha, BBSR

Certificate of Incorporation



GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS
REGISTRAR OF COMPANIES, HYDERABAD

2nd Floor, CPWD Building, Kandhisa Bazar, Surchi Bazar, Kot, Hyderabad-500195, Telangana, INDIA

Certificate of Incorporation pursuant to change of name [Pursuant to rule 29 of the Companies (Incorporation) Rules, 2014]

Corporate Identification Number (CIN) : U27106AP1890PLC018790

I hereby certify that the name of the company has been changed from UTKAL MANUFACTURING & SERVICES LIMITED to UMSL LIMITED with effect from the date of this certificate and that the company is limited by shares.

Company was originally incorporated with the name UTKAL MANUFACTURING & SERVICES LIMITED

Given under my hand at Hyderabad this Twenty Eighth day of July Two Thousand Fourteen.

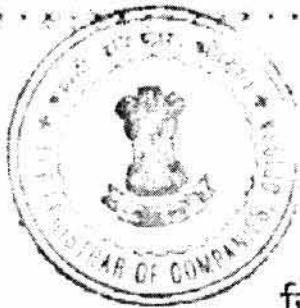
N. KRISHNAMURTHY
Registrar of Companies
Registrar of Companies
Hyderabad

Mailing Address as per record available in Registrar of Companies office

UMSL LIMITED
DOOR NO. 50-40-19, 2ND FLOOR, T.P.T. COLONY
VISA KHAPATNAM - 530013
Andhra Pradesh, INDIA

For Backbone-Utkal JV
Shankar P.H.
Backbone-Utkal (JV)
(Contractor) **Authorized Signatory**

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Jr the E.I.C.(C), Odisha, O&S



फॉर्म नं. 1
FORM 1B

निगमन का प्रमाण-पत्र
CERTIFICATE OF INCORPORATION

नाम का म. नं.
No. of 19

ने मसुदा द्वारा प्रमाणित करता हूँ कि ऊपर

कम्पनी अधिनियम, 1956 (1956 का -1) के अधीन निगमित की गई है और यह स्वयंसेवक प्रमाणित है।

I hereby certify that _____

is this day incorporated under the Companies Act, 1956 (No. 1 of 1956) and that the Company is Limited.

मेरे हस्ताक्षर से आज का _____ की दिनांक है।

Given under my hand at CUTTACK this _____

day of _____ One thousand nine hundred and _____



कम्पनी का रजिस्ट्रार
Registrar of Companies, Orissa

रजिस्ट्रार, ओरिसा
Registrar of Companies
(Orissa)

पं. एन. सी.-1
J.S.C.-1

Signature of Contractor
Backbone-Utkal (J.S.C.)
(Contractor)

Signature of Chief Engineer
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Jharkhand E.I.C.(C), Odisha, BBSR

कारबार प्रारम्भ करने के लिए प्रमाणपत्र
Certificate for Commencement of Business

कम्पनी अधिनियम, 1956 की धारा 149 (3) के अनुसार
 Pursuant of Section 149 (3) of the Companies Act, 1956

मैं हस्ताक्षर प्रमाणित करता हूँ कि

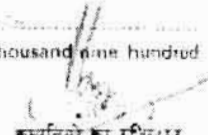
जो कम्पनी अधिनियम, 1956 के अन्तर्गत स्थापित दिनांक को
 की ओर किया आज विहित प्रत्येक शर्त में संतुष्ट हो के स्थापित घोषणा प्रमाणित कर रही है कि उक्त
 अधिनियम की धारा 149(1) (क) से लेकर (ख) तक 149(2) (क) से लेकर (ग) तक की धारा
 का अनुपालन किया गया है, कारबार प्रारम्भ करने की हकदार है।

I hereby certify that the

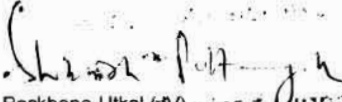
 which was incorporated under the Companies Act, 1956 on the
 day of 19.. and which has this day filed a duly verified
 declaration in this prescribed form that the conditions of section 149(1),
 (2) (a) to (c) of the said Act have been complied with is entitled to
 commence business


मैं हस्ताक्षर में यह आरोप
 में किया गया।

Given under my hand at
 this day of One thousand nine hundred
 and


 कम्पनियों का रजिस्ट्रार
 Registrar of Companies,
 अखिल भारतीय, कोलकाता।
 Registrar of Companies
 (Orissa)

अंक संख्या - 10
 J.S.C.-10

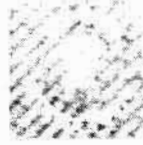

 Backbone-Utkal (P) Ltd.
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 at the P.O. Cuttack, Odisha, 753001

आयकर विभाग
INCOME TAX DEPARTMENT
UMSL LIMITED



भारत सरकार
GOVT. OF INDIA



07/11/1990

Permanent Account Number

AAACU2227J

08082014

इस कार्ड के खोने / पाने पर कृपया सूचित करें। लौटाएं
आयकर पैन सेवा इकाई, एनएसडीएल
5 वीं मंजिल, मंत्री स्टर्लिंग, प्लॉट नं. 341, सर्वे नं. 997/8,
मॉडल कॉलोनी, दीप बंगला चौक के पास,
पुणे - 411 016.

*If this card is lost / someone's lost card is found,
please inform / return to :*
Income Tax PAN Services Unit, NSDL
5th floor, Mantri Sterling,
Plot No. 341, Survey No. 997/8,
Model Colony, Near Deep Bungalow Chowk,
Pune - 411 016.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081
e-mail: tininfo@nsdl.co.in

For Backbone-Utkal
Shibansu Patra
Backbone Utkal (NSDL)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Jtu the E.I.C.(C), Odisha, BBSR



For Backbone-Utkal (JV)
[Signature]
 Backbone-Utkal (JV)
 Authorized Signatory
 (Contractor)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



Certified true copy of the resolution passed in the Board Meeting of the Company held on 31.03.2015.

"RESOLVED THAT Shri Akshaya Kumar Dash, Sr. Vice President of the Company be and is hereby authorized to do the following acts, deeds and things for and on behalf of the Company till 31st March, 2016:-

- (i) To sign, execute various agreements / documents on behalf of the Company with any individual, statutory bodies including Govt./ Semi-Govt. Authorities, Body Corporates, Board and Regulatory Authorities, if any.
- (ii) To initiate and defend all legal proceedings under any Law for the time being in force on behalf of the Company in any Court of law and/or Tribunal and/or Commission and/or Offices of the Government (both State and Central) in India.
- (iii) To sign, verify and file Petitions, Pleadings, Applications, Plaints, Written Statements, Objections, Appeal Memos, Applications/ Petitions of all kinds and to swear affidavit wherever necessary in connection with the legal matters and to do all other legal acts incidental thereto in any Courts of law/forum.
- (iv) To authorize the Officer(s) and / or employee(s) of the Company to adduce evidence and to engage or appoint advocate(s) / Legal Practitioner(s) to conduct the case(s) on behalf of the Company in any Court of Law in India."

"RESOLVED FURTHER THAT any of the Directors of the Company be and is hereby authorized to sign and issue certified true copy of the aforesaid resolution on behalf of the Company to various authorities and they be requested to act thereupon."

// Certified true copy //

for UMSL Limited.

(Signature)
(Paramita Mahapatra)

Managing Director

(Signature)

Signature of Akshaya Kumar Dash is attested.

(Signature)
(Paramita Mahapatra)

Managing Director



UMSL LTD.

CIN - U27195AP10009 Call Centre, Primary Unit Manufacturing & Services

(Signature)

(Signature)
Backbone-Utkal (JV)
Authorized Signatory
(Contractor)

(Signature)
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

BOARD RESOLUTION

CRC 144223G/2002PL/0440928

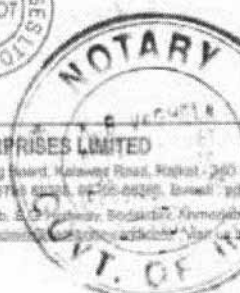
CERTIFIED TRUE COPY OF EXTRACTS OF MINUTES OF THE MEETING OF THE BOARD OF DIRECTORS OF M/S. BACKBONE ENTERPRISES LIMITED WHICH WAS HELD ON 20TH MARCH, 2015, AT 11.00 A.M. AT THE REGISTERED OFFICE OF THE COMPANY

Mr. Kishorkumar V. Virangama, Chairman & Managing Director of the Company and Chairman of the Meeting explained to the Board of Directors of the company about the necessity of giving a general authority to the Directors of the Company to deal with all the procedures related to all types of tendering and bidding activities and other incidental activities relating to it on behalf of the Company.

Board of Directors of the Company after taking into consideration the above matters passed the following resolution unanimously:

RESOLVED THAT any of the directors of the Company, the specimen signature of whom is as under, be and is hereby authorized to complete all the necessary procedures including signing, submission and execution of all kinds of documents which are required to be completed for various kinds of bidding and tendering operations on behalf of the Company and also authorized to delegate these powers and authorities to any person or persons to be attorney or attorneys of the Company at any time for such purposes subject to such conditions as he may think proper and fit for performing such activities."

Sr. No.	Name of the Directors	Designation	Signature
1	Mr. Kishorkumar V. Virangama	Managing Director	<i>[Signature]</i>
2	Mr. Bhupendrakumar T. Pachari	Whole Time Director	<i>[Signature]</i>
3	Mr. Bhovanbhai P. Rangani	Whole Time Director	<i>[Signature]</i>



BACKBONE ENTERPRISES LIMITED

REGISTERED OFFICE : 'BACKBONE HOUSE', M-43 Gujarat Housing Board, Malviya Road, Rajkot - 360 001 (Gujarat)
 India. Ph. : +91-281-2454278-79-80, Fax : +91-281-2454280, Mob. : 96789 82225, 96789 82226, E-mail : info@backboneworld.com
 CORPORATE OFFICE : 205, Aja Tower, 2nd Floor, Dept. Rajpath - 1st, S.C. Highway, Bodakpur, Ahmedabad - 380 015, Gujarat,
 India. Ph. : +91 79 20071019-20-60, Fax : +91 79 40040715, E-mail : accounts@backboneworld.com, www.backboneworld.com

[Signature]
 Backbone-UKA (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 O/o the E.I.C.(C), Odisha, BSR

BACKBONE
CIN: U45203GJ2002PLC040988


"RESOLVED FURTHER THAT any of the Directors of the Company be and is hereby authorized to sign and submit the certified true copy of the extracts of minutes before any authority, if required."

Date: 20.03.2015
Place: Rajkot

Certified true copy
For, Backbone Enterprises Limited

13 - 03 - 2015

(Bhovanbhai P. Rangani)
Whole Time Director
[DIN: 00169417]





TRUE COPY

K. B. VAGHELA
NOTARY
GOVT OF INDIA

BACKBONE ENTERPRISES LIMITED

REGISTERED OFFICE : 'BACKBONE HOUSE', M-43 Gujarat Housing Board, Kalsavad Road, Rajkot - 360 001 (Gujarat)
India. Ph.: +91-281-2454278-79-80. Fax: +91-281-2454280. Mob.: 98795 85388, 98795 88355. E-mail: admin.ho@backboneindia.com

CORPORATE OFFICE : 209, Akil Tower, 2nd Floor, Opp. Rajpath Club, S.G. Highway, Bopal, Ahmedabad-380 015, Gujarat,
India. Ph.: +91 79 26871678-79-80. Fax: +91 79 40040710. E-mail: admin@backboneindia.com. Visit us at: www.backboneworld.com

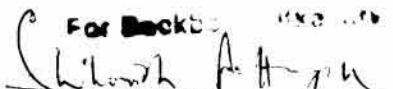




[Signature]
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

ELI - 2: JV Information Sheet

JV / Specialist Subcontractor Information	
Bidder's legal name	BACKBONE - UTKAL (JV)
JV Partner's or Subcontractor's legal name	BACKBONE ENTERPRISES LIMITED (Lead Member) UMSL Ltd (Other member)
JV Partner's or Subcontractor's country of constitution	India
JV Partner's or Subcontractor's year of constitution	2002 (Backbone Enterprises Ltd) 1990-91 (UMSL Limited)
JV Partner's or Subcontractor's legal address in country of constitution	Registered Office Backbone: Backbone House, M-43 Gujarat Housing Board, Kalawad Road, Rajkot-360001 Corporate Office: 209, Akik Tower, 2 nd Floor Opp: Rajpath Club, S.G.Highway, Bodakdev, Ahmedabad-380015 Registered Office UMSL: Door No. 5-040-19, 2 nd floor TPT Colony, Visakhapatnam, AP Corporate Officer: IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	Name: Mr. S N Srivastava (Backbone Enterprises Ltd) Address: 209, Akik Tower, 2 nd Floor Opp: Rajpath Club, S.G.Highway, Bodakdev, Ahmedabad-380015 Telephone: +91-79-26871678/79, Fax: +91-79-40040710 E-mail-address: pankilshah@backboneworld.com Name: Akshaya Kumar Dash (UMSL Ltd) Address: Kapaleswar, Kalinga Bazar, Choudwar, Cuttack Telephone: +91-9438700527, Mail: subasaich@umsl.in
Attached are copies of the following original documents.	
<ol style="list-style-type: none"> Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. Authorization to represent the firm named above, in accordance with ITB 20.2. In the case of government-owned entity, documents establishing legal and financial autonomy and Compliance with commercial law, in accordance with ITB 4.5. 	

For Backbone Utkal (JV)

 Backbone-Utkal (JV)
 (Contractor) Authorized Signator


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha, BSRP

Certificate Of Incorporation



SMERA RATING

This is to certify that M/s

Backbone Enterprises Limited

is in the business of

**Contractor of Construction, Infrastructure
& Development Projects**

and has been evaluated by SME Rating Agency of India Ltd. (SMERA)

We hereby assign the subject a SMERA Rating of

SMERA A3

Chairman and Managing Director

Mr. Kishorbhai V. Viramgama

[Signature]
 Authorised Signatory
 July 21, 2008



Disclaimer

SMERA Rating shall be read with the Rating Report on the subject issued by SMERA. Ratings are based on the judgement of SMERA, using a set of criteria developed for that purpose.
 All information contained in the SMERA Rating Report is obtained by SMERA from the rated subject and third party sources, and is believed to be accurate and reliable.
 SMERA does not assume any liability for errors, omissions or for the information of the Rating Report, or that such information is provided in it without any warranty of any kind and SMERA, in particular, makes no representation or warranty, explicit or implied, as to the accuracy, timeliness or completeness of any such information.
 In providing this Rating, SMERA does not undertake the role of any third party of that of the subject.

For Backbone Enterprises Limited
[Signature]
 Backbone, Utkal (JV)
 (Contractor) Authorised Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 On the F.I.C.(C), Odisha, BBSR

Certificate Of Registration

CERTIFICATE OF REGISTRATION



ISOQAR

This is to certify that the Management System of:

Backbone Enterprises Limited

Registered Office :

M – 43, Gujarat Housing Board, Kalavad Road, Rajkot – 360 001, Gujarat, India

has been approved by ISOQAR



5671 - 02

ISO 9001: 2008

Scope of Activities:

Project management of construction activities for all types of bituminous roads (flexible pavement), concrete road (rigid pavement) road-bridges, canal, pipe laying, cable laying and buildings (residential and commercial)

Certificate Number:	5671 - 02
Initial Registration Date:	17 October 2006
Re-issue Date:	31 August 2012
Expiry Date:	17 October 2015

Signed
(on behalf of ISOQAR)

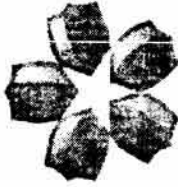
This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards' requirements may be obtained by consulting ISOQAR Ltd

ISOQAR Limited, Office 4040, 1 Blackhorse Road, Stretford, Manchester M32 8QY
T: +44 (0)161 501 3049 F: +44 (0)161 501 3685 E: enquiries@isoqar.com www.isoqar.com
Registered in the authority of ISOQAR employees retained at request.

Signature of Contractor
Backbone-Utkal (P) Ltd
(Contractor)

Signature of Employer
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
On the E.C.C.C, Odisha, BBSR

CERTIFICATE OF REGISTRATION



ISOQAR

This is to certify that the Management System of:

Backbone Enterprises Limited

Corporate Office :

209, Akik Tower, 2nd Floor, Opposite Rajpath Club, S. G. Highway ,
Bodakdev, Ahmedabad -380 054, Gujarat, India

has been approved by ISOQAR



5671 - 01

ISO 9001: 2008

Scope of Activities:

Project management of construction activities for all types of bituminous roads (flexible pavement), concrete road (rigid pavement) road-bridges, canal, pipe laying, cable laying and buildings (residential and commercial)

Certificate Number:	5671 - 01
Initial Registration Date:	17 October 2006
Re-issue Date:	31 August 2012
Expiry Date:	17 October 2015

Signed
(on behalf of ISOQAR)

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards requirements may be obtained by consulting ISOQAR Ltd.

ISOQAR Limited, Lovers Court, 1 Blackmore Road, Salford, Manchester M32 0QJ
T: +44 (0)161 865 3499 F: +44 (0)161 865 3685 E: enquiries@isoqar.com www.isoqar.com
(The certificate is the property of ISOQAR and must be returned on request)

For Backbone-Utkal JV
Shubam K. Patra
Backbone-Utkal (JV)
(Contractor) **Authorized Signatory**

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
On the E.C.C.C, Odisha, BSR.

PAN



वर्तमान स्थायी / PERMANENT ACCOUNT NUMBER
AABCB9255E

कंपनी / NAME
BACKBONE ENTERPRISES LIMITED

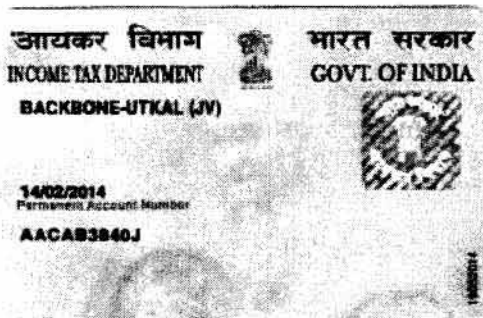
स्थापना/बनाने की तिथि / DATE OF INCORPORATION/INFORMATION

23-07-2002

[Handwritten Signature]

मुख्य आयकर अधिकारी, राजकोष

Chief Commissioner of Income-Tax, Rajko




For Backbone-Utkal JV
[Handwritten Signature]
Authorized Signatory
Backbone-Utkal JV
(Contractor)

[Handwritten Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
On the FICG, Odisha, BBSR

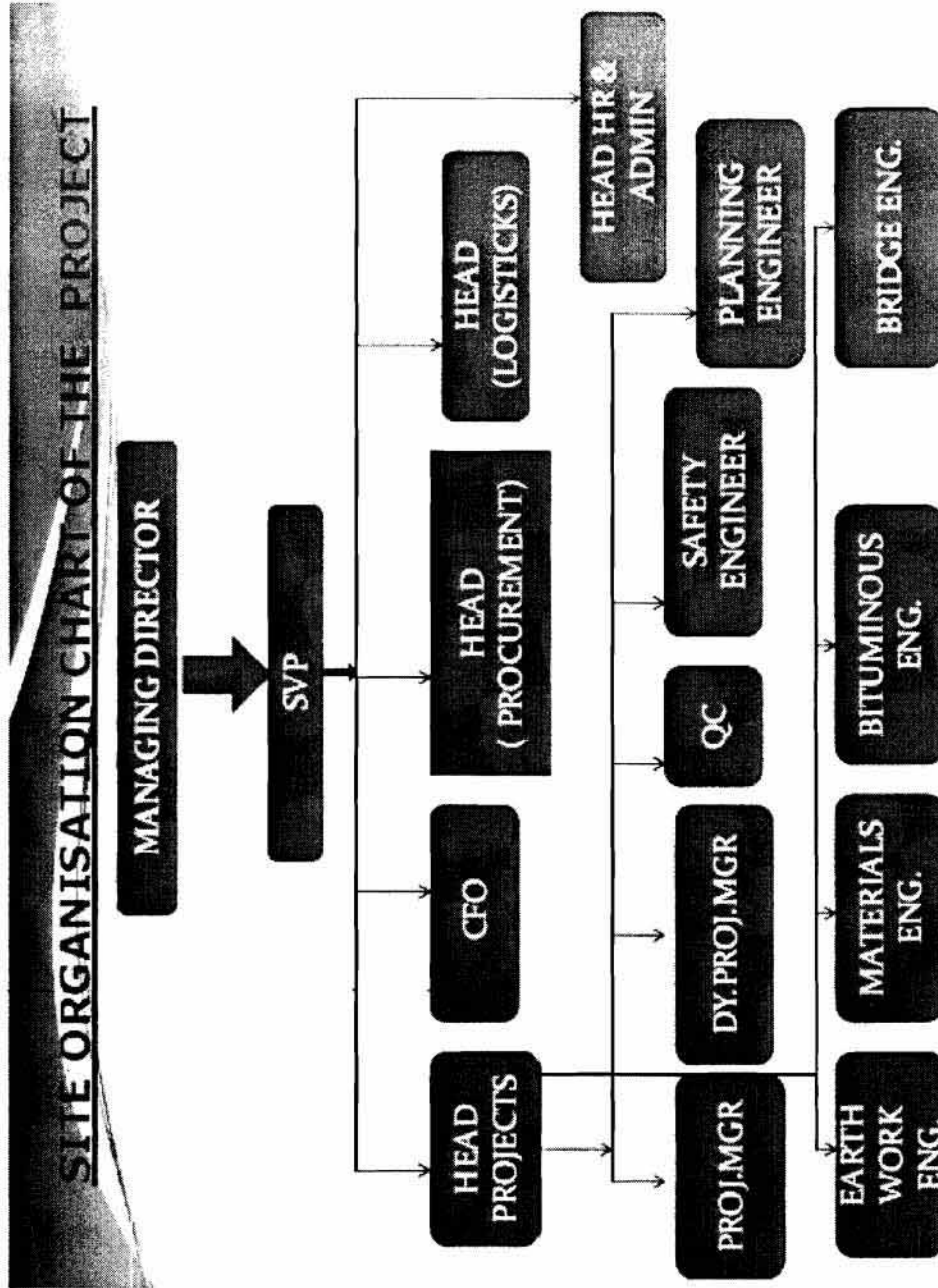
Technical Proposal

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


Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project,
On the E.I.C.(C), Odisha, BBSR

Site Organization



[Signature]
Backbone-Utkal (JV)
(Contractor)

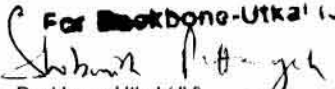
[Signature]
Chief Engineer,
World Bank Projects, Orisha
Chief (Employer)
World Bank Project
Orisha E.I.C.C., Orisha, 751001


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 Backbone-Utkal JV

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
On the F.I.C.I.C., Odisha, BBSR

Mobilization Schedule

BACKBONE - UTKAL (JV)

Name of the Work : Construction for Widening & Strengthening of Existing Carriageway to 2-lane Road from Jagaipali to Nischintal .

MOBILIZATION SCHEDULE

SL NO.	Item Description	Required Qty.	Month of Mobilization	
			From	To
1	Establishment of Project office		After 15th Days of Date of Commencement	End of the DLP
2	Establishment of Site Camp		After 15th Days of Date of Commencement	End of the Project
3	Establishment of Plant			
3 a	Crusher - 200 Tph	1 Nos	Already established at Chandkole	End of the Project
3 b	Batchm - Plant -75 Cum/Hr	1 Nos	After one month of Date of Commencement	End of the Project
3.c	WMM Plant -175 Tph	1 Nos	Before one month of Date of Commencement WMM Work as per work Program	End of the Project
3 d	Hot Mix Plant (Batch Type)-100 TPH	1 Nos	Before one month of Date of Commencement Bituminous Work as per work Program	End of the Project
4	Equipment			
4.a	Excavator	02 Nos	1 nos after one month of Date of Commencement and balance 1 nos before start of the Earth Work and Sub Grade .	End of the Project
4.b	Motor Grader	02 Nos	Before start of the Earth Work . Sub Grade & GSB as per Work Program .	End of the Project
4.c	Earth Compactor	03 Nos	1 nos after one month of Date of Commencement and balance 2 nos before start of the Earth Work ,Sub Grade, GSB & WMM as per Work Program .	End of the Project
4.d	Dozer	01 Nos	After one month of Date of Commencement	End of the Project
4.e	Transit Mixer	05 Nos	2 nos after one month of Date of Commencement and balance 3 nos before start of the Concrete work as per Work Program .	End of the Project
4.f	Concrete Pump	02 Nos	Before start of the Concrete work as per Work Program .	End of the Project
4.g	Water Tanker	05 Nos	1 nos after one month of Date of Commencement and balance 4 nos before start of the Earth Work ,Sub Grade, GSB & WMM as per Work Program .	End of the Project
4.h	Mechanical Paver	01 Nos	Before start of the WMM work as per Work Program .	End of the Project
4.i	Concrete Fixed Form Paver	01 Nos	Before start of the DLC work as per Work Program .	End of the Project
4.j	Vibratory Roller (Tandem)	03 Nos	Before start of the Bituminous work as per Work Program .	End of the Project
4.k	Pneumatic Tyred Roller	01 Nos	Before start of the Bituminous work as per Work Program .	End of the Project
4.l	Tipper	30 Nos	10 nos after one month of Date of Commencement and balance 20 nos before start of the Earth Work ,Sub Grade, GSB & WMM as per Work Program .	End of the Project
4.m	Bitumen Sprayer	01 Nos	Before start of the Bituminous work as per Work Program	End of the Project
4.n	Lader	02 Nos	Before 30 days start of the Plant	End of the Project
5	Supplier/ Labour Contractor		Before 10days start of the Road & Stru. work as per Work Program .	End of the Project

For Backbone-Utkal (JV)
 Subank P.H. Jha
 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 O/o the P.C.I.D., Odisha, BBSR

Construction Schedule

BACKBONE - UTKAL (JV)

Construction Schedule

Name of the Work : Construction for Widening & Strengthening of Existing Carriageway to 2 Lane road from September to March 2010

Section : (Km 11/000 to Km 21/000) = 14 Km

Sl. No	Particular of Item	Month														2010 April	2010 May	2010 June	2010 July	2010 August											
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th						15th	16th									
1.	Project Clearance																														
2.	Marking of Right of Way, and Center Line																														
3.	Start Work																														
	Excavation of 100mm depth																														
4.	Subgrade																														
5.	DSB																														
6.	1st coat																														
7.	DSB																														
8.	1st																														
9.	2nd																														
10.	3rd																														
11.	4th																														
12.	5th																														
13.	6th																														
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34.	27th																														
35.	28th																														
36.	29th																														
37.	30th																														
38.	31st																														

S. Shivank Patra
 Backbone-Utkal (JV)
 (Contractor)

S. Shivank Patra
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 24/11/2009, Odisha, 751005

**BACKBONE - UTKAL (JV)
Construction Schedule**

Name of the Work : Construction for widening & strengthening of Existing Carriageway to 2-lane road from Abetpur to Rajabahal
Section II (Nos 01/000 to No. 11/000) = 11 Km

Sl. No.	Particular of item	Month												Total No. of Months				
		1st Month	2nd Month	3rd Month	4th Month	5th Month	6th Month	7th Month	8th Month	9th Month	10th Month	11th Month	12th Month					
1	Prepared Drawings																	12
2	Setting of BP & RL's & Q																	12
3	Strip Work																	12
4	Handing over materials																	12
5	Shifting of form																	12
6	Formwork erection																	12
7	Concrete work																	12
8	Subgrade																	12
9	OSB																	12
10	Work																	12
11	EC																	12
12	D/C																	12
13	W/C																	12
14	Pre-lay																	12
15	1:1 Works																	12
16	Concrete masonry work																	12
17	Roofing																	12
18	Stage																	12
19	M/C/S																	12
20	Forming & lay out																	12
21	Main Structure																	12

For Backbone-Utkal JV
Authorized Signature

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
Odisha, BBSR

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	02
4	Vibratory Roller (Tandem) - 8 T [100 cum/Hr]	03
5	Pneumatic Tyred Roller - 25 cum/Hr	01
6	Hot Mix Plant (Batch Mix only) - 100 TPH	01
7	Concrete Batch-mix Plant - 75 Cum/Hr	01
8	Transit Mixer - 6 cum	05
9	Front End Loader	03
10	Dozer - 150 cum/Hr	01
11	Tipper (of different capacities)	30
12	Cone Crushing Unit - 200 TPH	01
13	Bitumen Sprayer - 1750 sqm/hour	01
14	Earth Compactor - 8-10 ton	03
15	Water Tanker - 10 KL	05
16	Mechanical Paver - 100 TPH	01
17	WMM Plant - 175 TPH	01
18	Concrete Pump - 20 cum/hour	02
19	Concrete Fixed Form Paver - 100 TPH	01

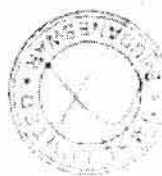
For Backbone-Utkal
 Shishank Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 On the F.I.C.I.C. Odisha, BBSR

List of Equipments owned by the bidder (UMSL Limited)

A. List of Equipments owned by the bidder (UMSL Limited)

S.no	Name of Equipments	Name of Manufacture	Model and power rating	Capacity	Year of Manufacturing	Quantity
1	Based on Motor with electronic devices for automatic level control	APOLLO	AP-550	AP-550	2012	1
2	Motor Grader	VOLVO	BFM- BG605	BG605	2013	1
3	Excavators	L&T Komatsu	EX320/200	EX320/200	2011	4
4	Tandem vibratory roller	VOLVO	Volvo DD100	10 T	2012	3
5	Hot Mix Plant	Apollo	60-90TPH	60-90TPH	2012	1
6	Concrete Batching and Mixing Plant	Greaves/Macon/Nilekantha/Swingstetter	30 Cum	30 Cum	2011	4
7	Transit mixers	Swingstetter/Greaves /REL	LXP/2518/38 RMC BS-III	6 Cum	2011	9
8	Front end loader	Hindustan	-	1.7 Cum	2014	4
9	Dozor	BEML	BD-50	150cum/Hr	2011	1
10	Tipper	TATA/AMW	10T	6 Cum	2014	18
11	Stone crusher and screening unit	/Phuzziana	200TPH	200 TPH	2011	1
12	Bitumen sprayer	Apollo	ATM6000	ATM6000	2012	1
13	Vibratory rollers	Greaves	36	10T	2010	2
14	Watertanker	JB Engineering	6KL	6KL	2009	2
15	WMM Paver	Apollo	MW6	MW6	2013	2
16	WMM Mixing Plant	Wilson	60-90TPH	60-90TPH	2014	1
17	Concrete Pump	Greaves	BP350D	BP350D	2010	1
18	Concrete Mixers	JB Engineering	10/7 Cft	10 Cum	2011	5



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 Backbone-Utkal (JV)
 (Contractor)

(Handwritten signature)
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha Engineering, Training, and Safety

**PLANTS AND EQUIPMENTS OWNED AND PROPOSED FOR THE PROJECT
BY M/s UMSL LIMITED**

1.

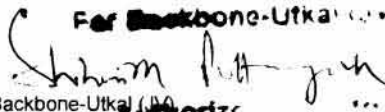
Item of equipment:- PAVERFINISHER WITH SENSOR CONTROL - 1 Nos.		
Equipment information	Name of manufacturer: Apollo	Model and power rating AP-550
	Capacity AP-550 5.5 Mtr Paving	Year of manufacture 2012
Current status	Current location Bhubaneswar	
	Details of current commitments : Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

2.

Item of equipment: MOTOR GRADER – 1 Nos.		
Equipment information	Name of manufacturer BEML	Model and power rating BG-605
	Capacity 100 CUM/Hr	Year of manufacture 2013
Current status	Current location : Bhubaneswar	
	Details of current commitments : Bhubaneswar/	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

3.

Item of equipment: L&T KOMATSU EXCAVATORS		
Equipment information	Name of manufacturer L&T Komatsu	Model and power rating EX200/EX320
	Capacity EX200/EX320	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For Backbone-Utkal

 Backbone-Utkal
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project,
 2/2, The E.I.C.O., Odisha, 751013.

4.

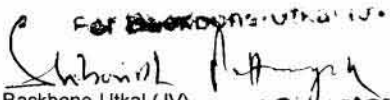
Item of equipment: TENDOM VIBRATORY ROLLER – (8-10 tons)		
Equipment information	Name of manufacturer VOLVO/CASE	Model and power rating: DD100
	Capacity DD100	Year of manufacture 2012
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	


5.

Item of equipment: HOT MIX PLANT – (60-90 ton / hr)		
Equipment information	Name of manufacturer APOLLO	Model and power rating
	Capacity 60-90 TPH	Year of manufacture 2012
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

6.

Item of equipment: Concrete Batching and Mixing Plant with automatic control – 4		
Equipment information	Name of manufacturer Greaves/Swingstetter/Macon/Nilakantha	Model and power rating 30Cum/Hr
	Capacity 30 Cum/Hr	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For Backbone-Utkal JV

 Backbone-Utkal JV
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Orisha
 Chief Engineer
 World Bank Project
 On the E.C.C. India, d83k

7.

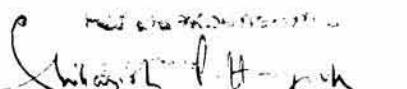
Item of equipment: TRANSIT MIXERS - (6 Cum)- 9		
Equipment information	Name of manufacturer Greave Cottons/Swintgstetter/REL	Model and power rating LKP/2518/38 RMC BS-III
	Capacity 6 Cum	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

8.

Item of equipment: FRONT END LOADER - 4		
Equipment information	Name of manufacturer Hindustan	Model and power rating 2021Z
	Capacity 1.7 Cum	Year of manufacture 2014
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

9.

Item of equipment: DOZER – 1 NOS		
Equipment information	Name of manufacturer BEML	Model and power rating BD50
	Capacity BD50	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	


 Backbone-Utkal (Contractor)


 Chief Engineer,
 World Bank Project, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Orissa FICCI, Odisha, BBSR

10.


Item of equipment: TRUCK/TIPPER – 18 Nos.		
Equipment information	Name of manufacturer TATA/AMW	Model and power rating 10T
	Capacity 10T	Year of manufacture 2013
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

11.

Item of equipment: STONE CRUSHER AND SCREENING UNIT - 1 NO.		
Equipment information	Name of manufacturer Phuzzlana	Model and power rating NW-116LD
	Capacity 200 TPH	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

12.

Item of equipment: BITUMEN SPRAYER – 1 NOS		
Equipment information	Name of manufacturer APOLLO	Model and power rating
	Capacity ATM6000	Year of manufacture 2012
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For Backbone-Utkal

 Backbone-Utkal
 (Contractor) **Authorized Signatory**


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 On the E.C.C. Jaana, BBSI.

13.

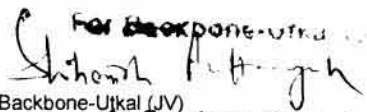
Item of equipment: VIBRATORY ROLLOR- 2 NO.		
Equipment information	Name of manufacturer Greaves/Atlas Copco	Model and power rating Compactor-36/CA225
	Capacity 10T	Year of manufacture 2010/2014
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

14.

Item of equipment: WATER TANKER- 4 Nos.		
Equipment information	Name of manufacturer BK Engineering	Model and power rating 6KL
	Capacity 6KL	Year of manufacture 2011
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

15.

Item of equipment: WMM PAVER - 2 Nos		
Equipment information	Name of manufacturer Apollo	Model and power rating MW6
	Capacity MW6	Year of manufacture 2013
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

For Backbone-Utkal

 Backbone-Utkal (JV)
 (Contractor) **Authorized Signatory**


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha EICB/CW, Odisha, BBSR

16.


Item of equipment: WMM MIXING PLANT – 1 NOS		
Equipment information	Name of manufacturer Wilson	Model and power rating
	Capacity 60-90 TPH	Year of manufacture 2014
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	


17.

Item of equipment: CONCRETE PUMP - 1 No		
Equipment information	Name of manufacturer Greaves Concrete Pump	Model and power rating BP350D
	Capacity BP350D	Year of manufacture 2010
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

18.

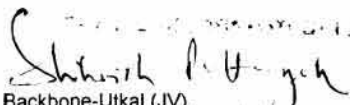
Item of equipment: CONCRETE MIXERS – 5 No		
Equipment information	Name of manufacturer JB Engineering/Surya Machineries	Model and power rating 10/7 Cft
	Capacity 10/7 Cft	Year of manufacture 2011/2009
Current status	Current location Bhubaneswar	
	Details of current commitments Bhubaneswar	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	



 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 In the E.I.C. Odisha, Odisha

Man-Power Schedule as per requirement of Biding Document

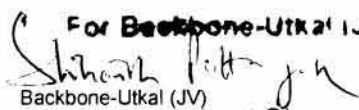
No.	Position	Total Work Experience (years)	In Similar Works Experience (years)	Educational Qualification
1	Project Manager – 1 No	10	5	Degree/Diploma in Civil Engg.
2	Highway Engineer – 1 No	5	3	Degree/ Diploma in Civil Engg.
3	Bridge Engineer – 1 No	5	3	Degree/ Diploma in Civil Engg.
4	Material Engineer – 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


 Shishir Pattanayak
 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the E.I.C.C.O, Odisha, BSN

Form PER – 1: PROPOSED PERSONNELBY M/S UMSL LIMITED

1.	Title of position* PROJECT MANAGER	Name – Mr. Jayadeep Nayak
2.	Title of position* HIGHWAY ENGINEER	Name –Mr. Pabitra Ranjan Dash
3.	Title of position* BRIDGE ENGINEER	Name-Mr. Sangram Keshari Samal
4.	Title of position* MATERIAL ENGINEER	Name-Mr. Amit Prasad
5.	Title of position* QUANTITY SURVEYOR	Name-Mr. Dipak Kumar Dash
6.	Title of position* EQUIPMENT MAINTENANCE ENGINEER	Name-Mr. Rajib Kumar Sarkar

For Backbone-Utkal JV

 Shikhar Pabitra Dash
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the En-CG, World, Odisha

Resume of Proposed Personnel-1

Position-PROJECT MANAGER		
Personnel information	Name- Mr. JAYADEEP NAYAK	Date of birth-12.06.1968
	Professional qualifications- BSC Engineering	
Present employment	Name of employer- M/S UMSL LIMITED	
	Address of employer – IMFA Building, Rasulgarh, Bhubaneswar-10	
	Telephone: 0674-2580100/3051000	Contact (manager / personnel officer)
	Fax No:0674-2580021	E-mail:- info@umsl.in
	Job title:-Project Manager	Years with present employer:

From	To	Company / Project / Position / Relevant technical and management experience
Oct' 2012	Till Date	UMSL Limited, Project Manager
April'2011	Oct' 2012	Sheladia Associates as a Highway Engineer.
Oct' 2006	April'2011	Sheladia Associates as Team Leader-cum-ARE

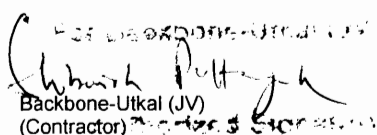
For Backbone-Utkal JV
 Shishir Pattanayak
 Backbone-Utkal JV
 (Contractor) Authorized Signatory



 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 On the EIC/IC, Odisha, BBSR

Resume of Proposed Personnel-2

Position- HIGHWAY ENGINEER		
Personnel information	Name –Mr. PABITRA RANJAN DASH	Date of birth-18/01/1966
	Professional qualifications:- AMIE (Civil)	
Present employment	Name of employer- M/S UMSL LIMITED	
	Address of employer- IMFA Building, Rasulgarh, Bhubaneswar-10	
	Telephone: 0674-2580100/3051000	Contact (manager / personnel officer)
	Fax No:0674-2580021	E-mail:- info@umsl.in
	Job title:- Highway Engineer	Years with present employer:

From	To	Company / Project / Position / Relevant technical and management experience
April 2011	Till Date	UMSL Limited, Highway Engineer
April'2009	Feb' 2011	Lions Engg. Consultant as a Assistant Highway Engineer.
Jan' 2004	Jan' 2011	Elsames-TWS-SNC-JV as a Highway incharge

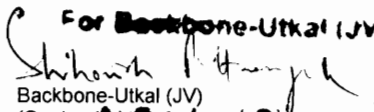

 Chandra P. Datta
 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 (Employer)
 World Bank Projects
 for the E.I.C.(C), Odisha, BBSR

Resume of Proposed Personnel-3

Position- : BRIDGE ENGINEER	
Personnel information	Name- MR. SANGRAM KESHARI SAMAL Date of birth-22/06/1979
	Professional qualifications - : BE (Civil)
Present employment	Name of employer- M/S UMSL LIMITED
	Address of employer- IMFA Building, Rasulgarh, Bhubaneswar-10
	Telephone: 0674-2580100/3051000 Contact (manager / personnel officer)
	Fax No: 0674-2580021 E-mail:- info@umsl.in
	Job title:- Bridge Engineer Years with present employer:

From	To	Company / Project / Position / Relevant technical and management experience
Oct' 2013	Till Date	UMSL Limited, Bridge Engineer
May'2009	Sept'2013	Sheladia Associates as a Field Engineer Structure.

For Backbone-Utkal JV

 Shikha
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 Odisha, BBSR

Resume of Proposed Personnel-4

Position- : MATERIAL ENGINEER	
Personnel information	Name – Mr. AMIT PRASAD
	Date of birth:-11/07/1978 Nationality : Spanish
Professional qualifications- Diploma (Civil)	
Present employment	Name of employer- M/S UMSL LIMITED
	Address of employer- IMFA Building, Rasulgarh, Bhubaneswar-10
	Telephone: 0674-2580100/3051000
	Contact (manager / personnel officer)
	Fax No: 0674-2580021
Job title:- Material Engineer	E-mail:- info@umsl.in
	Years with present employer:

From	To	Company / Project / Position / Relevant technical and management experience
Jan' 2011	Till Date	UMSL Limited, Material Engineer
Nov'2005	Jan'2011	Tantia Construction Ltd. as a Asst. QC Engineer

For Backbone-Utkal
 Subhankar Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the F.I.C.(C), Odisha, 753011

Resume of Proposed Personnel-5

Position- : QUANTITY SURVEYOR	
Personnel information	Name – Mr. DIPAK KUMAR DASH Date of birth:-03/07/1973
	Professional qualifications – Diploma (Civil)
Present employment	Name of employer- M/S UMSL LIMITED
	Address of employer- IMFA Building, Rasulgarh, Bhubaneswar-10
	Telephone: 0674-2580100/3051000 Contact (manager / p rsonnel officer)
	Fax No: 0674-2580021 E-mail:- info@umsl.in
	Job title:- Quantity Surveyor Years with present employer:

From	To	Company / Project / Position / Relevant technical and management experience
April' 2013	Till Date	UMSL Limited, QS
Jan'2007	March'2013	Sheladia Associates as QS

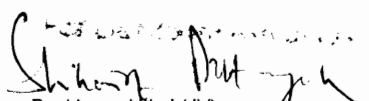
For Backbone-Utkal (JV)
 Shishir Mahapatra
 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

Resume of Proposed Personnel-6

Position- : EQUIPMENT MAINTENANCE ENGINEER	
Personnel information	Name – Mr. RAJIB KUMAR SARKAR Date of birth:- 02.06.1977
	Professional qualifications – BE in Mechanical
Present employment	Name of employer- M/S UMSL LIMITED
	Address of employer- IMFA Building, Rasulgarh, Bhubaneswar-10
	Telephone: 0674-2580100/3051000 Contact (manager / personnel officer)
	Fax No: 0674-2580021 E-mail:- info@umsl.in
	Job title:- Equipment Maintenance Engineer Years with present employer:

From	To	Company / Project / Position / Relevant technical and management experience
May' 2014	Till Date	UMSL Limited, Manager Plant & Machineries
May'2011	May'2014	Petron civil engineering pvt. Ltd., Asst. Manager P&E
June' 2009	May'2011	Gamon India Ltd.


 Shyam Pradyumn
 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the F.I.C.(C), Odisha, BBSR

PLANTS AND EQUIPMENTS OWNED AND PROPOSED FOR THE PROJECT
BY M/s BACKBONE ENTERPRISES LIMITED

1.

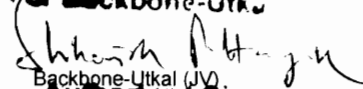
Item of equipment:- MECHANICAL BITUMEN SENSOR PAVER - (100 TPH) -1 Nos.		
Equipment information	Name of manufacturer: VOGELE	Model and power rating 4361
	Capacity 9 Mtr	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments : JSTPL	
Source	Indicate source of the 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 – (200 Cum/Hr) 2 Nos.		
Equipment information	Name of manufacturer CATERPILLAR	Model and power rating CAT-140H
	Capacity 140Hr	Year of manufacture 2009
Current status	Current location : JSTPL	
	Details of current commitments : JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

3.

Item of equipment: HYDRAULIC EXCAVATOR (60 Cum/Hr) – 2 No		
Equipment information	Name of manufacturer CATERPILLAR	Model and power rating 320 DL
	Capacity 80 Cum	Year of manufacture 2009
Current status	Current location JSTPL	
	Details of current commitments : JSTPL	
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 Backbone-Utkal

 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 Of the FIC (C), Odisha, SBSE

4.

Item of equipment: VIBRATORY ROLLER (TENDOM) – (8 T/100 Cum/Hr) – 3 No		
Equipment information	Name of manufacturer VOLVO	Model and power rating: DD90
	Capacity 10 Mt	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
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 – (25 Cum/ hr) – 1 No		
Equipment information	Name of manufacturer VOLVO	Model and power rating PT220RH
	Capacity 10 Mt	Year of manufacture 2008
Current status	Current location GIFT	
	Details of current commitments GIFT	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

6.

Item of equipment: HOT MIX PLANT (Batch Mix Only) – 100 TPH – 1 No		
Equipment information	Name of manufacturer Speco	Model and power rating TSAP-2000FW
	Capacity 160 Ton/Hr	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
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 Backbone-Utkal (JV)
 Backbone-Utkal (JV)
 (Contractor) *[Signature]*

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 On the P.O. (C), Odisha, BBSR

7.

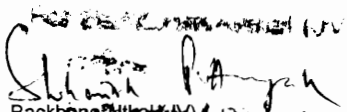
Item of equipment: CONCRETE BATCH MIX PLANT - (75 Cum/Hr)- 1		
Equipment information	Name of manufacture Schwing Stetter	Model and power rating M181551900
	Capacity 60 Cum	Year of manufacture 2009
Current status	Current location At Company Yard	
	Details of current commitments Odisha	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

8.

Item of equipment: TRANSIT MIXER (6 Cum) - 5		
Equipment information	Name of manufacturer Greaves Cotton	Model and power rating RHS65XL
	Capacity 6 Cum	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

9.

Item of equipment: FRONT END LOADER – 3 NOS		
Equipment information	Name of manufacturer Hindustan	Model and power rating 2021Z
	Capacity 1.7 Cum	Year of manufacture 2009
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	


 Subash Ranjan
 Backbone of Odisha
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.C.C. Odisha, OSRP

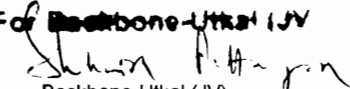
10.

Item of equipment: DOZER (150 Cum/Hr) – 1 Nos.		
Equipment information	Name of manufacturer Vijay Mansukhlal Jasani	Model and power rating MOU attached Separately
	Capacity 150 Cum	Year of manufacture 2013
Current status	Current location JSTPL	
	Details of current commitments: To be hired or purchased (Odisha)	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Owner	Name of Owner: Vijay Mansukhlal Jasani	
	Address of Owner: Near Bus Stand, Timbawadi, Junagadha	
	Telephone	Contact name and Title
	Fax	Telex
Agreements	Details of Rental/lease/manufacture agreements specific to the project: Hire or purchase (Mou attached separately)	

11.

Item of equipment: TIPPER (16 Cum) - 30 NO		
Equipment information	Name of manufacturer AMW	Model and power rating 2518 TP
	Capacity 16 Cum	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
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 Backbone-Utkal JV

 Backbone-Utkal (JV)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the E.I.C (I), Odisha, OSRP

12.

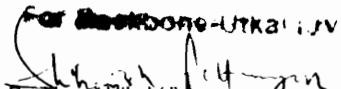
Item of equipment: CONE SRUSHING UNIT (200 TPH) – 1 NOS		
Equipment information	Name of manufacturer METSO	Model and power rating GP11M
	Capacity 200 TPH	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments Odisha	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	


13.

Item of equipment: BITUMEN SPRAYER (1750 Sqm/Hour) - 1 NO.		
Equipment information	Name of manufacturer Jaldhara Engineers & Fabricators	Model and power rating MAT361016B2P27881
	Capacity 5000 Ltr.	Year of manufacture 2012
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

14.

Item of equipment: EARTH COMPACTOR (VIBRATORY COMPACTOR) (8-10 TON) - 3 Nos.		
Equipment information	Name of manufacturer GMMCO	Model and power rating CS 533E
	Capacity 10 TON	Year of manufacture 2009
Current status	Current location JSTPL	
	Details of current commitments Odisha	
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 Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the F.I.C (C), Odisha, BBSR

15.

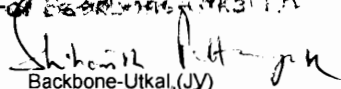
Item of equipment: WATER TANKER (10 KL) - 5 Nos		
Equipment information	Name of manufacturer TATA	Model and power rating LPT 2515 TC
	Capacity 1000 Ltr.	Year of manufacture 2009
Current status	Current location At Company Yard	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

16.

Item of equipment: MECHANICAL PAVER (100 TPH) – 1 NOS		
Equipment information	Name of manufacturer SIMPSON	Model and power rating P-6/S-4 12 V DC
	Capacity 4.5 Mtr.	Year of manufacture 2003
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

17.

Item of equipment: WMM PLANT (175 TPH) - 1 No		
Equipment information	Name of manufacturer MACONS	Model and power rating MWMP - 200
	Capacity 200 TPH	Year of manufacture 2012
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
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 Secretariat

 Shantanu Mishra
 Backbone-Utkal (JV)
 (Contractor)

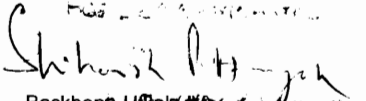

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 On the P.I.C.(C), Odisha, BBSi


18.

Item of equipment: CONCRETE PUMP (20 CUM/HOUR) – 2 No		
Equipment information	Name of manufacturer AMW	Model and power rating 2518 CP
	Capacity 10 HP	Year of manufacture 2012
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

19.

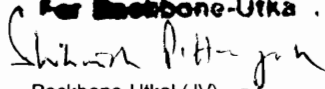
Item of equipment: CONCRETE FIXED FORM PAVER (100 TPH) – 1 No		
Equipment information	Name of manufacturer Multiquip	Model and power rating WRS2800LP
	Capacity 5.5 / 7 Mtr.	Year of manufacture 2010
Current status	Current location JSTPL	
	Details of current commitments JSTPL	
Source	Indicate source of the equipment <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	



 Shikhar
 Backbone-Utkal
 (Contractor)


 Chief Engineer,
 World Bank Project, Orissa
 (Employer)
 On the P.I.C.(C), Orissa, BBSR

Form PER – 1: PROPOSED PERSONNELBY M/S BACKBONE ENTERPRISES LIMITED

1.	Title of position* PROJECT MANAGER	Name – Mr. Ram Gopal Rana
2.	Title of position* HIGHWAY ENGINEER	Name –Mr. Amerendrakumar Singh
3.	Title of position* BRIDGE ENGINEER	Name-Mr. Bishnu Pada Bera
4.	Title of position* MATERIAL ENGINEER	Name-Mr. Amerendra Das
5.	Title of position* QUANTITY SURVEYOR	Name-Mr. Vipul Jani
6.	Title of position* EQUIPMENT MAINTENANCE ENGINEER	Name-Mr. Anil Kumar Yadav
7.	Title of position* ENVIRONMENT AND SAFETY MANAGER	Name-Mr. Mohammad Sohrab Khan

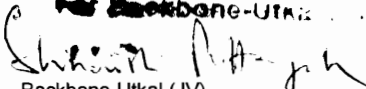
For Backbone-Utka ...

 Backbone Utkal (P) Ltd.
 (Contractor)
 Financial Signatory



 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 D/o the F.I.C.(C), Odisha, BBSR

Resume of Proposed Personnel-1

Position-PROJECT MANAGER		
Personnel information	Name- Mr. RAM GOPAL RANA	Date of birth-12.05.1967
	Professional qualifications- B.Tech	
Present employment	Name of employer- M/S BACKBONE ENTERPRISES LIMITED	
	Address of employer – 209, 2 nd Floor, Akik Tower, Opp. Rajpath Club, S.G.Highway, Bodakdev, A'BAD.	
	Telephone: 079-26871678, 26871679	Contact (manager / personnel officer) Ms. Dhara Patel
	Fax No:079-40040741	E-mail:- tender@backboneworld.com
	Job title:-Project Manager	Years with present employer: 03 Years

From	To	Company / Project / Position / Relevant technical and management experience
1988	1989	Worked as supervisor with m/s Jitendra singh for his Banarsidas chadiwala medical project kalkji New Delhi and responsible for optimum use of resources.
1989	1994	Worked in continental construction Ltd at Ahemdabad Varoda express way project. start carrier as non technical supervisor and resign as jr engineer. Mainly responsible for structure works, BBS, estimation and billing of PRW.
1994	2003	Worked in Larsen & Toubro Ltd ECC division. Started the carrier as jr engineer and resign as officer grade. Responsible for individual task, quality of the product, billing of subcontractor of the section. Worked at Rourkela Sambalpur road project, Punjab road project (NH-1 ch 228-257) Reliance Refinery Project and Delhi metro rail Project.
2003	2006	Worked as deputy manager – roads in Sahara India for their Amby vally integarted road project, acting as no2 of the project. responsible to set the target, monitoring, coordination with contractor and feeding back to management (with suggestions) about health of the project as per requirement of execution and to achieve. reporting to Deputy Director.
2006	2008	Worked in IVRCL Infracture Ltd as senior manager – project and in charge of their Alwar to Sikandra project (value of Rs 105 cr) of RIDCOR. Being the head of project responsible to drive the project and answerable to client and management as well. reporting to regional Manager.
2008	2010	Worked as senior project manager with APCO Infractech lited for their Chidambaram Bye pass NH 45A (TNRSP-01) project. Despite of difficult and abnormal geological circumstances the project was sucesfully completed and hand over in July 2010. Reporting to Managing Director.

For Backbone-UKA

 Backbone, Ulkal (W)
 (Contractor) Authorized Signatory

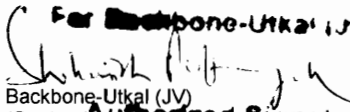

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 On the P.O.C. Odisha, OSRP


From	To	Company / Project / Position / Relevant technical and management experience
2010	2012	As project manager in C&C Construction Ltd for their Yamuna express way project (rigd pavement) subcontractor of jai parkas Associates. Head of the section from km24.0 to km56.0 and responsible to drive the project and answerable to client and management as well. reporting to chief project manager.
2012	Till Date	As Project Manager, Backbone Enterprises Ltd, Four laning of Jetpur-Somnath Section of NH 8D from Km.0.000 to km 127.600 in the state of Gujarat to be executed as BOT (IolI) Project on DBFOT Pattern under NHDP Phase III

Resume of Proposed Personnel-2

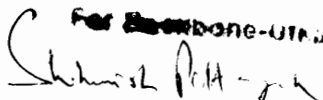
Position-		HIGHWAY ENGINEER	
Personnel information	Name – Mr. AMRENDRA KUMAR SINGH	Date of birth- 14/11/1973	
	Professional qualifications:- B.Sc (Hons), B.Tech Civil		
Present employment	Name of employer- BACKBONE ENTERPRISES LTD.		
	Address of employer- 209, SECOND FLOOR, AKIK TOWER, OPP.RAJPATH CLUB, S.G.HIGHWAY, BODAKDEV, AHMEDABAD.		
	Tel : +91-079-26871678, 26871679		Contact (manager / personnel officer)
	Fax : +91-079-40040710		E-mail: tender@backboneworld.com
	Job title:-Highway Engineer		Years with present employer: 04 Years


From	To	Company / Project / Position / Relevant technical and management experience
		<ul style="list-style-type: none"> Familiarity of Computer Software likes MS Office, FoxPro, MS Project – 2000, Autocad, Primavera, and SAP. Familiarity of all types of major Construction equipments.
1995	1998	Was working S.B. Constructions Pvt. Limited as Assistant Officer. <ul style="list-style-type: none"> Construction of Hot Strip Mill area in Rourkela Steel Plant modernization, SAIL, Rourkela (Orissa).
1998	2002	Worked as Officer (Planning) with Vijeta Construction Limited <ul style="list-style-type: none"> Construction of Earthen Channels for modernization of Rourkela Steel Plant, Rourkela, Orissa

For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor) Authorized Signator


 Chief Engineer,
 World Bank Projects, Orissa
 (Employer)
 Chief Engineer
 World Bank Projects
 Orissa

From	To	Company / Project / Position / Relevant technical and management experience
2002	2007	Joined PATI – BEL (JV) As Senior Officer (Planning). <ul style="list-style-type: none"> Construction and Strengthening of 2/ 4 lanning of Grand Trunk Road Improvement Project, Package-1/C of NH-2 from Etawah to Sikandra from Km:321.000 to 393.000 under World Bank funded project.
2007	2011	Worked with M/s D.S. Constructions Ltd. Asst. Manager (Planning). <ul style="list-style-type: none"> Design, Construction, Developement, Finance, Operation and Maintenance of the work of rehabilitation and upgradation to four lane from Km.16.00 to km.96.127 on NH-75 in the State of Uttar Pradesh and Madhya Pradesh under North-South Corridor (NHDP Phase-II) on built operate and transfer (BOT, Annuity) Basis.
2011	Till Date	Joined M/s BACKBONE ENTERPRISES LIMITED As Dy.Project Manager. <ul style="list-style-type: none"> Four laning of Jetpur – Somnath Section of NH 8D from Km. 0.000 to Km. 127.600 in the state of Gujarat to be executed as BOT (loii) project on DBFOT Pattern under NHDP Phase III

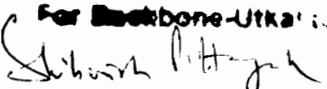

 Subhash Patil
 Backbone-Uttar (JV)
 (Contractor)



 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the P.L.C.(C), Odisha, 2011

Resume of Proposed Personnel-3

Position- : <u>BRIDGE ENGINEER</u>	
Personnel information	Name- MR. BISHNU PADA BERA Date of birth-09/05/1960
	Professional qualifications- : B.E Civil
Present employment	Name of employer- BACKBONE ENTERPRISES LTD.
	Address of employer : 209, SECOND FLOOR, AKIK TOWER, OPP.RAJPATH CLUB, S.G.HIGHWAY, BODAKDEV, AHMEDABAD.
	Tel : +91-079-26871678, 26871679 Contact (manager / personnel officer) Ms. Dhara Patel
	Fax : +91-079-40040710 E-mail: tender@backboneworld.com
	Job title:-Bridge Engineer Years with present employer: 11 Years

From	To	Company / Project / Position / Relevant technical and management experience
1986	2004	<p>Joined as Engineer in M/s. RBM – PATI (JV)</p> <ul style="list-style-type: none"> For Up Gradation to 4/6 lanes and Strengthening of existing 2 lane carriageway of N.H-6 from Km. 17.600 to 72.000 9 Dankuni – kolaghat) in the state of west Bengal, package No.WB-1. ECC for maintenance and over laying of DBM and of the Existing carriageway of sate highway from Krishnanagar to Karimpur (Total 80 km) in the state of West Bengal,
2004	Till Date	<p>Joined Backbone Enterprises Limited as Bridge Engineer Projects undertaken by him:</p> <ul style="list-style-type: none"> Execution of Road / Bridge works and maintenance of the works for five years Package No. Jhabua MP-1951 Execution of Road / Bridge works and maintenance of the works for five years Package No. Jhabua MP-1952 Strengthening and Paving of Shoulders of SH-06 from Km 200.000 to 248.200 (Bharuch – Dahej) GSHP-9B Bridge work in Sabli Water Resources project.

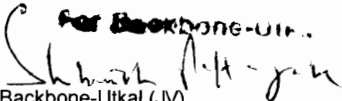
For Backbone-Utkal JV

 Subash Pittayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory



 Chief Engineer,
 World Bank Projects, Odisha
 Chief (Employer)
 World Bank Project
 OSRP-CW-ICB-P04A1

Resume of Proposed Personnel-4

Position- : MATERIAL ENGINEER	
Personnel information	Name –Mr. AMARENDRA DAS Date of birth:-20/02/1967
	Professional qualifications- B.Sc., Diploma Civil, L.L.B, P.G. in Total Quality Management.
Present employment	Name of employer- BACKBONE ENTERPRISES LTD.
	Address of employer : 209, SECOND FLOOR, AKIK TOWER, OPP.RAJPATH CLUB, S.G.HIGHWAY, BODAKDEV, AHMEDABAD.
	Tel : +91-079-26871678, 26871679 Contact (manager / personnel officer) Mr. Hariharlal vettenthra
	Fax : +91-079-40040710 E-mail: tender@backboneworld.com
	Job title:-Material Engineer Years with present employer: 09 Years

From	To	Company / Project / Position / Relevant technical and management experience
1992	1997	Was working with L & T, ECC Division as Lab Technician.
1997	2002	Worked as Lab Engineer with BSC- RBM Pati JV from 1997 to 2002
2002	2005	Worked as Material & Quality Engineer with RBM-PATI JV from 2002 to 2005.
2005	Till Date	<p>Joined BACKBONE ENTERPRISES LIMITED As Material Engineer in 2005 and then promoted as Dy. Manager (QA/QC) in 2008. His responsibility includes performing & supervising tests and corresponding analysis on fresh concrete and aggregates for slump, temperature, density, air content, specific gravity, etc. Monitoring material performance, Reconciliation of construction materials, etc.</p> <ul style="list-style-type: none"> • Upgradation of road junction near colony at Jetty Port, Gujarat. • Development of Cuddappah Airport SH: Construction of New Runway Apron, Link Taxi-Track Compound wall and Allied Works. • Construction of Road C to C8 including widening and strengthening of existing road construction of additional two lane RCC road with central verge, Cycle track, pacca SWD etc. at GIDC Dahej Industrial Estate.

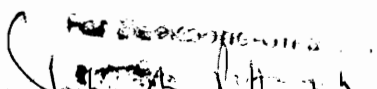
for Backbone-Utkal

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory



 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the E.L.C.I.C. Date: 15/05/2009

Resume of Proposed Personnel-5

Position- : QUANTITY SURVEYOR	
Personnel information	Name – Mr. VIPUL JANI Date of birth:-25/01/1975
	Professional qualifications -Diploma Civil ,
Present employment	Name of employer- BACKBONE ENTERPRISES LTD.
	Address of employer : 209, SECOND FLOOR, AKIK TOWER, OPP.RAJPATH CLUB, S.G.HIGHWAY, BODAKDEV, AHMEDABAD.
	Tel : +91-079-26871678, 26871679 Contact (manager / personnel officer) Mr. Hariharlal vettenhra
	Fax : +91-079-40040710 E-mail: tender@backboneworld.com
	Job title:- Quantity Surveyor Years with present employer: 11 Years

From	To	Company / Project / Position / Relevant technical and management experience
1996	1997	Started his career with KCT Consultancy Services as Junior Engineer in Oct 1996.
1997	2001	Joined Gannon Dunkerly & Co.Ltd. As Site Engineer.
2001	2003	Joined HC Patel & Co.Ltd. As QC Engineer.
2003	2004	Joined Katira Construction Co.Ltd. As Asst. Quantity Surveyor.
2004	Till Date	<p>Joined BACKBONE ENTERPRISES LIMITED As Quantity Surveyor.</p> <p>Projects Undertaken:</p> <ul style="list-style-type: none"> • Four laning of Jetpur – Somnath Section of NH 8D from Km.0.000 to Km 127.600 in the state of Gujarat to be executed as BOT (Ioll) Project on DBFOT Pattern under NHDP Ohase III • Improvement of Muthtal Sonapat – Sampla- Jhajjar-Dadri road (Section of SH-20) from RD 0.000 to 95.150 and Gurgaon-Farrukha nagar – Jhajjar road (SH-15a) from RD 5.500 to 46.250 by widening of bridges and culverts, retaining Structures and other misc. works, etc.(Package-I). • Strengthening of SH-25 Falla-Jamnagar (Km 63+981 to Km. 78+830) and Jamnagar-Khambhalia (Km. 94+106 to Km. 144+993) and Paving of shoulders.

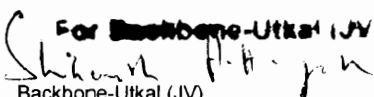

 Backbone-Utkal (JV)
 (Contractor)

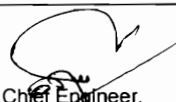

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 No the F.I.C.C, Odisha, 751 001

Resume of Proposed Personnel-6

Position- : EQUIPMENT MAINTENANCE ENGINEER(PLANT ENGINEER)	
Personnel information	Name – ANIL KUMAR YADAV Date of birth:- 21/03/1982
	Professional qualifications – Diploma in Mechanical Engineering
Present employment	Name of employer- BACKBONE ENTERPRISES LTD.
	Address of employer : 209, SECOND FLOOR, AKIK TOWER, OPP.RAJPATH CLUB, S.G.HIGHWAY, BODAKDEV, AHMEDABAD.
	Tel : +91-079-26871678, 26871679 Contact (manager / personnel officer) Ms. Dhara Patel
	Fax : +91-079-40040741 E-mail: tender@backboneworld.com
	Job title:- Equipment Maintenance Engineer (Plant Engineer) Years with present employer: 05 Years

From	To	Company / Project / Position / Relevant technical and management experience
2006	2010	<p>Worked as Asst. Mechanical Engineer with M/s Montecarlo Construction Limited</p> <p>Maintaining the inventory equipments spares etc. Data Monitoring in MS Office & on Program Operating.</p> <ul style="list-style-type: none"> Rehabilitation & Strengthening of Jabalpur – Amarkantak Road Project (Package-16) (Km.000.000 to 222.000 of SH-22 in M.P.)
2010	Till Date	<p>He is a Mechanical Engineer working as a Equipment Maintenance Engineer (Plant Engineer) in Backbone Enterprises Limited.</p> <p>Repair and Maintenance of plant machinery, such as Excavators (JCBs), Bulldozers, Cranes, Dumper, trucks, Batching & Mixing Plants, Mobile Elevated work platforms, Generators and Concrete Mixers. Apart from driving and operating plant machinery, he changes buckets, shozels and other attachments, preventive maintenance, running repairs, breakdown repairs, major overhaul repairs, etc. Also he carries out daily safety checks, Managing Site Infrastructure, etc.</p> <ul style="list-style-type: none"> Rehabilitation & Strengthening of Lebad-nagda Four lane Road Project Package No (SH-32) in M.P. Four laning of Jetpur-Somnath Section os NH 8D from Km.0.000 to Km 127.600 in the state of Gujarat to be executed as BOT (Ioll) Project on DBFOT Pattern under NHDP Phase III

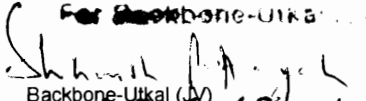
For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory



 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Projects,
 Odisha, OSRP

Resume of Proposed Personnel-7

Position- : ENVIRONMENT AND SAFETY MANAGER	
Personnel information	Name – Mr. MOHAMMED SOHRAB KHAN Date of birth:- 20/04/1984
	Professional qualifications – Diploma
Present employment	Name of employer- BACKBONE ENTERPRISES LTD.
	Address of employer : 209, SECOND FLOOR, AKIK TOWER, OPP.RAJPATH CLUB, S.G.HIGHWAY, BODAKDEV, AHMEDABAD.
	Tel : +91-079-26871678/79 Contact (manager / personnel officer) Ms. Hariharlal vettenthra
	Fax : +91-079-40040710 E-mail: tender@backboneworld.com
	Job title:- Environment And Safety Manager Years with present employer: 03 Years

From	To	Company / Project / Position / Relevant technical and management experience
2007	2009	Worked with K.V. Choudary Constructions as a Safety Assistant
2009	2012	Worked with G.R. Infraprojects Ltd. as a Sr. Safety Officer
2012	Till Date	Joined BACKBONE ENTERPRISES LIMITED As Environment and Safety Manager in Road Project Projects Undertaken: <ul style="list-style-type: none"> Four laning of Jetpur – Somnath Section of NH 8D from Km. 0.000 to Km 127.600 in the state of Gujarat to be executed as BOT (Toll) Project on DBFOT Pattern under NHDP Phase III

For Backbone-Utkal

 Backbone-Utkal (P)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Projects,
 In the P.O. (C), Cuttack, Odisha.

Performance Bank Guarantee



No. B 26819

Branch:- IDBI Bank Ltd, IDBI House, Janpath, Unit IX, Bhubaneswar-751022 E E

To
CHIEF ENGINEER, WORLD BANK
PROJECTS, NIRMAN SOUDHA,
KESHARI NAGAR. UNIT-V
BHUBANESHWAR
ODISHA 751001

Handwritten signature and date:
21/12/2017

Dear Sir/Madam,

Bank Guarantee No: 150379IBGP00092
Amount INR 107387000.00
Guarantee Cover From 19-12-2015 To 31-07-2017
Last date for Lodgement of Claim 31-07-2017

This deed of guarantee executed by IDBI Bank Ltd., a company constituted under the Companies Act 1956 and deemed to be a banking company under the Banking Regulation Act, 1949, having its Registered Office and Head Office at IDBI Tower, WTC Complex, Cuffe parade, Mumbai 400005, and among other places a branch at IDBI Bank Ltd, IDBI House, Janpath, Unit IX, Bhubaneswar-751022 (Hereinafter referred to as 'the Bank') in favour of CHIEF ENGINEER, WORLD BANK, PROJECTS, NIRMAN SOUDHA,, KESHARI NAGAR. UNIT-V, BHUBANESHWAR, ODISHA 751001

(hereinafter referred to as 'the Beneficiary/ _____') for an amount not exceeding INR 107387000.00 (INR Ten Crore Seventy Three Lakh Eighty Seven Thousand only) at the request of Backbone-Utkal (JV)

(Hereinafter referred to as 'the Contractor(s)/ _____') This Guarantee is issued subject to the condition that the liability of the bank under this Guarantee is limited to maximum of INR 107387000.00 (INR Ten Crore Seventy Three Lakh Eighty Seven Thousand only) and the Guarantee shall remain in full force up to 31-07-2017 (expiry date) and can not be invoked otherwise than by a written demand under this Guarantee served on the Bank on or before the 31-07-2017 (last claim date) The beneficiary in its own interest is advised to seek a confirmation of the issuance of this Guarantee from the controlling office/Head Office enclosing a copy of the same.

TFHO address :

IDBI BANK LTD.,
Trade Finance Dept.,
7th Floor,
IDBI Tower
WTC complex
Cuffe Parade, Mumbai-400005

This Guarantee consists of 4 (four) pages including this page.

Authorized Signatory

कृते आईडीबीआई बैंक लिमिटेड
For IDBI BANK LIMITED

Handwritten signature

कमलेश कुमार ठाकुर / Kamlesh Kumar Thakur
प्रबंधक-टीबीसी/Manager-TBG
कार्यकारी दफ्तर: /EIN:631329



Authorized Signatory

कृते आईडीबीआई बैंक लिमिटेड
For IDBI BANK LTD.

Handwritten signature
प्रबंधक-टीबीसी/Manager-TBG
कार्यकारी दफ्तर: /EIN:631329

Handwritten signature
Shubhash Chandra
Backbone-Utkal (JV)
(Contractor)

Handwritten signature
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Projects,
in the E.I.C. (C), Odisha, EBSI



ଓଡ଼ିଶା ओडिशा ODISHA

F 869327

BANK GUARANTEE No.	150379IBGP00092
DATED	19.12.2015
AMOUNT	Rs.10,73,87,000/-
GTY VALID UPTO	31.07.2017
CLAIM PERIOD UPTO	31.07.2017

To,

Chief Engineer, World Bank Projects, Odisha, Bhubaneswar
Office of the Engineer in Chief (Civil), Odisha,
NIRMAN SOUDHA, KESHARI NAGAR. UNIT - V,
BHUBANESWAR-751001

GUARANTEE NO: 150379IBGP00092
Rs.10,73,87,000/- (RUPEES TEN CRORES SEVENTY THREE LAKH EIGHTY SEVEN THOUSAND ONLY) IN FAVOUR OF Chief Engineer, World Bank Projects, Odisha, Bhubaneswar, Office of the Engineer in Chief (Civil), Odisha, NIRMAN SOUDHA, KESHARI NAGAR. UNIT - V BHUBANESWAR-751001

We have been informed, that Backbone-Utkal (JV) (hereinafter called "the Contractor") has entered into LOA No.PMU-WB-114/2015-48111, Dt.27.11.2015 vide ICB Package.No.OSRP-CW-ICB-P04A1 with you, for the execution of 'Widening & strengthening of existing carriageway to 2-lane from Jagatpur to Nischintakolli (Km 0/00

କୃତେ ଆଇଡିବିଆଇ ବ୍ୟାଙ୍କ ଲିମିଟେଡ
For IDBI BANK LIMITED

Rithakia

କମଳେଶ କୁମାର ଥାକୁର / Kamlesh Kumar Thakur
ପ୍ରବନ୍ଧକ-ଡିଭିଜନ/ Manager-TBG
କର୍ମସୂଚୀ କୁଡ଼: / EM: 831329



କୃତେ ଆଇଡିବିଆଇ ବ୍ୟାଙ୍କ ଲିମିଟେଡ
For IDBI BANK LTD.

ଦେବୀ ମନ୍ଦଳ / Devani Mandal
ଡି. ଜେ. ମ୍ୟାନେଜର-ଡିଭିଜନ, ୱେ-II ଜୋନ
Dy. Gen. Manager-TBG, East-II Zone
କର୍ମସୂଚୀ କୁଡ଼: / EC 104397

Shankar Pradhan
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)



ଓଡ଼ିଶା ଆଠିଆ ODISHA

32AA 264980

BANK GUARANTEE No.	150379IBGP00092
DATED	19.12.2015
AMOUNT	Rs.10,73,87,000/-
GTY VALID UPTO	31.07.2017
CLAIM PERIOD UPTO	31.07.2017

to 25/00 of MDR) (Balance work) [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, IDBI Bank Ltd, having its Registered Office at IDBI Tower, WTC Complex, Cuffo Parade, Mumbai – 400 005, and amongst other places, a

कृते आईडीबीआई बैंक लिमिटेड
For IDBI BANK LIMITED



कृते आईडीबीआई बैंक लिमिटेड
For IDBI BANK LTD.

Kishore
कमलेश कुमार शर्मा / Kamlesh Kumar Sharma
प्रबन्धक-टीजीडी/ Manager-TBG
कर्मचारी सूट: / ER: 631329

Devraj Mandal
डेवराज मंडल-टीजीडी पूर्व-II अंचल
Dy. Gen. Manager-TBG East-II Zone
कर्मचारी सूट: / EC 104397

For Backbone-Utkal JV
[Signature]
Backbone-Utkal (JV)
Authorized Signatory

[Signature]
Chief Engineer,
World Bank Projects, Odisha
Chief (Employer)
World Bank Project
Dy. Gen. Manager, Odisha, 8851



BANK GUARANTEE No.	150379IBGP00092
DATED	19.12.2015
AMOUNT	Rs.10,73,87,000/-
GTY VALID UPTO	31.07.2017
CLAIM PERIOD UPTO	31.07.2017

Branch at IDBI Bank Limited, IDBI House, 1st Floor, Janpath, Unit – IX, Bhubaneswar – 751022 (hereinafter referred to as "Bank" which expression shall unless repugnant to the context or meaning thereof mean and include all its successors, administrators, executors and assigns), hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Rs.10,73,87,000.00 (Rupees ten crore seventy three lakh eighty seven thousand only) 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 31st day of July/2017 and any written demand for payment under it must be received by us at this office on or before that date i.e. 31st day of July/2017.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

Notwithstanding anything contained herein above:

- i) Our liability under this guarantee is restricted to of Rs.10,73,87,000/- (RUPEES TEN CRORES SEVENTY THREE LAKH EIGHTY SEVEN THOUSAND ONLY)
- ii) This Bank Guarantee shall remain in force for the period until 31.07.2017
- iii) We are liable to pay the guaranteed amount under this Guarantee only and only if you Serve upon us a written claim or demand received by us on or before 31.07.2017 before 16: 30 hours (IST), all the rights of the beneficiary under the said guarantee shall be forfeited and the Bank shall be released and discharged from liabilities thereof.

कृते आईडीबीआई बैंक लिमिटेड
For IDBI BANK LIMITED

K. K. Thakur
कमलेश कुमार ठाकुर / Kamlesh Kumar Thakur
प्रबंधक-टीबीसी / Manager-TBG
कर्मचारी कूटः / EM:631329




कृते आईडीबीआई बैंक लिमिटेड
For IDBI BANK LTD.

[Signature]
विप्लवी मंडल / Vipul Mandel
ऑन म्यानेजर-टीबीसी पूर्व-II ज़ोन
D, Gen Manager-TBG East-II Zone
कर्मचारी कूटः/EC:104397

For Backbone-UTR3
[Signature]
Backbone-UTR3
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
On the E.I.C.(I), Odisha, BBSR

FIN NO.3



BAPS & ASSOCIATES
Chartered Accountants

N-1 A-1, IRC Village
Bhubaneswar - 751015
Ph 0674 - 2550490 (O)
Mob. No - 09437000874
Mail - clickprithvi@yahoo.com
Branches at Thane, Trivandrum & Joda

TO WHOMSOEVER IT MAY CONCERN

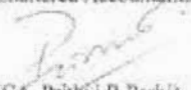
This is to certify that the availability of Financial Resources of M/s UMSL Ltd. IMFA Building, Rasulgarh, Bhubaneswar – 751010 are as under :

Form FIN – 3: Financial Resources


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)


<u>Financial Resources</u>		
NO	SOURCE OF FINANCING	Amount (US\$ equivalent)
1	Own Resources	22651875
2	Banking Facility – Fund Base	7668859
3	Banking Facility – Non Fund Base	7509091

For BAPS & Associates
Chartered Accountants




(CA. Prithvi R Parhi)
Partner M. No.063639

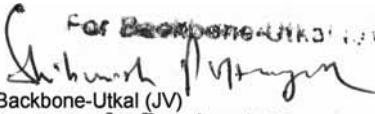





For Backbone-Utkal (JV)



Authorized Signatory

For Backbone-Utkal (JV)

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 World Bank Project
 (Employer)
 O/o the E.I.C.(C), Odisha, BBSR



TO WHOMSOEVER IT MAY CONCERN

This is to certify that, the turnover of UMSEL Limited, DIFA Building, Boudhikal, Rasulpatti, Bhubaneswar-751010 for the last five years are as under:

FINANCIAL YEAR	AMOUNT (IN LAKHS)
2011-11	22276.27
2011-12	35205.70
2012-13	30856.56
2013-14	28400.24
2014-15	27342.67

Place Bhubaneswar
Date: 12.08.2015



Flat F 305, 7th Floor, Laxmi Huzary, Near Kailash Complex of APT, Bhubaneswar-751004
Phone : 0674 552250. Mail : info@umsel.com, chartered@umsel.com

For Backbone-Utkal (JV)
Shyam Patra
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Project, Odisha
(Employer)
World Bank Project
Of the E.I.C.(C), Odisha, BBSR



HDFC Bank Ltd
Astral Towers, Opp. Reliance Gen. Insu.,
Near Mithakali Six Road,
Navrangpura, Ahmedabad,
Gujarat - 380009

Date :- 23/09/2015

BANK CERTIFICATE

This is to certify that M/s.Backbone Enterprises Ltd. who is participating in this bid, is a reputed company with a good financial standing.

If the contract for the work, namely "**Construction for Widening &Strengthening of Existing Carriageway to2-lane road from Jagatpur to Nischintakoili.**" is awarded to the above, we shall be able to provide credit facilities to the extent of **Rs.22,00,00,000 /-** to M/s. **Backbone Enterprises Ltd** to meet the working capital requirements for executing the above contract.

Sign:-  

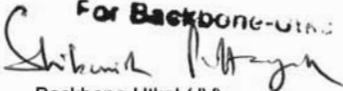
Name of Bank :- HDFC Bank Ltd

Relationship Manager :- Vinod Yadav

Address of the Bank :- 2nd Floor, Astral Towers, Opp. Reliance Gen. Insu , Near Mithakali Six Road, Navrangpura, Ahmedabad - 380009



Reg. Office : HDFC Bank Ltd, HDFC Bank House, Senapati Bapat Marg, Lower Parel (west), Mumbai – 400013

For Backbone-UTMS

Backbone-Utkal (JV)
(Contractor) **Authorized Signatory**


Chief Engineer,
World Bank Projects, Odisha
Project Engineer
(Employer)
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR



STRICTLY PRIVATE AND CONFIDENTIAL

Date: June 24, 2015

Solvency Certificate

To whomsoever it may concern

This is to certify that to the best of our knowledge and information Backbone Enterprises Ltd., having its registered office at "Backbone House", M-43, Gujarat Housing Board, Kalawad Road, Rajkot - 360001 and Corporate office at 209, Akik Tower, 2nd Floor, Opp. Rajpath Club, S.G. Highway, Bodakdev, Ahmedabad - 380015, a customer of our bank is solvent up to a sum of Rupees 150,00,00,000/- * (Rs. One hundred and fifty Crores Only).

It is clarified that this information is furnished in strict confidence and without any risk and responsibility on our part or on the part of any of the Bank's officials in any respect whatsoever more particularly either as guarantor or otherwise.

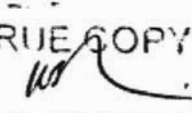
This certificate is issued at the specific request of the said customer.

For, ICICI Bank Limited


Authorised Signatory 

* Solvency amount is based on share capital and reserves & surplus figures as per audit report of FY 2014-15.


TRUE COPY

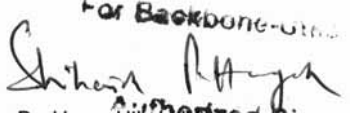


K. B. VAGHELA
NOTARY
GOVT OF INDIA
Website: www.icicibank.com

ICICI Bank Limited
JMS House, 9th Floor,
Opp. Farmai Garden,
Ambli, aah,
Ahmedabad - 380006

Regd. Office: Landmark, Rajg. Circle,
Vadodra - 390015, India.
Corp. Office: ICICI Bank, 209, Akik Tower,
S.G. Highway, Bodakdev, Ahmedabad - 380015, India.
Complete list of branches on www.icicibank.com



For Backbone-Utkal

Authorised Signatory,
Backbone-Utkal (PVT)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

<p>ओरियन्टल बैंक ऑफ कॉमर्स (भारत सरकार का उपक्रम) ओम प्लानेट, ग्राउन्ड फ्लोर निर्मला कान्वेंट के सामने, राजकोट-360007 फोन नों-0281 (2579490, 2573500)फैक्स-0281- 2573743</p>	 ओ. बी. सी.	<p>ORIENTAL BANK OF COMMERCE (A GOVERNMENT OF INDIA UNDERTAKING) Aum Planet, Ground floor, opp- Nirmala convent school, Rajkot-360007 E-mail-bm0556@obc.co.in SWIFT-ORBCINBARJK IFSC- ORBC0100556 WEBSITE- OBCINDIA.CO.IN</p>
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CN/0556/Solvency-S-28 /2015

Date 23/06/2015

To,
Executive Engineer,
PWD Civil Division No.1(Bldg),
Silvassa
Gujarat


Dear Sir,

Re: Solvency Certificate A/c M/s Backbone Enterprises Limited

This is to state that to the best of our knowledge and information **M/s Backbone Enterprises Limited. (Cust Id-12605396)**, a customer of our Bank with its registered office at **BACKBONE HOUSE, M-43, Gujarat Housing Board, Kalawad Road, Rajkot, 360001 Gujarat** is respectable and can be treated as good for engagement up to a sum of **Rs.5,00,00,000/- (Rupees Five Crore Only)**.

It is clarified that this information is furnished without any risk or responsibility on our part or on the part of any of our officers in any respect whatsoever, more particularly either as guarantor or otherwise. This certificate is issued at the specific request of the customer and is valid upto one year from the date of its issue.

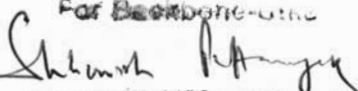
Yours faithfully,



Asst. General Manager



TRUE COPY
KV
K. B. VAGHELA
NOTARY
GOVT. OF INDIA



For Backbone-Unit

Backbone-Unit (Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employee)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

For Backbone-UITA:
Shahid P. Singh
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Projects,
In the E.I.C.(C), Odisha, BBSR

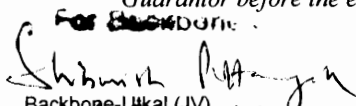
2____, ² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date..

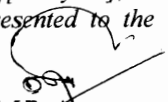
This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

[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 Backbone~~

Backbone-UKal (IV)
(Contractor)


Chief Engineer,
World Bank Project, Odisha
Chief Engineer (Employer)
World Bank Project
To the E.C.C. Odisha, BOST

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.: _____

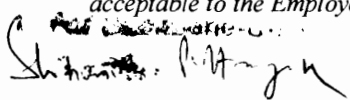
We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works] (hereinafter called "the Contract").

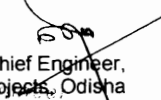
Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money or if the amount guaranteed 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.


Backbone Ulkal (IV)
(Contractor)

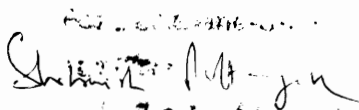

Chief Engineer,
World Bank Projects, Odisha
(Employer)
2014 B.O. (G.O.) 0055, O.S.R.

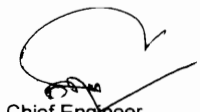
This guarantee shall expire, at the latest, 21 days after the date when the Employer has received a copy of the Performance Certificate issued by the Engineer. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

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.


Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Bhubaneswar, Odisha, India

AGREEMENT No. **04** of 2015-16



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P04A1

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, World Bank Projects, Odisha
on behalf of

Odisha Works Department, Government of Odisha

and

M/s Backbone-Utkal JV,

IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010, Odisha

Tel : +91-674-2580100/3051000, Fax : +91-674-2580021

E-mail: info@umsl.in

[VOLUME-II: Conditions of Contract]

Agreement Value: Rs. 107,38,63,577

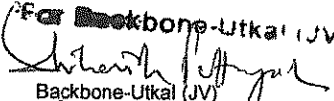
*Project Management Unit, Odisha State Roads Project
Office of the Engineer-in-Chief (Civil), Odisha,
Nirman Soudha, Keshari Nagar, Unit – V, Bhubaneswar – 751 001*

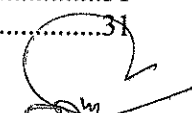
December 23, 2015

CONDITIONS OF CONTRACT AND CONTRACT FORMS

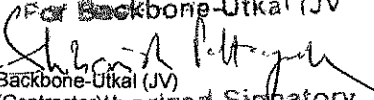
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For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Authorized Signatory)

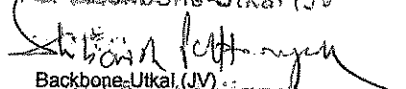

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR


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For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

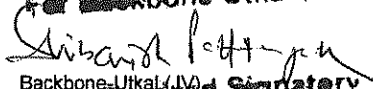

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR


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For Backbone-Utkal (JV)

 Backbone-Utkal (JV)
 (Contractor)

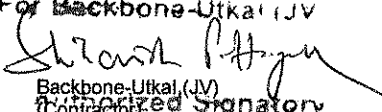

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR


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For Backbone-Utkal JV

 Backbone-Utkal JV
 (Contractor)
 Authorized Signatory

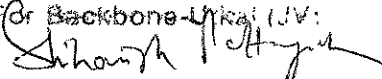

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

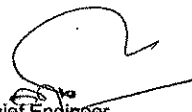
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For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

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For Backbone-Utkal (JV):

Backbone-Utkal (JV)
(Contractor) Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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].

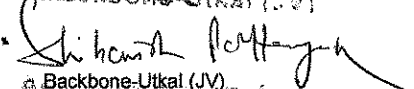
1.1.1.3 “Letter of Acceptance” means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression “Letter of Acceptance” means the Contract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

For Backbone-Utkal (JV)

Shikhar Pathy
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
Of the E.I.C.(O), Odisha, BBSR

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 Backbone-Utkal (JV)


Backbone-Utkal (JV)
Authorized Signatory
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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 Dates, Tests, Periods and Completion

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].

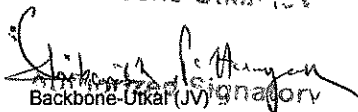
1.1.3.3 "Time for Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.


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.

For Backbone-Utkal JV
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
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- 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 **Money and Payments**
- 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 14.1 [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].

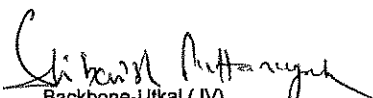
For Backbone-Utkal JV

Backbone-Utkal (JV) Signatory
(Contractor)



Chief Engineer,
World Bank Projects, Odisha
(Employer)
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World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

- 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


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Backbone-Utkal (JV)
For Backbone-Utkal JV


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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.

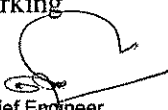
1.1.6.4 "Force Majeure" is defined in Clause 19 [Force Majeure].

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 Backbone-Utkal JV

Authorized Signatory
Backbone-Utkal JV
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
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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

For Backbone-Utkal (JV)
Backbone-Utkal (JV)
Contractor
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
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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.

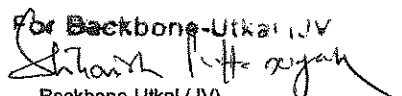
The ruling language of the Contract shall be that stated in the Contract Data.

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.

For Backbone-Utkal JV

Backbone-Utkal (JV)
(Contractor)ized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
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O/o the E.I.C.(C), Odisha, BBSR

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.

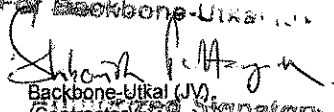
1.8 Care and Supply of Documents


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.

For Backbone-Utilis...

Subodh K. Nayak
Backbone-Utilis (JV)
(Contractor) *Authorized Signatory*


Chief Engineer,
World Bank Projects, Odisha
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World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

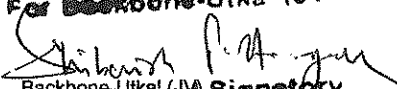
However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit

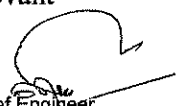
1.10 Employer's Use of Contractor's Documents

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

For Backbone-Utkal JV

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(Employer)
Chief Engineer
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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.

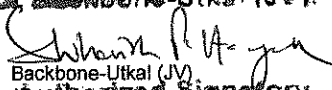
1.12 Confidential Details


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:

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


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(Employer)
Chief Engineer
World Bank Project
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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.

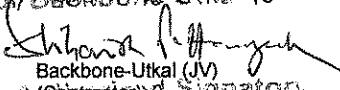
1.14 Joint and Several Liability


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).

For Backbone-Utkal JV

Backbone-Utkal (JV)
Contractor's Signature


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

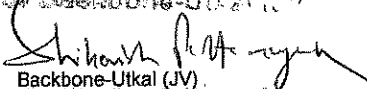
After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.


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

For Backbone-Utkal

Shikhar K. Singh
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
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Chief Engineer
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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].

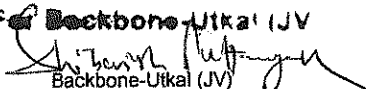
2.4 Employer's Financial Arrangements


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

For Backbone-Utkal JV

Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Of the E.I.C.(C), Odisha, BBSR

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.

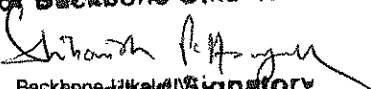
3. The Engineer

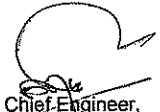
3.1 Engineer's Duties and Authority

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

For Backbone-Utkal JV

Backbone-Utkal JV
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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

For Backbone-Utkal JV


Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
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World Bank Project
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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.

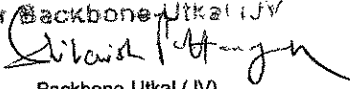
3.2 Delegation by the Engineer


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

For Backbone-Utkal JV

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Contractor Signatory


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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.

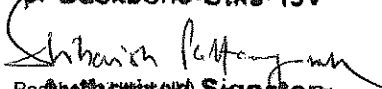
The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:


- (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.

For Backbone-Utkal JV

Subhakar Pattanayak
Backbone-Utkal JV
(Contractor) Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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

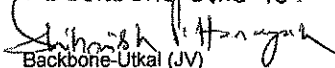
The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.


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.

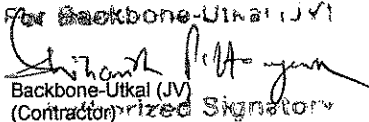
The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.


For Backbone-Utkal JV

Subhankar Pattnayak
Backbone-Utkal (JV)
(Contractorized Signatory)


Chief Engineer,
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World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
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Chief Engineer
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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.

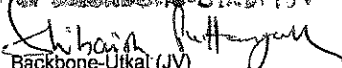
The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance 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.

For Backbone-Utkal JV

Subhan Pattayal
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
Chief Engineer
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O/o the E.I.C.(C), Odisha, BBSR

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].

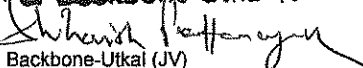
The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person 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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(Contractor) Authorized Signatory


Chief Engineer,
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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.

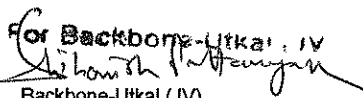
4.6 Co-operation


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

For Backbone-Utkal, JV

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(Contractor)
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Chief Engineer
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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.

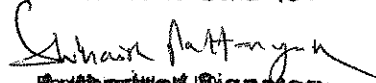
If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and 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:

For Backbone-Utkal JV


Subhash Pattanayak
Authorized Signatory
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
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- (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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Backbone-Utkal (JV)
(Contractor) Authorized Signatory


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World Bank Project
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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:

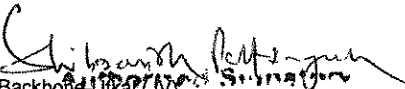
- (a) have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and
- (b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [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.

For Backbone-Utkal JV

Subash Chandra Pattnayak
Backbone-Utkal JV
(Contractor)


Chief Engineer,
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O/o the E.I.C.(C), Odisha, BBSR

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.

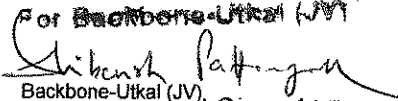
If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:


- (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

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
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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.

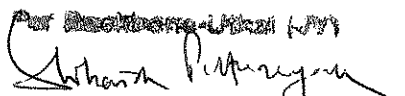
The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

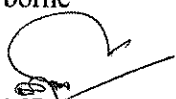
4.15 Access Route

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

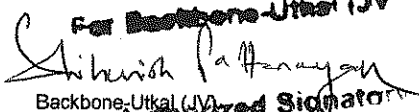
The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.


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

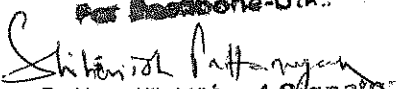
The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

- (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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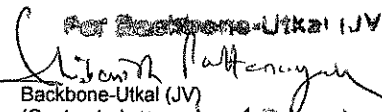
4.21 Progress Reports


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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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

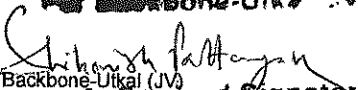
The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the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

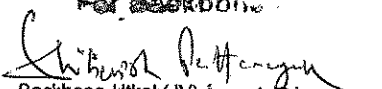
In the Contract, "nominated Subcontractor" means a Subcontractor:


- (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].

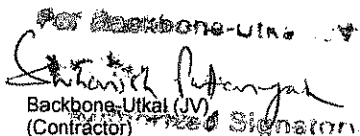
5.3 Payments to nominated Subcontractors


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'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.

For Backbone-Utkal JV

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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.

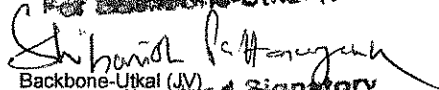
The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.


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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Subhansu Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory

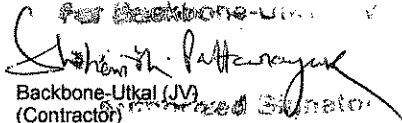

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health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

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.

for Backbone-Utkal

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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:

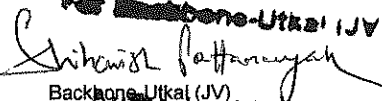
- (a) persists in any misconduct or lack of care,
- (b) carries out duties incompetently or negligently,
- (c) fails to conform with any provisions of the Contract, or
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.


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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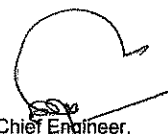

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requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.

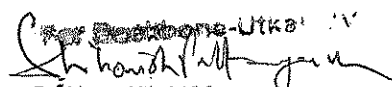
The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate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

For Backbone-Utkal JV
Shubhik Pattanayak
Backbone-Utkal JV
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(Employer)
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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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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:

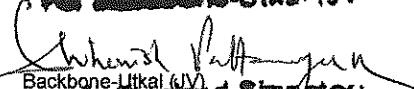
- (a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
- (b) additional samples instructed by the Engineer as a Variation.


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.

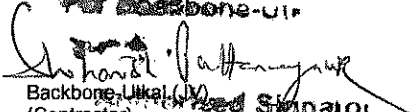
7.4 Testing


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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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:

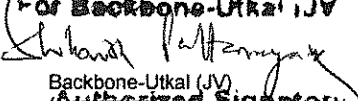
- (a) natural Materials obtained from outside the Site, and
- (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.


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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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.

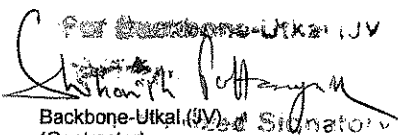
Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel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

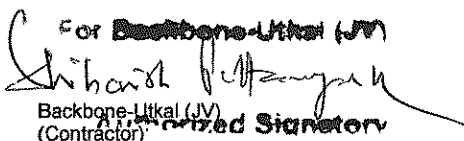
- (a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
- (b) these authorities delay or disrupt the Contractor's work, and
- (c) the delay or disruption was Unforeseeable,


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.

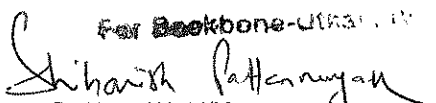
8.7 Delay Damages


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].

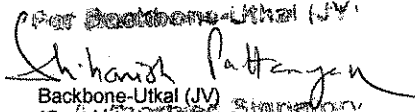
8.10 Payment for Plant and Materials in Event of Suspension


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:

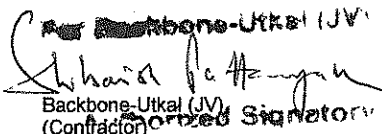
- (a) order further repetition of Tests on Completion under Sub-Clause 9.3;
- (b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in subparagraph (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 subparagraph (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 subparagraph (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.

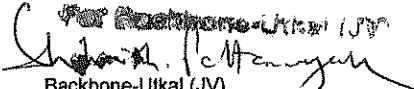
If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued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

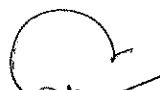
10.2 Taking Over of Parts of the Works

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.

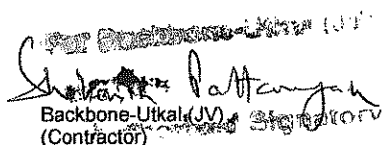
If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] 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**

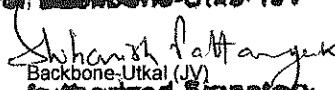
In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:


- (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.

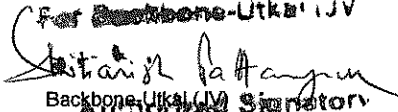
If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the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

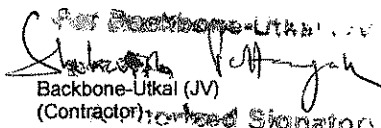
Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

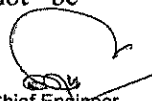
11.8 Contractor to Search

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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Certificate

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.

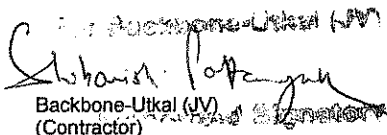
Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.


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:

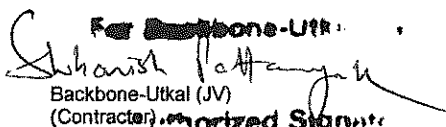
measurement shall be made of the net actual quantity of each item of the Permanent Works, and


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.

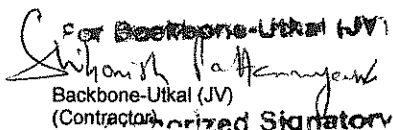
However, a new rate or price shall be appropriate for an item of work if:


- (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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Backbone-Utkal (JV)
(Contractor Authorized Signatory)


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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

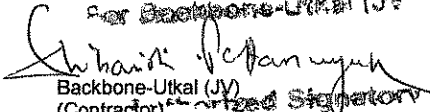
13.1 Right to Vary


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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Backbone-Utkal (JV)
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[Signature]
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Chief Engineer
World Bank Project
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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.

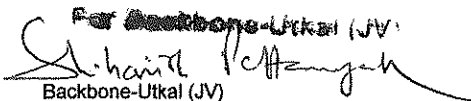
Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.

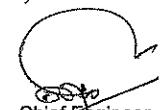
13.4 Payment in Applicable Currencies

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.

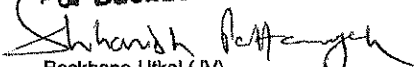
13.6 Daywork

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.

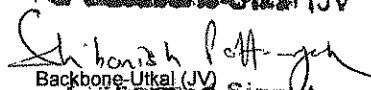
After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.


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 ;

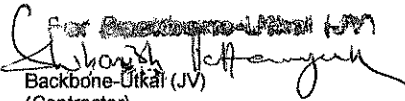
“a” is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

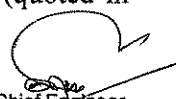
“b”, “c”, “d”, ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

“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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O/o the E.I.C.(C), Odisha, BBSR

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

For Backbone-Utkal JV


Shibaam Chatterjee
Backbone-Utkal JV
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
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execute, or

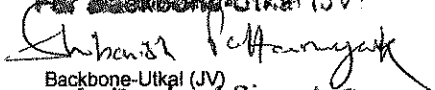
- (ii) for the purposes of Clause 12 [Measurement and Evaluation]; and
- (d) the Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, 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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Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

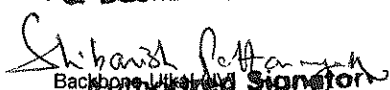
If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance 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.

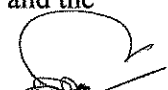
14.3 Application for Interim Payment Certificates

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

For Backbone-Utkal JVV

Subhansu Pattanayak
Authorized Signatory
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
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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);

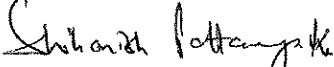
- (b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
- (c) any amount to be deducted for retention, calculated by applying the percentage 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;
- (d) 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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Subhash Pattanayak
Backbone-UTKR (Contractor) Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

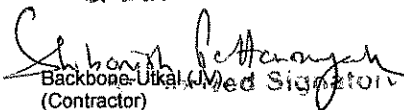
The Engineer shall determine and certify each addition if the following conditions are satisfied:


- (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

For Backbone-Utkal JV


Subhanshu Pattanayak
Backbone-Utkal JV
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
Chief Engineer (Employer)
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Of the E.I.C.(C), Odisha, BBSR

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

For Backbone-Utkal
S. Hanish
Backbone-Utkal
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
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Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although:

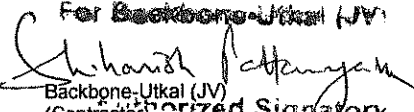
- (a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
- (b) if the Contractor was or is failing to perform any work or obligation in accordance 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.

For Backbone-Utkal JV

Subhanish Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
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Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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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Sankuish Pattanayak
Backbone-Utkal (JV)
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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].

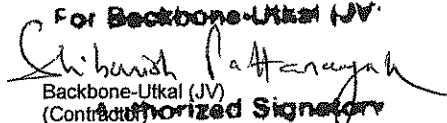
Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular 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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Shishir Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
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Works,

- (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:

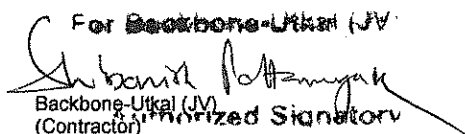
- (a) the value of all work done in accordance with the Contract, and
- (b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.


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

For Backbone-Utkal (JV)

Subir Pattnayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


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World Bank Projects, Odisha
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Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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:

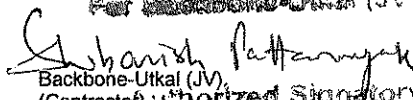
- (a) in the Final Statement and also
- (b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

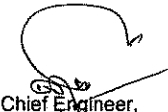
However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

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:

For Backbone-Utkal JV

Subhanish Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


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(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

- (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:

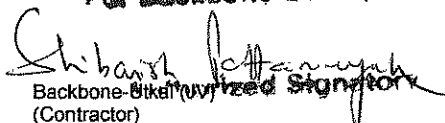
For Backbone-Utkal JV
Sibant Pattanayak
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
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World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

- (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.

For Backbone-Utkal JV

Shibanath Pattanayak
Backbone-Utkal JV
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

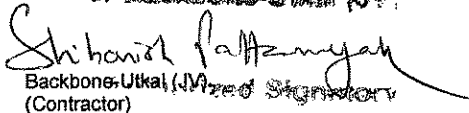
15.3 Valuation at Date of Termination

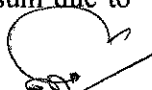
As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to 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

For Backbone-Utkal (M):

Shibanik Pattanayak
Backbone-Utkal (M) and Signatory
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
Of the E.I.C.(C), Odisha, BBSR

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

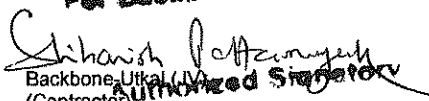
If the Employer determines that the Contractor and/or any of its personnel, or its agents, or its Subcontractors, subconsultants, services providers, suppliers and/or their employees has engaged in corrupt, fraudulent, collusive coercive, or obstructive practices, in competing for or in executing the 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.

For Backbone-Utkal JV

Shivanish Pattanayak
Backbone, Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

- (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

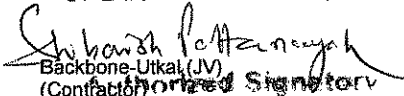
If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer’s Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days’ notice to the Employer, suspend work (or reduce

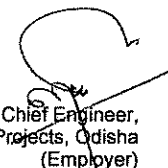
² “Party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

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.

For Backbone-Utkal JV


Subhanshu Pattnayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)

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

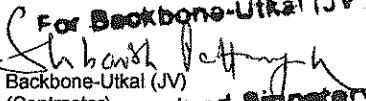
For Backbone-Utkal JV
Sibani Pattanayak
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

Financial Arrangements],

- 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

For Backbone-Utkal (JV):

Subank Debbarma
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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:

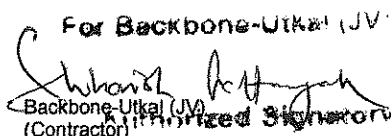
- (a) return the Performance Security to the Contractor,
- (b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- (c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

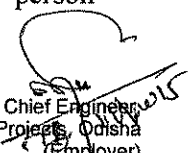
17. Risk and Responsibility

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

For Backbone-Utkal JV

Backbone-Utkal JV
(Contractor) Authorized Signatory


Chief Engineer
World Bank Project, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

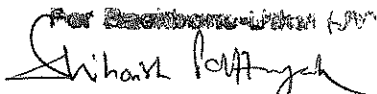
The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any 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


Shihank Pattayak
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

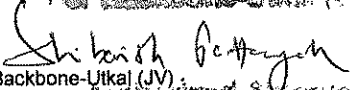
for their care, from any cause not listed in Sub-Clause 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.


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

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

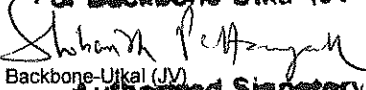
17.5 Intellectual and Industrial Property Rights


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

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

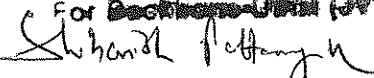
If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in 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.

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

**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**

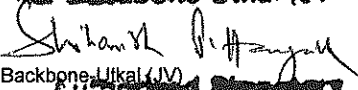
In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.


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

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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

~~For Backbone Unit (JV)~~

Shibanish Debnayan
Backbone Unit (JV) Signatory
(Contractor)


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O/o the E.I.C.(C), Odisha, BBSR

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

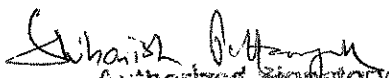
The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted 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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Subhanshu Jit
Backbone-Utkal JV
(Contractor)


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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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[Signature]
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

[Signature]
Chief Engineer,
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Chief Engineer
World Bank Project
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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.

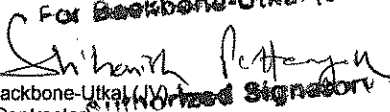
This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.


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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(Contractor)


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Personnel

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

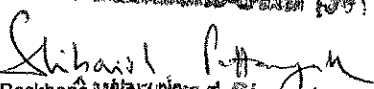
19.1 Definition of Force Majeure


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

For Backbone Utility

Shihant Pattnayak
Backbone Utility
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

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 destroyed 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

For Backbone-Utkal JV


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(Contractor)


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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

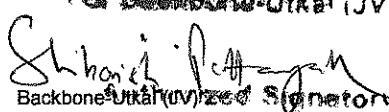
20.1 Contractor's Claims


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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Backbone-Utkal JV
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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.

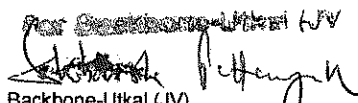
Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes 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:

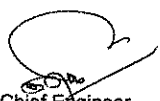
- (a) this fully detailed claim shall be considered as interim;
- (b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
- (c) the Contractor shall send a final 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

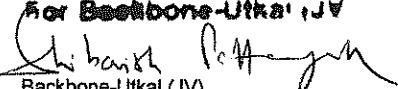
Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The Parties shall appoint a DB by the date stated in the Contract Data.


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.

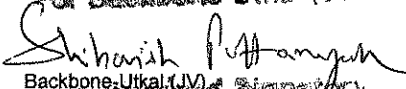
For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.


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

For Backbone Utkal IJV

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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

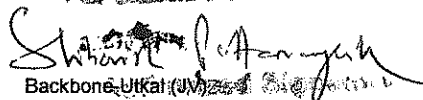
Where notice of dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the fifty-sixth day after the day on which 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

Per Backbone-Utkal

Backbone Utkal (Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

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.

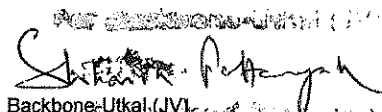
20.7 Failure to Comply with Dispute Board's Decision


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].


Backbone, Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

APPENDIX

A General Conditions of Dispute Board Agreement

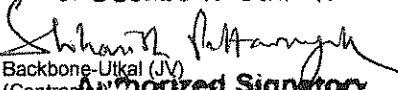
- 1. Definitions** Each "Dispute Board Agreement" is a tripartite agreement by and between:
- (a) the "Employer";
 - (b) the "Contractor"; and
 - (c) the "Member" who is defined in the Dispute Board Agreement as being:
 - (i) the sole member of the "DB" and, where this is the case, all references to 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 impartiality and independence.

For Backbone-Utkal JV

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
Chief Engineer (Employer)
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

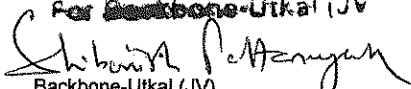
When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:


- (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 regarding employment by any of them, whether as a consultant

For Backbone-Utkal JV

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
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Chief Engineer
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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).

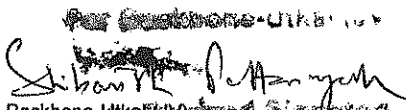
5. General Obligations of the Employer and the Contractor


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


Suban K. Pattnayak
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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

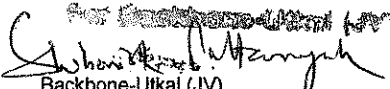
The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

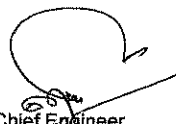
- (a) a retainer fee per calendar month, which shall be considered as payment in full for:
 - (i) being available on 28 days' notice for all site visits and hearings;
 - (ii) becoming and remaining conversant with all project developments and maintaining relevant files;
 - (iii) all office and overhead 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.

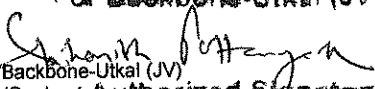
8. Default of the Member

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

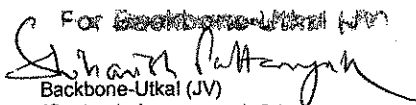
Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity


For Backbone-Utkal (JV):

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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.

For Backbone-Utkal JV

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For Backbone-Utkal (JV)
Shyam Prasad Pattanayak
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
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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.

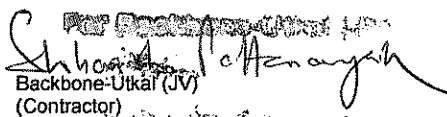
Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site 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.


Subhojit Kumar Nayak
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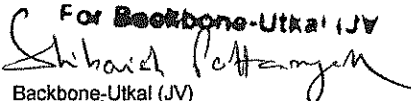
Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in 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.

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.

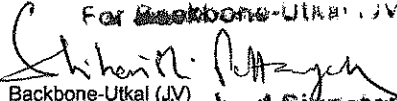
The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

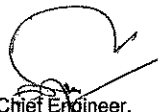
- (a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;
- (b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare 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.

For Backbone-Utkal JV

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


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Chief Engineer
World Bank Project
Of the E.I.C.(C), Odisha, BBSR

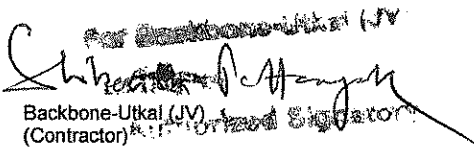
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For Backbone-Utkal JV

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(Contractor) Authorized Signatory


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Chief Engineer
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Particular Conditions (PC)

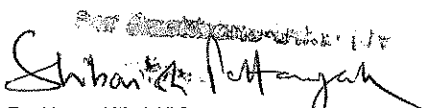
The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

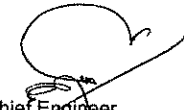

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Part A - Contract Data

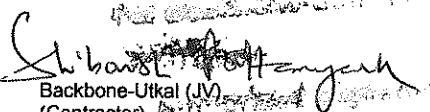
Conditions	Sub-Clause	Data
Employer's name and address	1.1.2.2 & 1.3	Chief Engineer, World Bank Projects, Odisha, O/o the E.I.C(Civil), Odisha, Nirman Soudha, Unit-V Bhubaneswar – 751 001
Engineer's name and address	1.1.2.4 & 1.3	Resident Engineer, LEA Associates South Asia Pvt. Ltd., Jagatpur-Chandbali Road Project, Near Underpass, NH-5A At:- Duhuria, P.O. Pandiri Dist-Kendrapara-754211 Phone: 06727-220077 Email:- laskendrapara@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> Km 11/000 to Km 25/000shall be handed over for execution prior to issuance of advance payments under Clause 14.2.



Subhanik Majumdar
Backbone-Utkal (JV),
(Contractor)


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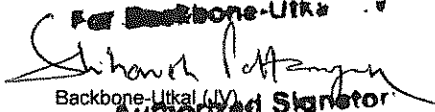
Conditions	Sub-Clause	Data
		<p><u>Section-II</u> Km 0/000 to Km 11/000 shall be handed over for execution within <u>3 months</u> of date of commencement of work.</p> <p>Within two weeks of handing over of each stretch, the contractor needs to examine and provide acceptance of receiving encumbrance free land or inform the employer, with details of encumbrances if any.</p> <p>The Employer may reschedule the above Sections before the handing over time mentioned above considering the ground conditions. However, it shall be ensured to maintain the length of the Sections as far as possible.</p>
Engineer's Duties and Authority	3.1(b)(ii)	Variations resulting in an increase of the Accepted Contract Amount in excess of <u>2%</u> 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). 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. <ul style="list-style-type: none"> (a) 5 percent of the Accepted Contract Amount (b) Additional Performance Security of 5% of the accepted contract amount in case the contractor is a Joint Venture and (c) Additional Security for unbalanced bids determined in accordance with the CI.34.5 of ITB



 Backbone-Utkal (JV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

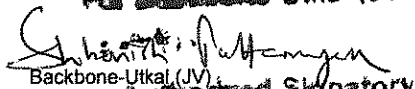
Chief Engineer
 World Bank Project
 Of the E.I.C.(C), Odisha, BSR

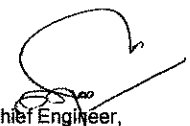
Conditions	Sub-Clause	Data
Normal working hours	6.5	08:00 Hours to 18:00 Hours (Except otherwise stipulated by the Government of Odisha in exceptional climatic conditions.)
Commencement of Works	8.1 (c)	Possessions of sites shall be given as mentioned in Sub-Clause 2.1 above.
	8.1 (d)	Deleted
Delay damages 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": 3 months
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>

For Backbone-Utkal

 Shivan Pradhan
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 Authorized Signatory
 (Contractor)


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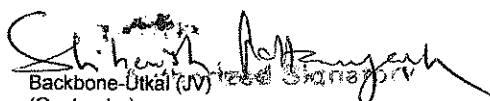
Conditions	Sub-Clause	Data
Repayment amortization rate of advance payment	14.2(b)	10 % Repayment will begin when amount of work certified by the Engineer attains 30% of the Contract Price or six months whichever is earlier.
Percentage of Retention	14.3	10 %
Limit of Retention Money	14.3	5 % of the Accepted Contract Amount
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 30 Million from 4 th to 6 th month . (iii) Minimum INR 75 Million from 7 th and onwards. The contractor's work programme shall be in commensurate with the above stipulations.

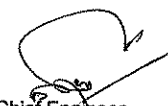
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Conditions	Sub-Clause	Data
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	These financing charges shall be calculated at 1% over the PLR rate fixed by Reserve Bank of India to Commercial Banks for 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: a. evidence of insurance. b. relevant policies	18.1	14 days 28 days
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d)	<i>US\$ 5000 or Rs. 250,000 per occurrence</i>
Minimum amount of third party insurance	18.3	<i>Rs. 50,00,000 per occurrence with unlimited number of occurrences</i>
Date by which the DB shall be appointed	20.2	90days 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	<i>None</i>
Appointment (if not agreed) to be made by	20.3	<i>Secretary General of Indian Roads Congress.</i>
Rules of arbitration	20.6(a)	<i>Rules and Procedures laid out for Arbitration & Reconciliation Act, 1996 of Government of India or any amendment thereof.</i>

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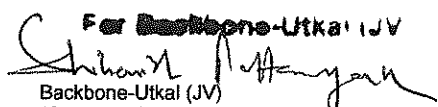

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Summary of Sections

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: 14 Kms as mentioned in Cl. 2.1	14(Fourteen) Months from Commencement of Works	INR. 309,000 per day
Section-II: 11.00 Kms as mentioned in Cl. 2.1	18(Seventeen) Months from Commencement of Works	INR. 243,000 per day

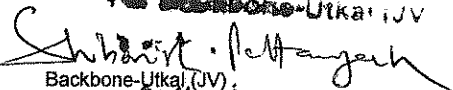
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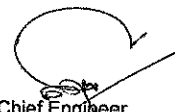

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Part B - Specific Provisions

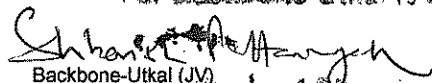
<p>Clause 1.5 Priority of Documents</p>	<p>Delete sub paragraphs (a) to (i) in Sub-Clause 1.5 and substitute with the following:</p> <ul style="list-style-type: none"> a. the Contract Agreement (if any), b. the Letter of Acceptance, c. the record of pre-award clarifications (if any), d. the letter of Tenderthe addenda e. the Particular Conditions- Part-A-Contract Data f. the Particular Conditions-Part-B-Specific Provisions, g. the General Conditions h. Works Requirement (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 (j) the Priced Bill of Quantities (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 Senior Site Representative attends all the periodic review meetings notified by the Engineer / Employer / Employer's Representative.</p>


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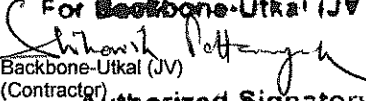
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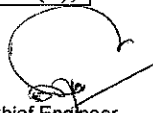
<p>Clause 4.2 Performance Security</p>	<p>Substitute the words ‘an entity and from within a country(or other jurisdiction)’ starting in the 4th line of 2nd paragraph of Sub-Clause 4.2 with ‘any Nationalized/ Scheduled Commercial Bank located in India or a Foreign Bank with counter guarantee from a Nationalized/ Scheduled Commercial Bank located in India’</p>
<p>Clause 4.4 Sub-Contractors</p>	<p>Replace the words ‘the whole of Works’ with ‘more than 30% of the Works in terms of value including the Work subcontracted to’</p>
<p>Clause 4.7 Setting Out</p>	<p>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.”</p>
<p>Clause 4.14 Avoidance of Interference</p>	<p>Add the following paras (c), (d) and (e) after para (b) as follows:</p> <p>(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.</p> <p>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.</p> <p>(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.</p>
<p>Sub-Clause 6.4 Staff and Labour</p>	<p>Add the following at end of Sub-Clause 6.4:</p> <p>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.</p> <p>Salient features of some major Labour Laws applicable to establishments engaged in Construction of Civil Works are</p>

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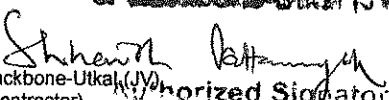
	<p>given in Annexure A-1 for reference purpose.</p> <p>The contractor and sub contractor shall comply with the safety and welfare provisions as detailed in Annexure A-II</p>
Sub-Clause 7.3 Inspection	<p>Amend the first line of last para as follows: The Contractor shall give “not less than 48 (forty eight) 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; A detailed works programme indicating the anticipated timing of each stage of construction. 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.</p>
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): (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.</p>
Sub-Clause 14.1 The Contract Price	<p><i>Add</i> Notwithstanding the provisions of subparagraph (b),</p>


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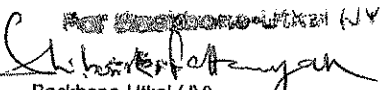
	<p>Contractor's Equipment, including essential spare parts therefore, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities 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 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.</p>
<p>Clause 14.13 Issue of Final Payment Certificate</p>	<p>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-Clause 14.13</p>
<p>Clause 14.15 Currencies of Payment</p>	<p>Replace sub paragraph (e) of sub-Clause 14.15 with the following: 'if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and shall be average buying and average selling rate of the foreign currency determined by the Reserve bank of India.</p>
<p>17.2 Contractor's Care of the Works</p>	<p>Add the following after end of para:</p>


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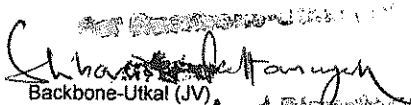
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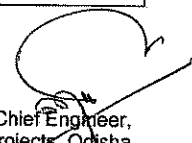
	<p><u>Failure to Maintain the Road during construction</u></p> <p>The contractor's obligations for maintenance of the road stretches shall be limited to the portions/ stretches/ structures handed over to him by the Employer. Other stretches not handed over to him shall be maintained by the Employer till 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, a penalty shall be levied at the rate Rs.1500/- per km per day.2. Shoulders : In case of failure to maintain the shoulders , a penalty shall be levied at the rate Rs.500/- per km per day. <p><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>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) A penalty of Rs.5000/- per day per location shall be imposed from the date of occurrence till installation of the safety items.</p> <p>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) A penalty of Rs.5000/- per day per location shall be imposed from the date of occurrence till installation of the safety items.</p> <p><u>Failure to adhere to Environmental Mitigation Measures during construction</u></p>
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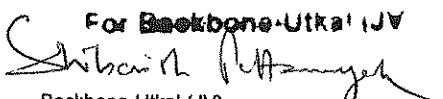
	<p>The Contractor has to follow all Environmental Mitigation Measures as defined in the Technical Specifications . A penalty shall be levied at the rate indicated below for non-conformity of the following items.</p> <ol style="list-style-type: none"> 1. Not filling up of the post of Environment and Safety 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 (a) with the following:</p> <p>(a) 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 by the Appointing Authority as specified in the Bid Data Sheet. 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 as well as a joint venture between such a Contractor and a Foreign Contractor.</p>

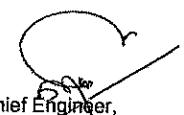

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	<p>In case of a dispute with a Foreign Contractor, the dispute shall be finally settled in accordance with the provisions of UNCITRAL Arbitration Rules. For the purposes of this Sub-Clause, the term "Foreign Contractor" means a Contractor who is not registered in India and is not a juridical person created under Indian Law.</p>
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Annexure-A I

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

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.

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(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

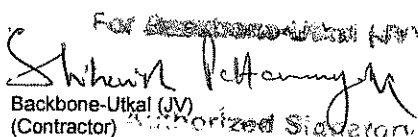
The Act lays down the procedure for registration of trade unions of workmen and employees. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities.


(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 to be provided certain facilities such as housing, medical aid, travelling expenses from home upto the establishment and back, etc

For ~~Signature~~ ~~Signature~~ ~~Signature~~

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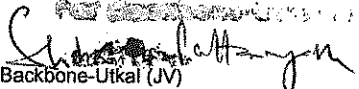

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(xv) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and The Building and Other Construction workers Welfare Cess Act of 1996

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.


Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.

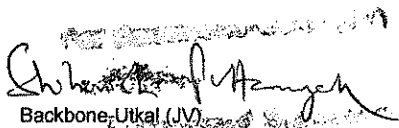
(vi) Suitable scaffolds shall be provided for workmen for all work that cannot safely be done from the ground, or from solid construction except for such short period work as can be done safely from ladders. When a ladder is used, an extra labourer shall be engaged for holding the ladder and if the ladder 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.

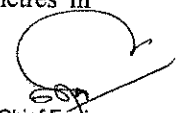
(vii) Scaffolding or staging more than 3.25 metres above the ground or floor, swung or suspended from an overhead support or erected with stationary support, shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1 metre high above the floor or platform of such scaffolding 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.

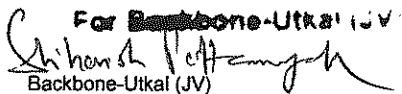
(xiv) Demolition: Before any demolition work is commenced and also during the process of the work:

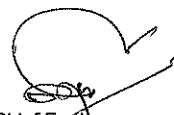
- a) All roads and open areas adjacent to the work site shall either be closed or suitably protected.
- b) No electric cable or apparatus, which is liable to be a source of danger other than a cable or apparatus used by operators, shall remain electrically charged:
- c) All practical steps shall be taken 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 Backbone-Utkal (JV)

Anand Kumar
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

(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:

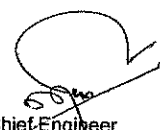
(i) First Aid:

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 Backbone-Utkal JV
Shibom Pattengari
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

(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

For Backbone-Utkal
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World Bank Project
O/o the E.J.C.(C), Odisha, BBSR

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:

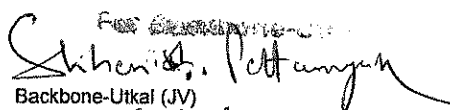
At a place where women are ordinarily employed, there shall be provided at least one hut for use of children under the age of 6 years belonging to such women. Huts shall not be constructed to a standard lower than that of thatched roof, mud floor and wall with wooden planks spread over mud floor and 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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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

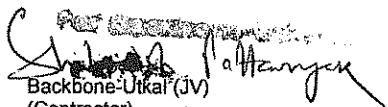
The contractor shall provide/carryout HIV/AIDS awareness and training programme to its labour and management, at least twice per year during the construction period.


(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


Subodh Paltan
Backbone-Utkal (JV)
(Contractor)


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For Backbone-Utkal
Shankar Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


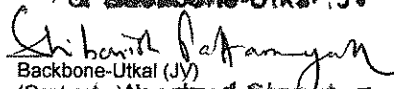

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Of the E.I.C.(C), Odisha, BBSR


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For Backbone-Utkal JVV

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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").

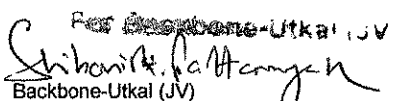
Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

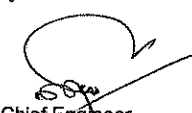
At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures]([amount in words]),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, 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 Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

For Backbone-Utkal JV

Subhankar Palit
Backbone-Utkal (JV)
(Contractor), Authorized Signatory

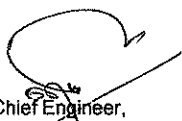

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(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.

For Backbone-Utkal (JV)
Subanish Pattanayak
Backbone-Utkal (JV)
(Contractor)
Digitized Signature


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the F.I.C.(C), Odisha, BBSR

Option 2: Performance Bond

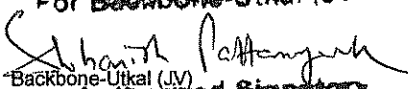
By this Bond _____ as Principal (hereinafter called "the Contractor") and _____] as Surety (hereinafter called "the Surety"), are held and firmly bound unto _____] as Obligee (hereinafter called "the Employer") in the amount of _____, for the payment of which sum well and truly to be made in the types 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 Backbone-Utkal JV

Subhanish Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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 _____

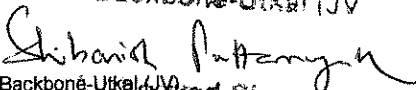
By _____ in the capacity of _____


In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

FOR Backbone-Utkal IJV

Backbone-Utkal IJV
(Contractor) *Legal Signatory*


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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").

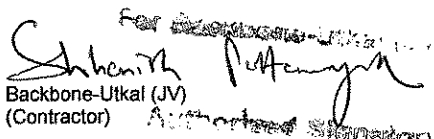
Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ [amount in figures]([amount in words]) is to be made against an advance payment guarantee.

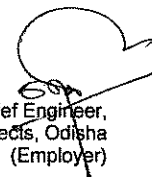
At the request of the Contractor, we _____ [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures]([amount in words])¹ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor 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.


Subhankar Pattanayak
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR


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..

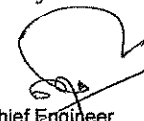
This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

[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."*


Backbone, Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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.: _____

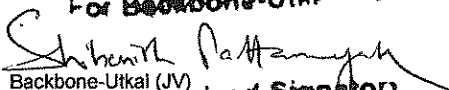
We have been informed that _____ [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ [reference number of the contract] dated _____ with you, for the execution of _____ [name of contract and brief description of Works] (hereinafter called "the Contract").


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.

For Backbone-Utkal

Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

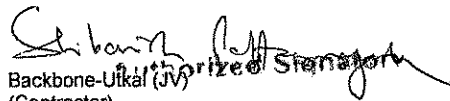
Contractor on its account number _____ at _____ *[name and address of Bank]*.


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)]

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

For Backbone-Utkal JV

Backbone-Utkal (JV) Authorized Signatory
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

AGREEMENT No. **04** of 2015-16



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P04A1

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR) (Balance
Works)
under

Odisha State Roads Project

between

Chief Engineer, World Bank Projects, Odisha
on behalf of
Odisha Works Department, Government of Odisha

and

M/s Backbone-Utkal JV,
IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010, Odisha
Tel : +91-674-2580100/3051000, Fax : +91-674-2580021
E-mail: info@umsl.in

[VOLUME-III: Specifications]

Agreement Value: Rs. 107,38,63,577

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

December 23, 2015

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

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:

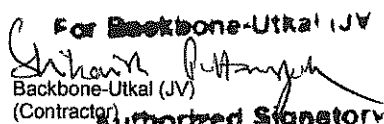
Sl.	Package No.	Name of the Road	Approximate Length of Construction in Km	Period of Construction
1	OSRP-CW-ICB-P04A-1	Jagatpur to Nischintakoili - Km 0/0 to Km 25/0 MDR (Balance work).	25 kms	18 Months

Geographical & Climatic Information

1.3.1 Jagatpur-Nischintakoili

This road is located in the eastern part of Odisha. The total length of the road in this package, is 25 km and the road passes through highly fertile paddy fields. The terrain is plain. The stretch of road is located in Cuttack and Kendrapara district. This area experiences rainfall of average 1600mm per annum and bulk of the rainfall occurs during June to October, which is the monsoon period in Odisha. Generally, the area experiences moderate to severe cyclonic storms between October to November. The ground water is available almost at the agricultural field level. 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 project stretch passes through Jagatpur, Salipur, Sukarpada, and upto Nischintakoili which are major villages/semi urban area. Principal rivers in the area are river Mahanadi, which runs parallel to the project road for certain distance.

For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

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 bituminous pavement with limited 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.

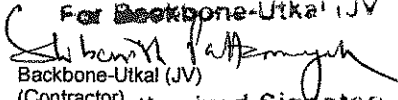
3. REPORTING REQUIREMENTS


The Contractor shall prepare and submit to the Employer along with soft copy of each of the following reports:

Sl	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.	3	Four weeks after commencement of Works.
3	Sectional/Substantial Completion Reports*	3	After substantial completion

*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.

For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

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.

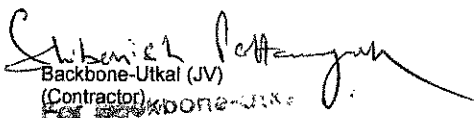
1.2.1 A particular Clause or a part thereof in “SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (FIFTH REVISION – 2013)” as corrected in the original referred in PART - I above, where Amended/Modified/Added upon, and incorporated in PART-II, referred to above. Such Amendment/Modification/Addition supersedes 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.


Subenish Pattanayak
Backbone-Utkal (JV)
(Contractor)
For Backbone-Utkal

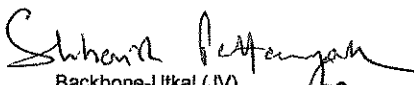

Chief Engineer,
World Bank Projects, Odisha
(Employer)

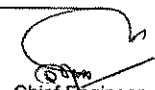
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

- 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

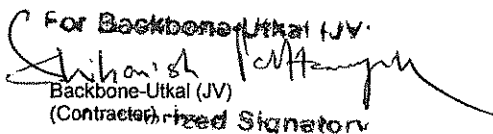

Subenil Pattanayak
Backbone-Utkal (JV)
(Contractor)



Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
on the E.I.C.(C), Odisha, BBSR

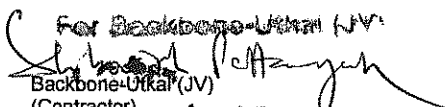
Authorized Signatory


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.

For Backbone-Utkal JV.

Shishir Pattanayak
Backbone-Utkal (JV)
(Contractor) Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

For Backbone-Utkal (JV)

Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
(U.C.C), Odisha, BBSR

PART- II SUPPLEMENTARY TECHNICAL SPECIFICATION

(AMENDEMENTS/ 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.

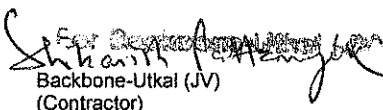
Clause 105 Scope of Work

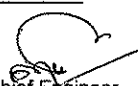
Clause 105.3 Add the following below the existing clause

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


Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
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On the F.I.C.(C), Odisha, BBSR

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

For Backbone-Utkal (JV)
Shankar Pattanayak
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
for the F.I.C.(C), Odisha, BBSR

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.

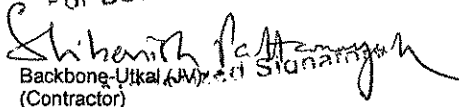
Clause 111.1 **General**


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.

For Backbone-Utkal (IV)

Shri Venit Pathan
Backbone-Utkal (IV) Sri Venit Pathan
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Of the F.I.C.(C), Odisha, BBSR

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 burrow 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 burrow pit. The contractor shall operate strictly adhering to the Burrow 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).

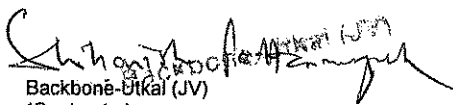
Clause 111.3 Quarry Operations

The clause shall be read as follows

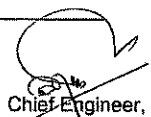
The contractor shall obtain material from licensed quarries only after the consent of the Revenue department or other concerned authorities. The quarry operations shall be undertaken within the purview of the rules and regulations in force. Contractor shall ensure scheduling the movement of transport 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 Burrow 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).


Backbone-Utkal (JV)
(Contractor)

Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
On the F.I.C.(C), Odisha, BBSR

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

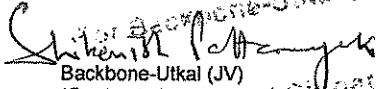
The contractor shall not use or generate any material in the process work, which are hazardous to the health of persons, animals or vegetation. Where it is necessary to use some substance, which can cause injury to the health of the workers, the contractor shall provide suitable clothing or appliances to his workers, viz. ear plugs, helmets or dust masks or any other suitable devices.

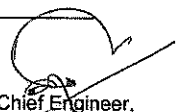
Clause 112 Arrangement for Traffic during Construction

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.


Shikhar Prasad
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
Of the E.L.C.(C), Odisha, BBSR

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

- i. If the existing road is used as diversion, then contractor will maintain it at his cost only.
- ii. 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 crushed stone / blast furnaces slag) 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 500M at a place. However, where work is allowed by the Engineer, in the longer stretches, passing places at least 20M long with additional paved width of 5M shall be provided at every 0.5 KM interval.

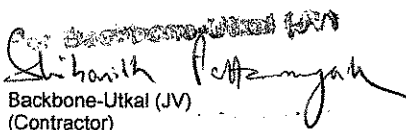
After the works are completed, with the approval of the Engineer, the temporary passages shall be dismantled, the debris disposed of and the area cleared as per the direction of the Engineer.

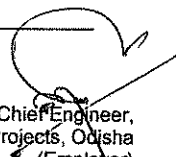
Clause 113

General Rules for the Measurement of Works for Payment:

Clause 113.2

Measurements for Lead of Materials


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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 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 301.3.7 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 within 0.2m deep 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

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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

“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

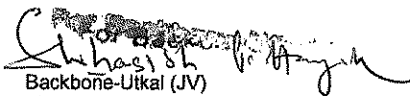
... The material to be used in the subgrades shall be moorum/gravelly soil.

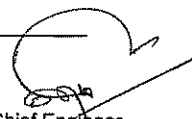
Clause 305.2.1.5 Add the following at the end of Note (2)

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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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:

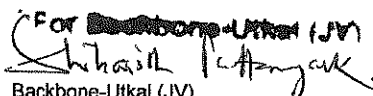
Soundness test shall be carried out in accordance with IS : 2386 (Part-5). The average loss of weight of coarse aggregate after 5 cycles shall not exceed 12% when tested with sodium sulphate and 18% when tested with magnesium sulphate as specified in IS: 383.

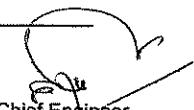
Clause 406.3. CONSTRUCTION OPERATIONS

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 as per methods 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

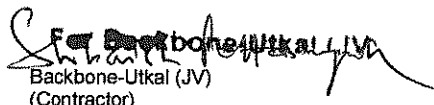
Bituminous mix shall be spread with paver fitted with electronic sensing device and string line arrangement (supported by steel pegs @ 5 m apart) on either side of paving width for automatic levelling, surface evenness and profile control. Use of string line is compulsory to provide signal to the electronic 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 and 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.

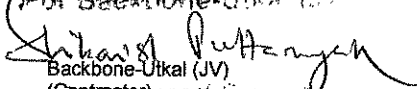
The area for which deduction in the payable rate shall apply shall be determined by the Engineer based on analysis of results. However, regardless of any other consideration, the minimum deduction shall not be less than 2000 m².


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.

For Section 11.1.1 (C)

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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

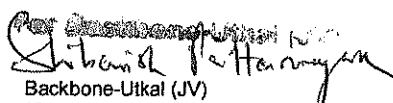
The dosage should be finalised on the basis of field trial and special mechanical devices should be used for dispensing the admixture in the batching / mixing plant. No addition of admixture after dosage is permitted (including addition in transit mixers).


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 Engineer before use... These tests are in addition to the tests carried out by the manufacturer.


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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

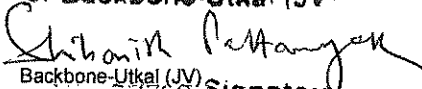
Dowel bars in deck slab at locations of parapet and expansion joint and grouting with epoxy resin locations shall be provided as shown in the drawings.

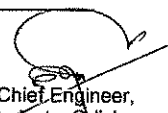
Holes shall be drilled vertically using rotary drill machines. Care shall be taken that the holes are drilled vertical and the deck concrete is not damaged. It shall be ensured that buried reinforcement of the deck is not damaged due to drilling by avoiding locations above reinforcement. Rebar detector 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

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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

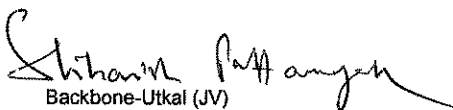
For existing bridge decks drainage spouts shall be replaced and new drainage spouts shall be provided as shown in the drawings.


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.


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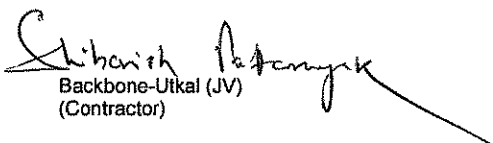
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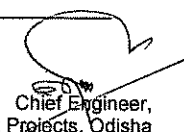
The specifications for polymer modified cementitious (PMC) brush topping and polymer modified cementitious (PMC) mortar shall be as per clause 2822.

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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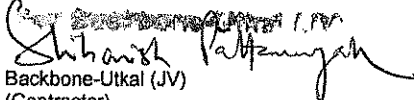
PART III


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.

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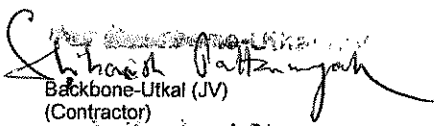
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PART IV

ENVIRONMENT MANAGEMENT PLAN


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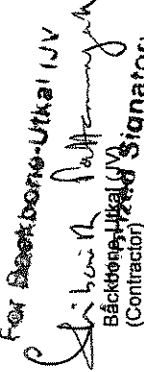

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ENVIRONMENTAL MANAGEMENT PLAN

		Management Measures
S. No.	Environmental Issue/Aspect	
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	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. 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. 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.
E.4	Construction Camp/s -- Selection, Design and Layout	No construction camps, including material stack yards and storage facility will not be proposed within 500 mts. From a. a settlement/habitation b. water source and c. reserved or protected forest limits to avoid conflicts and stress on the local infrastructure facilities and natural resources.

For Baidyabone-Utkal IJV

 Baidyabone Utkal IJV
 (Contractor)

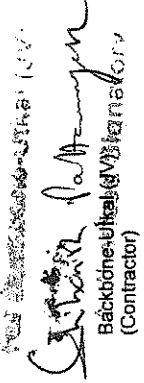

 Chief Engineer,
 World Bank/Projects/Orisha
 World Employment
 Project
 O/o the E.I.C.(C), Cuttack, BBSR

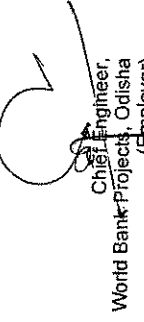
S. No.	Environmental Issue/Aspect	Management Measures
E.5	Construction Vehicles, Equipment and Machinery	<p>In case the contractor proposes setting-up of plant/s within a construction camp, clause P.3 will apply.</p> <p>The Contractor shall submit the proposed location plan (including survey number/s 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> <p>All vehicles, equipment and machinery to be procured for construction shall confirm 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 confirm 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 <u>reference/location map</u>; area, existing land use and haul road details;</p>

For *Sanku Bhandari* (JV)
Sanku Bhandari
 Sanku Bhandari (Contractor)

Sanku Bhandari
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR


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' certifies 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>


 Bâkbone-Utkal
 (Contractor)

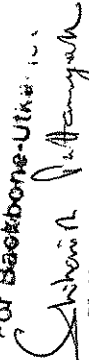

 Chief Engineer,
 World Bank Project,
 Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the F.I.C.(C), Odisha, 753001


		Management Measures
S. No.	Environmental Issue/Aspect	
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> <p>(a) Stockpile will be such that the slope does not exceed 1:2 (vertical to horizontal), and height is restricted to 2 m. (b) To retain soil and to allow percolation of water, the edges of the pile will be protected by silt fence. (c) Multiple handling kept to a minimum to ensure that no compaction occurs. (d) Such stockpiles shall be covered with empty gunny bags or will be planted with grasses to prevent loss during rains.</p> <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 **Banabong-Utkā**
Sibirish Palanjik
 Banabong-Utkā Signator
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.I.C.C. Odisha, APCT

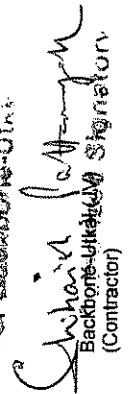
Management Measures	
S. No.	Environmental Issue/Aspect
	Residual topsoil, if there is any, will be utilized for the plantation works along the road corridor. The utilization as far as possible shall be in the same area/close to the same area from where the top soil was removed. The stripping, preservation and reuse shall be closely supervised and properly recorded by the Engineer.
Labour Camp Management	
E.12	Accommodation
12.1	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.
12.2	<p>The Contractor shall ensure the fulfillment of the following conditions:</p> <ul style="list-style-type: none"> a) 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. b) 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	<p>The Contractor shall ensure that -</p> <ul style="list-style-type: none"> c) 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. d) Separate toilets and bathrooms for women workers wherever required, screened from those of men, are provided with markings in vernacular language. e) All such facilities must have adequate water supply with proper drainage and disposal facility. f) All toilets in workplaces are to be maintained, cleaned and disinfected daily using proper disinfectants. g) 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. h) 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>

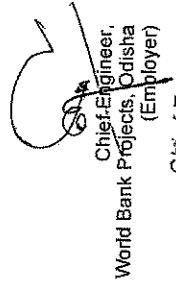
For Backbone-Utkal

 Subhash Chandra
 (Contractor) and Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BRSR

Management Measures	
S. No.	Environmental Issue/Aspect
E.13	<p style="text-align: center;">Transportation of Construction Materials and Haul Road Management</p> <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	<p style="text-align: center;">Traffic Diversions</p> <p>This shall be done according to the provisions of Technical Specifications Cl. 112.</p>
14.2	<p style="text-align: center;">Traffic Safety</p> <p>This shall be done according to the provisions of Technical Specifications Cl. 112</p>
14.3	<p style="text-align: center;">Safety of Workers</p> <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"> a) Protective footwear and protective goggles to all workers employed handling asphalt materials, cement, mortar, concrete, blasting and crusher operations. b) Welder's protective eye-shields and protective footwear to workers engaged in welding works. c) Earplugs to workers exposed to high noise levels. d) 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. e) Protective goggles and clothing to workers engaged in stone breaking activities.

For Signature-Only


Shohail Haffiz
 Backbone-Uttarakhand Strategist
 (Contractor)


Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

S. No.	Environmental Issue/Aspect	Management Measures
14.4	Risk from Electrical Equipment(s)	<p>f) Nettings below and on the sides of overhead construction and excavation work to prevent mishaps due to accidental fall of workmen and debris.</p> <p>g) 'No smoking' and other 'high risk' areas are to be provided with warning signage besides strict enforcement of PPE with zero tolerance limits.</p> <p>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 –</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>d) The contractor shall ensure proper maintenance of electrical supply lines/points.</p> <p>e) All such electrical operating units shall be switched off before operations are closed every day or night as the case may be.</p> <p>f) All electrical equipment/cables/wires to be used in the construction shall have to conform to the relevant BIS specifications/codes.</p> <p>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.</p>
14.5	First Aid	<p>The Contractor shall arrange for -</p> <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	<p>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.</p>

For Backbone-Utkal JV

S. B. Mishra
 Backbone-Utkal JV
 (Contractor)



Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Management Measures	
S. No.	Environmental Issue/Aspect
	<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
	<p>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.</p>
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
	<p>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.</p>
E.18	Pollution Management
18.1	Dust Pollution
	<p>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.</p>


For Backbone-Utkalika

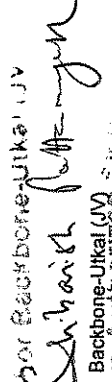
S. K. Singh
 S. K. Singh
 Backbone-Utkalika
 (Contractor)



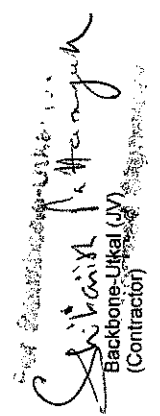
Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

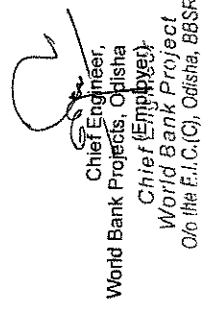
S. No.	Environmental Issue/Aspect	Management Measures
		<p>Specifications of crushers, hot mix plants and batching plants shall comply with the requirements of the relevant legislations and as laid out in the 'Consents' issued by the OSPCB. The Contractor will provide necessary certificates to confirm 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	<p>Sitation of Water Bodies and Degradation of Water Quality</p>	<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	<p>Water Pollution from Fuel, Lubricants and Chemicals</p>	<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>


 Chief Engineer,
 World Bank Projects, Odisha
 Chief (EMP) Officer
 World Bank Project
 On the P.I.C.(C), Odisha, BSRP

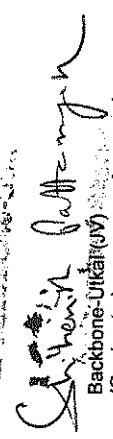
For Backbone-Utkal JV
 Backbone-Utkal JV
 (Contractor)



Management Measures	
S. No.	Environmental Issue/Aspect
	<p>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.</p>
18.4	<p>The Contractor shall ensure the following:</p> <ol style="list-style-type: none"> a) 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. b) All vehicles and equipment used in construction will be fitted with exhaust silencers. c) 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. d) 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. e) Construction activity at sites within 100m habitations and hospitals shall not be carried out during night (10:00 pm to 06:00 am). f) 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. g) 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	<p>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.</p>


 Subhanish K. Hengul
 Backbone-Uttal JV
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR


Management Measures	
S. No.	Environmental Issue/Aspect
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"> a) 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. b) Turfing works will be taken up as soon as possible provided the season is favorable for the establishment of grass sods. c) Other measures of slope stabilization may include mulching/aerating with sowing of grass seeds and sprinkling of water on such slopes after the completion of the earth work. d) 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. 	


 Subhojit Chatterjee
 Backbone-Utility (WB)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Qdisha
 (Employer)
 Chief Engineer
 World Bank Project
 Of the E.I.C.(C), Odisha, BESP

S. No.	Environmental Issue/Aspect	Management Measures
		<p>■ 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> <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 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>

C For Backbone-Utkal
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 Chief Employer
 World Bank Project
 O/o the E.I.C.(C), Odisha, PPSR

Form P1

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 sitting 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 Backbone-Utkal, JV
 Subhash Pattanayak
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the F.I.C.(C), Odisha, BSR

SETTING-UP CONSTRUCTION CAMP AND STORAGE AREA

[One Time Format, 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 Backbone-Utkal

Shankar Pattanayak
Backbone-Utkal (JV) Signature
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
Chief (Employer)
World Bank Project
On the F.I.C.(C), Odisha, BBSR

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:

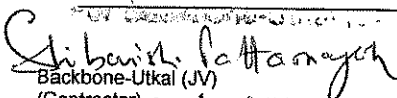
- | | |
|---|------------------------|
| • Site Layout of Construction camp | Attached/ Not Attached |
| • Drawings of dwelling units with allied facilities | Attached/ Not Attached |


Remarks

Submitted	Checked	Approved
Signature.....	Signature.....	Signature.....
Name.....	Name.....	Name.....
Designation..... Contractor	Environmental Engineer. Construction Supervision Consultant	Resident Engineer

Subank Pattanayak
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR


Shivanish Pattanayak
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
Odisha F.I.C. (C), Odisha, IAS.

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. _____
 Material _____

[Give chainages and nearest settlements from both ends]

Sl. No.	Location			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)	Area m x m		

- Photograph of Proposed Site
- Location Map
- Agreement with Land Owner

Attached/ Not Attached
 Attached/ Not Attached
 Attached/ Not Attached

Submitted

Signature.....
 Name.....
 Designation.....
 Contractor

Checked

Signature.....
 Name.....
 Environmental Engineer,
 Construction Supervision Consultant

Approved

Signature.....
 Name.....
 Resident Engineer

[Signature]
 Backbone-Utkal (JV) **Lead Signatory**
 (Contractor)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.T.C. (ICB) P04A1

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)								

1. Photograph of Proposed Site
2. Site Plan
3. Permission from OSPCB

Attached/ Not attached
 Attached/ Not attached
 Attached/ Not attached (Valid upto _____)

Submitted

Signature.....

Name.....

Designation.....
 Contractor

Checked

Signature.....

Name.....

Environmental Engineer.
 Construction Supervision Consultant

Approved

Signature.....

Name.....

Resident Engineer

Subhojit Palit
 Subhojit Palit (JV)
 (Contractor) Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBNP

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.	Delineator 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.....

Environmental Engineer,
Construction Supervision Consultant

Resident Engineer


Contractor

For Backbone-Utkal JV
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
Odisha, India

For Backbone-Utkal JV:
Subant
Backbone-Utkal JV
(Contractor)
authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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)							
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

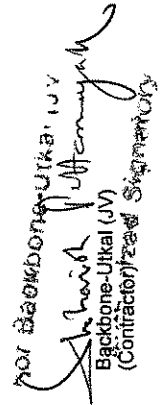

Approved

Signature.....

Name.....

Resident Engineer

for Baowongwika, JV
Backbone-Utkal (JV)
(Contractor) read Signature

Chief Engineer,
World Bank Projects, Odisha
Chief (Employer)
World Bank Project
On the E.I.C.(C), Odisha, BSR

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

Signature.....

Name.....

Designation.....
Contractor

Checked

Signature.....

Name.....

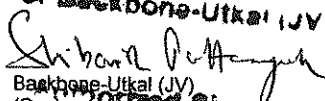
Environmental Engineer.
Construction Supervision Consultant


Approved

Signature.....

Name.....

Resident Engineer

For Backbone-Utkal JY

 Backbone-Utkal (JV)
 Authorized Signatory
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employee)
 Chief Engineer
 World Bank Project
 Odisha

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

Signature.....

Name.....

Designation.....
Contractor

Checked

Signature.....

Name.....

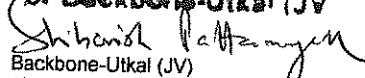
Environmental Engineer.
Construction Supervision Consultant


Approved

Signature.....

Name.....

Resident Engineer

For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor)
Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employed)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

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

For Backbone-Utkal JV.
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
Of the E.I.C.(C), Odisha, BBSR

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.....

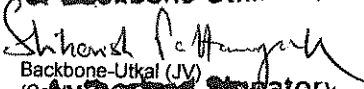
Name.....


Name.....

Designation.....
Contractor

Environmental Engineer.
Construction Supervision Consultant

Resident Engineer

For Backbone-Utkal

 Backbone-Utkal (JV)
 Authorized Signatory
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

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

Remarks

Submitted
 Signature.....
 Name.....
 Designation.....
 Contractor

Checked
 Signature.....
 Name.....
 Environmental Engineer.
 Construction Supervision Consultant

Approved
 Signature.....
 Name.....
 Resident Engineer

For Backbone-Utkal JV

Sibendu DeAngela
 Backbone-Utkal JV
 (Contractor)
Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Form C5

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

For Backbone-Utkal, JV

Shihir Pattanayak
 Backbone-Utkal, JV
 Authorized Signatory
 (Contractor)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

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
2. Photographs of sites before use
3. Photographs of sites after rehabilitation

Attached/ Not Attached
Attached/ Not Attached
Attached/ Not Attached

Submitted

Signature.....
Name.....
Designation.....
Contractor

Checked

Signature.....
Name.....
Environmental Engineer.
Construction Supervision Consultant

Approved

Signature.....
Name.....
Resident Engineer

(Signature)
Backbone-Utkal (P) Ltd
(Contractor)

(Signature)
Chief Engineer,
World Bank Projects, Odisha
Chief Engineer,
World Bank Project
On the E.I.C. Odisha, BRSR

SAFETY CHECK LIST

Form C7


[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 Backbone-Utkal JV
 S. Hanish K. Hanish
 Backbone-Utkal (JV)
 (Contractor) **Authorized Signatory**


 Chief Engineer,
 World Bank Project, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Remarks

Submitted	Checked	Approved
Signature.....	Signature.....	Signature.....
Name.....	Name.....	Name.....
Designation..... Contractor	Environmental Engineer. Construction Supervision Consultant	Resident Engineer

Egri Backbone-Utkal JV
Shankar Pattanayak
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

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 nail 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, slinter 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)

For Approval
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha. BBSR

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

Sh. Hanish K. Patra
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

POLLUTION MONITORING

Form C9

(Periodically To be submitted by Contractor for locations at which monitoring to be conducted as per EMP)

Compliance to Mitigation measures suggested in last report Report -- Date: _____

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				

Shahid Aftab Khan

Backbone Highway
(Contractor)
Authorized Signat...

[Signature]

Chief Engineer,
World Bank Projects, Odisha
Chile Engineer
World Bank Project

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

Signature

Backbone-Urikandha
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Projects

Form C10

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 Backbone-Uti.
Subir K. Samal
Backbone-Utkal (JV)
Contractor
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
On the FIC (C)

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

Signature.....

Name.....

Resident Engineer
 Construction Supervision Consultant

Countersigned

Signature.....

Name.....

Executive Engineer (PMU)

For Backbone.....

Shishir Kumar
 Backbone Contractor
 (Contractor) Signator

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

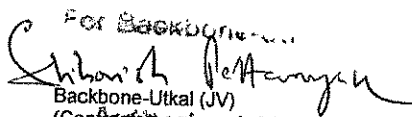
Form PMU 2


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	

For Backbone-

 Backbone-Utkal (JV)
 (Contractor) authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Sl. No.	ESMP Measures	Remarks
13	Safety equipment i.e. helmet, gloves, gumboot, mask, earplugs etc. provided to workers	
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)

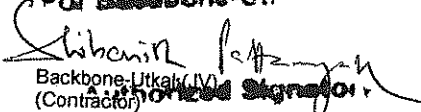
Shishir Patra
 Backbone-Utkal (JV)
 (Contractor)


[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

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	

For Backbone-U.I.

 Subenir Pattanayak
 Backbone-Utkal (IV)
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Sl. No.	Description	Remarks
	Type of waste disposed	
	No. of sites Rehabilitated	
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)

For Backbone-...

[Signature]
Backbone-...
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

AGREEMENT No. **04** of 2015-16



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P04A1

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, World Bank Projects, Odisha
on behalf of
Odisha Works Department, Government of Odisha

and

M/s Backbone-Utkal JV,
IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010, Odisha
Tel : +91-674-2580100/3051000, Fax : +91-674-2580021
E-mail: info@umsl.in

[VOLUME-IV: Drawings]

Agreement Value: Rs. 107,38,63,577

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

December 23, 2015

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.
	Jagatpur to Nischintakoili (Km.0/0 to Km.25/0)	
	A. Table of Contents, TCS, Miscellaneous Drawings, Plan & Profile	1-64
	B. Bridges & Culverts	65-95

TABLE OF CONTENT (HIGHWAY DRAWING)

SL. No.	DESCRIPTION	DRAWING No.	NO. OF SHEETS
1	COVER PAGE		
2	INDEX OF HIGHWAY DRAWINGS	73466\LASA\HIGHWAYS\INDX-01	1
3	TYPICAL CROSS SECTIONS	73466\LASA\HIGHWAYS\TYP-CS-01 TO 02	2
MISCELLANEOUS DRAWINGS			
1	HORIZONTAL CURVE DETAILS	73466\LASA\HIGHWAYS\MISC-01	1
2	VERTICAL CURVE DETAILS	73466\LASA\HIGHWAYS\MISC-02	1
3	SCHEDULE OF EXTRA WIDENING	73466\LASA\HIGHWAYS\MISC-03	1
4	SCHEDULE FOR PAVEMENT COMPOSITION AND TYPE OF CONSTRUCTION	73466\LASA\HIGHWAYS\MISC-04	2
5	DETAILS OF PAVEMENT SCHEDULE WITH TCS	73466\LASA\HIGHWAYS\MISC-05	1
6	TYPICAL DETAILS OF SLOPE PROTECTION	73466\LASA\HIGHWAYS\MISC-06	1
7	TYPICAL DETAILS OF DOWEL BAR AND TIE BAR ARRANGEMENT	73466\LASA\HIGHWAYS\MISC-07	1
8	TYPICAL DETAILS OF TRANSITION SLAB BETWEEN RIGID AND FLEXIBLE PAVEMENT	73466\LASA\HIGHWAYS\MISC-08	1
9	TYPICAL DETAILS OF TRANSITION OF DIFFERENT ROAD SECTIONS	73466\LASA\HIGHWAYS\MISC-09	1
10	TYPICAL DETAILS OF DRAIN AND KERB	73466\LASA\HIGHWAYS\MISC-10	1
11	TYPICAL DETAILS AND SCHEDULE OF MINOR JUNCTIONS	73466\LASA\HIGHWAYS\MISC-11	2
12	TYPICAL DETAILS OF CROSS ROAD DRAINS	73466\LASA\HIGHWAYS\MISC-12	1
13	TYPICAL DETAILS OF ROAD MARKINGS	73466\LASA\HIGHWAYS\MISC-13	3
14	TYPICAL DETAILS OF ROAD SIGNS	73466\LASA\HIGHWAYS\MISC-14	4
15	TYPICAL DETAILS AND SCHEDULE OF PEDESTRIAN CROSSING, HUMPS AND RUMBLE STRIPS	73466\LASA\HIGHWAYS\MISC-15	2
16	TYPICAL DETAILS OF FOOTPATH BARRIER	73466\LASA\HIGHWAYS\MISC-16	1
17	TYPICAL DETAILS OF METAL BEAM CRASH BARRIER	73466\LASA\HIGHWAYS\MISC-17	2
18	TYPICAL DETAILS OF KM STONE AND HECTOMETRE STONE	73466\LASA\HIGHWAYS\MISC-18	1
19	REINFORCEMENT DETAILS OF GUARD POST AND HECTOMETRE STONE	73466\LASA\HIGHWAYS\MISC-19	1
20	TYPICAL DETAILS OF GUARD POST AND 200m STONE	73466\LASA\HIGHWAYS\MISC-20	1
21	TYPICAL DETAILS OF DELINEATOR	73466\LASA\HIGHWAYS\MISC-21	1
22	TYPICAL DETAILS OF RRPM MARKERS	73466\LASA\HIGHWAYS\MISC-22	1
23	TYPICAL DETAILS AND SCHEDULE OF BUSBAY	73466\LASA\HIGHWAYS\MISC-23	2
1	PLAN & PROFILE	73466\LASA\HIGHWAYS\PP-01 TO 25	25

For Backbone-Utkal
 (Chief Engineer)
 Subbanjit Nayak
 Backbone-Utkal (JV)
 (Chief Engineer)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

 ODISHA WORKS DEPARTMENT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NIBCHINTAKOIL - KM 0+00 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1	N.T.S.	INDEX OF HIGHWAY DRAWINGS
REGIONAL ENGINEER, WEST CONSULTING ENGINEERS GROUP LTD. 22/1/2014, 22/1/2014, 22/1/2014	SOUTH ASIA P.M. LTD., INDIA INDUSTRIAL ESTATE, MATURADA ROAD, NEW DELHI-110044	N.T.S.	73466\LASA\HIGHWAYS\INDX-01

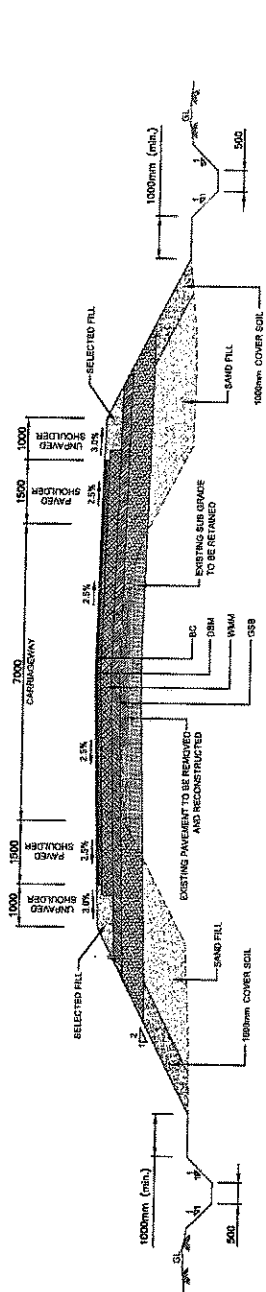
TYPICAL CROSS SECTIONS

Authorized Signatory

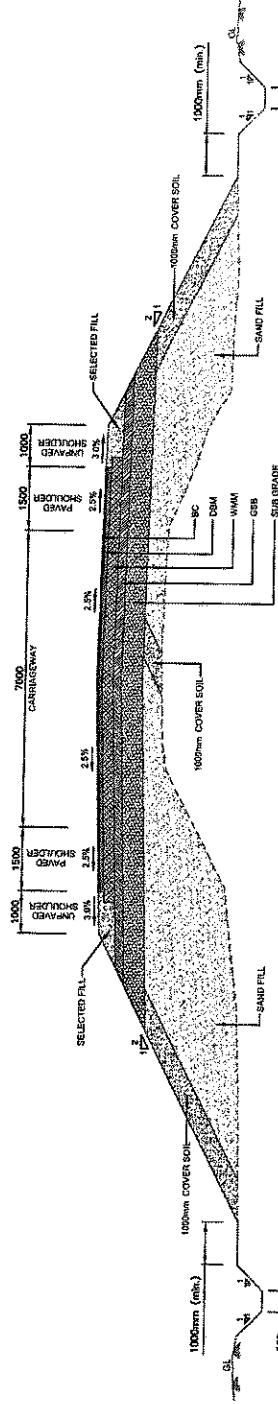
Sibant Kumar
Sibant Kumar
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha BBSR



TCS-01 : TYPICAL CROSS SECTION IN OPEN AREA (WITH PAVED SHOULDER) FOR RECONSTRUCTION / WIDENING



TCS-02 : TYPICAL CROSS SECTION IN OPEN AREA (WITH PAVED SHOULDER) FOR NEW CONSTRUCTION

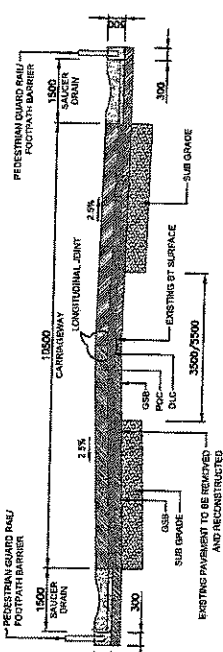
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. FOR DRAIN DETAILS REFER DRAWINGS NO. 73466LASHIGHWAYSMISC-10.
 3. FOR LAYER THICKNESS DETAILS REFER 'SCHEDULE OF WIDENING AND LAYER THICKNESS DETAILS'.
 4. THE CROSS SECTIONS SHALL BE READ WITH DETAILS OF TRANSITION BETWEEN RIGID AND FLEXIBLE REFER DRAWING NO. 73466LASHIGHWAYSMISC-08.
 5. PCC-PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
 6. IN CASE THE UTILITIES ARE OBSTRUCTING THE LONGITUDINAL DRAINAGE, THE DRAINAGE MAY BE LOCATED AS PER ENGINEER'S DIRECTIONS.
 7. THE SIZE OF PAVEMENT COVER WILL DEPEND ON THE WIDENING SCHEDULE.

<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>		<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>		<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>	
<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>	<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>	<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>	<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>	<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>	<p>DATE: 15/01/2014</p> <p>SCALE: 1:75</p> <p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO 2 LANE ROAD FOR NH-CHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1</p> <p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>

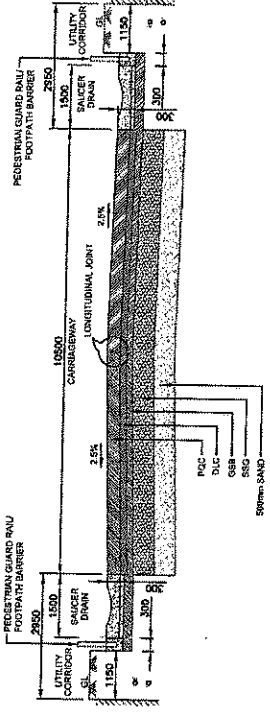
Shivan K. Patra
 Backbone Utkal (Contractor)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

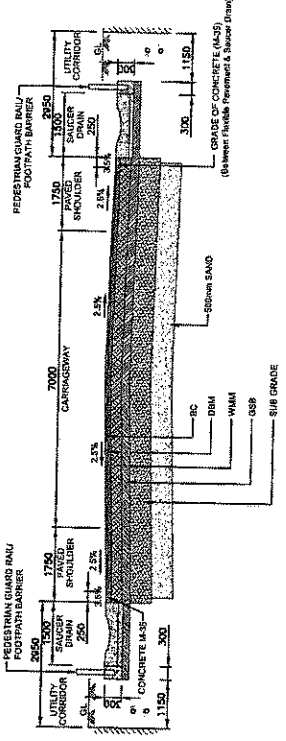
Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



TCS-03 : TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILT-UP SECTION WITHOUT EXPANSIVE CLAY



TCS-04 : TYPICAL CROSS SECTION OF RIGID PAVEMENT IN BUILT-UP SECTION OVER EXPANSIVE CLAYS



TCS-05 : TYPICAL CROSS SECTION IN BUILT-UP AREA FOR NEW CONSTRUCTION IN EXPANSIVE CLAYS

- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. FOR DRAIN DETAILS REFER DRAWING NO.736R/LSA/HIGHWAY/STY/PCS-01
 3. FOR LAYER THICKNESS DETAILS REFER SCHEDULE OF WORKING
 4. THE CROSS SECTIONS BETWEEN ROAD WITH DETAILS OF TRANSITION BETWEEN PCC AND FLESBLE REFER DRAWING NO.736R/LSA/HIGHWAY/STY/PCS-02
 5. PCC PROFILE CORRECTIVE COURSE WITH THE MATERIAL SAME AS THAT OF OVERLAYING LAYER ABOVE IT.
 6. INDICATE THE UTILITIES STRESS DISTRIBUTING THE LONGITUDINAL DRAINS.
 7. THE SOLE OF IMPERMEABLE COVER WILL DEPEND ON THE WIDENING SCHEDULE.

SCALE		1 : 75	TYPICAL CROSS SECTIONS		
PROJECT		WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM 1.5 LANE ROAD TO MIB-CHINTAKOLI - KM 0+000 TO KM 2+000 (BALANCE WORK) PACKAGE - P04A-1			
CLIENT		ODISHA WORKS DEPARTMENT			
DESIGN WORKS CONTRACT		CONSULTING ENGINEERS GROUP LTD. 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000			APPROVED

For Backbone-Utkal (JV)
 Shrikant Pattnayak
 Backbone-Utkal (JV)
 (Contractor Authorized Signatory)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BASR

MISCELLANEOUS DRAWINGS (HIGHWAY)

For Backbone-Utkal IJV


Shankar Pattnayak
Backbone-Utkal (JV)
Contractor Signator.

[Signature]
Chief Engineer,
World Bank Projects, Odisha
Chief (Employer)
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

VERTICAL CURVE DETAILS

VERTICAL CURVE DETAILS (JAGATPUR - DUHURIA)

Curve No.	Curve Type	VPI Details		Curve Length	K' value	Curve Start		Curve End		Start Gradient	End Gradient	Grade Difference
		Chainage	Level			Chainage	Level	Chainage	Level			
1	Sag	0+143.020	26.772	200	208.804	0+043.020	27.730	0+243.020	26.772	-0.958	0.000	-0.958
2	Sag	0+443.840	26.772	200	1138.829	0+343.840	26.772	0+543.840	26.948	0.000	0.176	-0.176
3	Hog	0+769.545	27.344	200	316.435	0+669.545	27.168	0+869.545	26.888	0.176	-0.456	0.632
4	Sag	1+146.389	25.624	300	747.217	0+996.389	26.309	1+296.389	25.542	-0.456	-0.055	-0.401
5	Sag	1+859.992	25.232	150	45.22	1+794.992	25.268	1+924.992	27.065	-0.055	2.82	-2.875
6	Hog	2+017.160	29.664	60	21.277	1+987.160	28.818	2+047.160	29.664	2.820	0	2.82
7	Hog	2+144.447	29.664	70	20.48	2+109.447	29.664	2+179.447	28.468	0.000	-3.418	3.418
8	Sag	2+283.416	24.914	150	43.878	2+208.416	27.478	2+358.416	24.914	-3.418	0.001	-3.419
9	Hog	4+010.199	24.747	200	939.212	3+910.199	24.762	4+110.199	24.52	-0.015	-0.227	0.212
10	Sag	4+373.760	23.92	300	1056.537	4+223.760	24.261	4+523.760	24.065	-0.227	0.056	-0.283
11	Hog	4+862.478	24.196	400	8133.709	4+662.478	24.083	5+062.478	24.211	0.056	0.007	0.049
12	Hog	5+424.412	24.237	150	2820.159	5+349.412	24.232	5+499.412	24.203	0.007	-0.046	0.053
13	Sag	7+949.892	23.078	150	340.863	7+874.892	23.112	8+024.892	23.374	-0.046	0.394	-0.44
14	Hog	8+343.634	24.63	200	571.323	8+243.634	24.236	8+443.634	24.674	0.394	0.044	0.35
15	Hog	8+935.441	24.893	150	268.635	8+860.441	24.858	9+010.441	24.505	0.044	-0.514	0.558
16	Sag	9+256.669	23.239	200	616.898	9+156.669	23.753	9+356.669	23.049	-0.514	-0.19	-0.324
17	Sag	9+862.850	22.087	300	2460.319	9+712.850	22.372	10+012.850	21.985	-0.19	-0.088	-0.122
18	Sag	10+416.392	21.71	150	202.422	10+341.392	21.761	10+491.392	21.71	-0.088	0	-0.068
19	Sag	10+585.031	21.71	60	606.176	10+555.031	21.710	10+615.031	21.74	0.000	0.099	-0.099
20	Hog	11+269.000	22.387	300	1977.587	11+119.000	22.239	11+419.000	22.308	0.099	-0.053	0.152
21	Hog	13+399.163	21.264	200	440.243	13+299.163	21.317	13+499.163	20.757	-0.053	-0.507	0.454
22	Sag	13+785.346	19.306	200	300.576	13+685.346	19.813	13+885.346	19.464	-0.507	0.158	-0.665
23	Hog	14+299.314	20.12	200	1858.752	14+199.314	19.962	14+399.314	20.171	0.158	0.051	0.107
24	Hog	15+215.091	20.585	150	312.942	15+140.091	20.547	15+290.091	20.264	0.051	-0.429	0.48
25	Sag	15+762.290	18.24	100	233.347	15+712.290	18.454	15+812.290	18.24	-0.429	0	-0.429
26	Sag	15+975.454	18.24	100	201.537	15+925.454	18.240	16+025.454	18.488	0.000	0.496	-0.496
27	Hog	16+133.862	19.026	150	295.714	16+033.862	18.654	16+208.862	19.018	0.496	-0.011	0.507
28	Sag	16+414.161	18.995	150	1127.947	16+319.161	19.003	16+489.161	19.086	-0.011	0.122	-0.133
29	Hog	16+739.770	19.392	150	750.371	16+664.770	129.301	16+814.770	19.334	0.122	-0.078	0.2
30	Sag	17+864.480	18.515	200	2817.795	17+764.480	18.593	17+964.480	18.508	-0.078	-0.007	-0.071
31	Hog	18+164.560	18.494	60	292.524	18+134.560	18.496	18+194.560	18.43	-0.007	-0.212	0.205
32	Sag	18+469.120	17.848	60	280.142	18+439.120	17.912	18+499.120	17.866	-0.212	0.06	-0.272
33	Hog	18+854.610	18.081	200	554.976	18+754.610	18.021	18+954.610	17.781	0.060	-0.3	0.36
34	Sag	19+379.727	16.506	100	59.585	19+329.727	16.656	19+429.727	17.195	-0.300	1.379	-1.679
35	Hog	19+638.800	20.078	280	157.779	19+498.800	18.148	19+738.800	19.524	1.379	-0.396	1.775
36	Sag	20+437.200	16.919	200	431.745	20+337.200	17.315	20+537.200	16.987	-0.396	0.068	-0.464
37	Sag	21+112.571	17.375	150	638.442	21+037.571	17.324	21+187.571	17.602	0.068	0.302	-0.234
38	Hog	21+484.514	18.5	500	1102.639	21+234.514	17.744	21+734.514	18.123	0.302	-0.151	0.453
39	Sag	22+070.671	17.615	300	1333.001	21+920.671	17.841	22+220.671	17.726	-0.151	0.074	-0.225
40	Hog	22+832.085	18.179	500	2897.055	22+582.085	17.994	23+082.085	17.933	0.074	-0.099	0.173
41	Sag	24+563.120	16.474	200	522.187	24+463.120	16.572	24+563.120	16.758	-0.099	0.284	-0.383
42	Hog	24+857.808	17.312	300	918.812	24+707.808	16.885	25+007.808	17.249	0.284	-0.042	0.326

 ODISHA WORKS DEPARTMENT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO MBCHINTAKOLI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1	N.T.6	VERTICAL CURVE DETAILS
DESIGNER: M/S. ASSOCIATES SOUTH ASIA PVT. LTD., 110/11 INDUSTRIAL ESTATE, WILHURSA ROAD, NEW DELHI-110044	PROJECT NO:	DRAWING NO:	DATE:

for Backbone-Utkal JV
 Subash Chandra Pattnayak
 Backbone-Utkal (JV)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

SCHEDULE OF EXTRA WIDENING

Extra Widening (Km-0+000 to Km 25+000)

Direction	TS	SC	Transition In	Radius	Transition Out	CS	ST	Design Speed
RIGHT	1784	1819	35	200	35	1861	1869	50
LEFT	1921	1966	45	100	45	2014	2059	50
RIGHT	2109	2154	45	100	45	2172	2217	50
LEFT	2240	2275	35	200	35	2318	2353	50
LEFT	2941.361	2991.361	50	240	50	3033.211	3083.211	50
RIGHT	5130.244	5220.244	90	240	90	5250.123	5340.123	80
RIGHT	17286.405	17336.405	50	240	50	17369.534	17419.534	65
RIGHT	22799.951	22849.951	50	240	50	22908.953	22958.953	65
LEFT	23066.311	23106.311	40	300	40	23140.512	23180.512	65
RIGHT	24081.653	24131.653	50	240	50	24179.889	24229.889	65

NOTES:-

- EXTRA WIDENING HAS BEEN DONE AS PER THE GUIDE LINES OUTLINED IN IRC-73, 1988.
- WIDENING SHALL BE DONE EQUALLY ON BOTH THE INNER AND OUTER CURVES.
- THE SLOPE OF THE CARRIAGEWAY SHALL EXTEND IN THE WIDENING SECTIONS.

DRAWING TITLE SCHEDULE OF EXTRA WIDENING		SCALE N.T.S.	
PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISICHIRTAKOLI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1		DEPARTMENT ODISHA WORKS DEPARTMENT	
CLIENT E.C. Soudha South Asia Pvt. Ltd., India B-127 INDUSTRIAL ESTATE, WATHPURA ROAD, NEW DELHI-110044		CONSULTANT CONSULTING ENGINEERS GROUP LTD, E-12/03 COLONY JALUWA NAGAR JAIPUR-302015 022-2486 8000 ext: 202 @ 9:30 am to 5:30 pm	
PREPARED BY DATE	CHECKED BY DATE	APPROVED BY DATE	DATE

For Backbone-Utkal JV

[Signature]
 Authorized Signatory
 Backbone-Utkal (JV)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 C/o the E.I.C.(C), Odisha, BBSR

SCHEDULE FOR PAVEMENT COMPOSITION AND TYPE OF CONSTRUCTION (FLEXIBLE PAVEMENT)

Sl. No.	Proposed Challenge		Distance in KMs		Thickness Design (IRC-37)										Type of Construction				
	From	To			Crest Details Over Existing Pavement					Chest Details Over Existing Pavement					Sub	Total			
	Surface Course	Sub Base	Sub Grade	Embankment	Total Thickness	BC	DSM	WMM/3	WMM/2	GSB	Sub Base	Sub Grade	WMM/1	WMM/2			GSB	Sub Base	Sub Grade
1	1.90	3.15	40	90	100	200	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
2	3.15	3.35	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
3	3.35	3.85	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
4	4.80	4.60	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
5	4.60	5.50	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
6	5.50	5.80	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
7	7.20	7.55	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
8	7.55	9.30	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
9	9.56	10.10	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
10	10.10	10.70	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
11	10.70	13.60	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
12	13.60	14.00	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
13	14.00	15.55	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
14	15.55	16.30	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
15	16.30	16.60	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
16	17.10	17.70	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
17	20.80	21.10	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
18	21.10	22.15	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
19	22.15	22.50	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
20	22.50	23.00	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
21	24.25	25.00	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION
22	25.00	26.60	40	90	100	150	200	500	580	200	200	200	100	150	200	200	500	1,080.00	RECONSTRUCTION

For Backbone-U.T.A.

S. Kumar
Backbone-Ukal (U.T.A.)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

Sl. No.	DATE	REVISION	BY	DRWN	PREPARED	CHECKED	APPROVED
1	10.08.20						
2	10.08.20						
3	10.08.20						
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20	10.08.20						
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22	10.08.20						

CONTRACTOR: CONSU L I T I N G ENGINEERS GROUP LTD. E-21, 2ND FLOOR, MALVIYA NAGAR, JALPAIGURI-745001, WEST BENGAL, INDIA. TEL: 91-91-2328883, 2328884, 2328885 FAX: 91-91-2328886, 2328887, 2328888, 2328889, 2328890, 2328891, 2328892, 2328893, 2328894, 2328895, 2328896, 2328897, 2328898, 2328899, 2328900, 2328901, 2328902, 2328903, 2328904, 2328905, 2328906, 2328907, 2328908, 2328909, 2328910, 2328911, 2328912, 2328913, 2328914, 2328915, 2328916, 2328917, 2328918, 2328919, 2328920, 2328921, 2328922, 2328923, 2328924, 2328925, 2328926, 2328927, 2328928, 2328929, 2328930, 2328931, 2328932, 2328933, 2328934, 2328935, 2328936, 2328937, 2328938, 2328939, 2328940, 2328941, 2328942, 2328943, 2328944, 2328945, 2328946, 2328947, 2328948, 2328949, 2328950, 2328951, 2328952, 2328953, 2328954, 2328955, 2328956, 2328957, 2328958, 2328959, 2328960, 2328961, 2328962, 2328963, 2328964, 2328965, 2328966, 2328967, 2328968, 2328969, 2328970, 2328971, 2328972, 2328973, 2328974, 2328975, 2328976, 2328977, 2328978, 2328979, 2328980, 2328981, 2328982, 2328983, 2328984, 2328985, 2328986, 2328987, 2328988, 2328989, 2328990, 2328991, 2328992, 2328993, 2328994, 2328995, 2328996, 2328997, 2328998, 2328999, 2329000.

CLIENT: ODISHA WORKS DEPARTMENT

PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2-LANE ROAD FROM JAGATPUR TO NIBCHINTAKOLL - KM 0+00 TO KM 25+000 (BALANCE WORK) PACKAGE - PMA-1

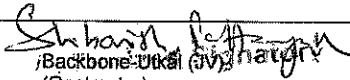
SCALE: N.T.S


DESIGNED BY: SCHEDULE FOR PAVEMENT COMPOSITION AND TYPE OF CONSTRUCTION (IR-37)

DATE: 10.08.20

SCHEDULE OF PAVEMENT COMPOSITION (RIGID PAVEMENT)

Sl. No.	Chainage		Length (in mm)	PQC Slab (in mm)	Separation layer (in micron)	Sub base (DLC) (in mm)	Subbase GSB (in mm)	Subgrade (in mm)	Embankment (in mm)	Total Thickness (in mm)	Remarks	Remarks
	From	To										
1	0.00	1.90	1.90	300	125	150	150	500	500	1,600	DFS	New
2	3.85	4.30	0.45	300	125	150	150	500	-	1,100	-	New
3	5.80	7.20	1.40	300	125	150	150	500	-	1,100	-	New
4	7.55	7.95	0.40	300	125	150	150	500	-	1,100	-	New
5	9.30	9.66	0.36	300	125	150	150	500	-	1,100	-	New
6	10.10	10.48	0.38	300	125	150	150	500	-	1,100	-	New
7	16.60	17.10	0.50	300	125	150	150	500	-	1,100	-	New
8	17.70	20.80	3.10	300	125	150	150	500	-	1,100	-	New
9	24.00	24.25	0.25	300	125	150	150	500	500	1,600	DFS	New

For Backbone-Utkal

 Subash Chandra Nayak
 Backbone-Utkal (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

 ODISHA WORKS DEPARTMENT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATSIP TO NIBHINTAKOLI - KM 0+00 TO KM 25+000 (BALANCE WORK) PACKAGE - PMA-1	SCALE	N.T.S	DRAWING TITLE SCHEDULE FOR PAVEMENT COMPOSITION AND TYPE OF CONSTRUCTION SHEET 2 OF 25 DATE: 17/06/2016
LEA Associates South Asia Pvt. Ltd., India 100, 101 & 102, 10TH FLOOR, INDUSTRIAL ESTATE, MANIKONDI, BBSR-751004	CONSULTING ENGINEERS GROUP LTD. 2-13/14 COLONY, MAHARAJA NAGAR, JALPAIGURI-731102 TEL: 91-376-288925/1882320205 Fax: 91-376-2881294, e-mail: ceg@cegroupindia.com	APPROVED CHECKED DRAWN REVISIONS	APPROVED CHECKED DRAWN REVISIONS	APPROVED CHECKED DRAWN REVISIONS

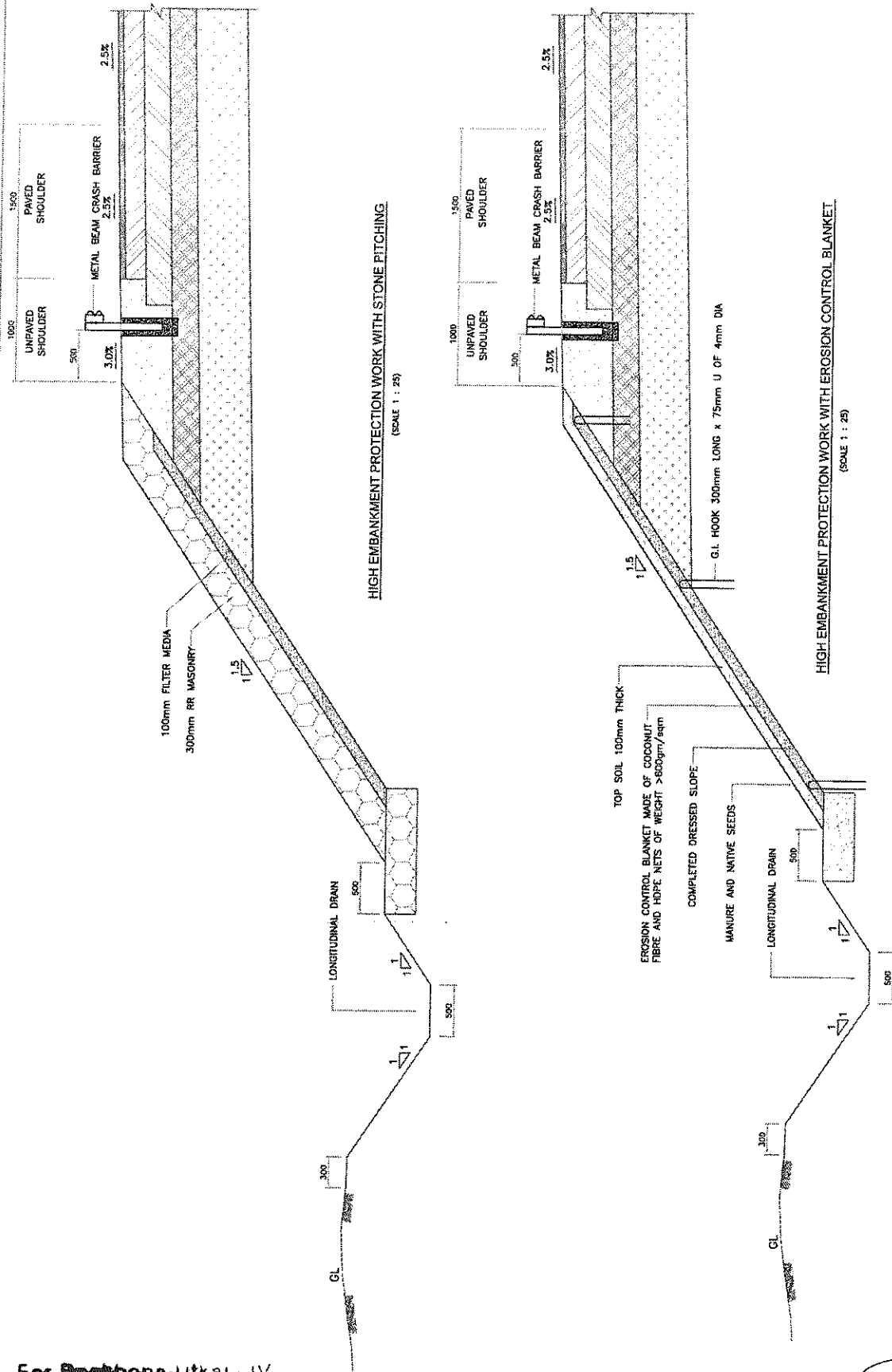
DETAILS OF PAVEMENT SCHEDULE WITH TYPE OF TCS

Sl. No.	Chainage		Length (in kms)	Total Thickness (in mm)	Type of Construction	Type of Area	TCS	Remarks
	From	To						
	1	0.00						
2	1.90	2.20	0.30	RECONSTRUCTION	OPEN	1		
3	2.20	2.40	0.20	RECONSTRUCTION	BUILT	5	PROFILE	
4	2.40	2.53	0.13	RECONSTRUCTION	OPEN	1	PROFILE	
5	2.53	2.80	0.27	RECONSTRUCTION	BUILT	5		
6	2.80	3.15	0.35	RECONSTRUCTION	OPEN	3		
7	3.15	3.35	0.20	NEW CONSTRUCTION	OPEN	2	PROFILE	
8	3.35	3.65	0.30	RECONSTRUCTION	OPEN	1		
9	3.65	4.30	0.65	RIGID PAVEMENT	BUILT	3		
10	4.30	4.60	0.30	RECONSTRUCTION	OPEN	1		
11	4.60	5.50	0.90	NEW CONSTRUCTION	OPEN	2	REALIGN & PROFILE	
12	5.50	5.80	0.30	RECONSTRUCTION	OPEN	1		
13	5.80	7.20	1.40	RIGID PAVEMENT	BUILT	3		
14	7.20	7.55	0.35	NEW CONSTRUCTION	OPEN	2	PROFILE	
15	7.55	7.95	0.40	RIGID PAVEMENT	BUILT	3		
16	7.95	9.30	1.35	NEW CONSTRUCTION	OPEN	2	PROFILE	
17	9.30	9.66	0.36	RIGID PAVEMENT	BUILT	3		
18	9.66	10.30	0.64	RECONSTRUCTION	OPEN	1		
19	10.10	10.98	0.88	RIGID PAVEMENT	BUILT	3		
20	10.48	10.60	0.12	RECONSTRUCTION	OPEN	1		
21	10.60	10.70	0.10	RECONSTRUCTION	OPEN+BUILT	1		
22	10.70	10.85	0.15	NEW CONSTRUCTION	BUILT+OPEN	2	PROFILE	
23	10.85	13.60	2.75	NEW CONSTRUCTION	OPEN	2		
24	13.60	13.80	0.20	NEW CONSTRUCTION	OPEN	1		
25	13.80	14.00	0.20	RECONSTRUCTION	BUILT	5		
26	14.00	15.55	1.55	NEW CONSTRUCTION	OPEN	2	PROFILE	
27	15.55	16.30	0.75	RECONSTRUCTION	OPEN	1		
28	16.30	16.60	0.30	NEW CONSTRUCTION	OPEN	2	PROFILE	
29	16.60	17.10	0.50	RIGID PAVEMENT	BUILT	3		
30	17.10	17.70	0.60	NEW CONSTRUCTION	OPEN	2	PROFILE	
31	17.70	20.80	3.10	RIGID PAVEMENT	BUILT	3		
32	20.80	21.10	0.30	RECONSTRUCTION	OPEN	1		
33	21.10	22.15	1.05	NEW CONSTRUCTION	OPEN	2	PROFILE	
34	22.15	22.50	0.35	RECONSTRUCTION	BUILT	5		
35	22.50	24.00	1.50	NEW CONSTRUCTION	OPEN	2	PROFILE	
36	24.00	24.25	0.25	RIGID PAVEMENT DFS	BUILT	4		
37	24.25	25.00	0.75	NEW CONSTRUCTION DFS	OPEN	2		

For Backbone-Utra...
 Subbaraj Pattnayak
 Backbones Utra (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Project, Odisha
 Chief E (Employer)
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

DRAWING TITLE DETAILS OF PAVEMENT SCHEDULE WITH TYPE OF TCS Date: 20/04/2014	SCALE N.T.S.	PROJECT WORKS AND RECONSTRUCTION OF EXISTING TO CARRIAGEWAY TO 2 LANE ROAD FROM NIBICHINTAKOLI - KM 0+00 TO KM 25+00 (BALANCE WORK) PACKAGE - PMA-1	COUNTY ODISHA WORKS DEPARTMENT	DRAWING NO. CONTROL SHEET LEA Associates South Asia Pvt. Ltd., India 12/10/2012 INDIA ASSOCIATES SOUTH ASIA PRIVATE LIMITED INDIA ASSOCIATES SOUTH ASIA PRIVATE LIMITED DELHI-110044	DATE 20/04/2014	CHECKED APPROVED	DRAWN BY	DATE 20/04/2014
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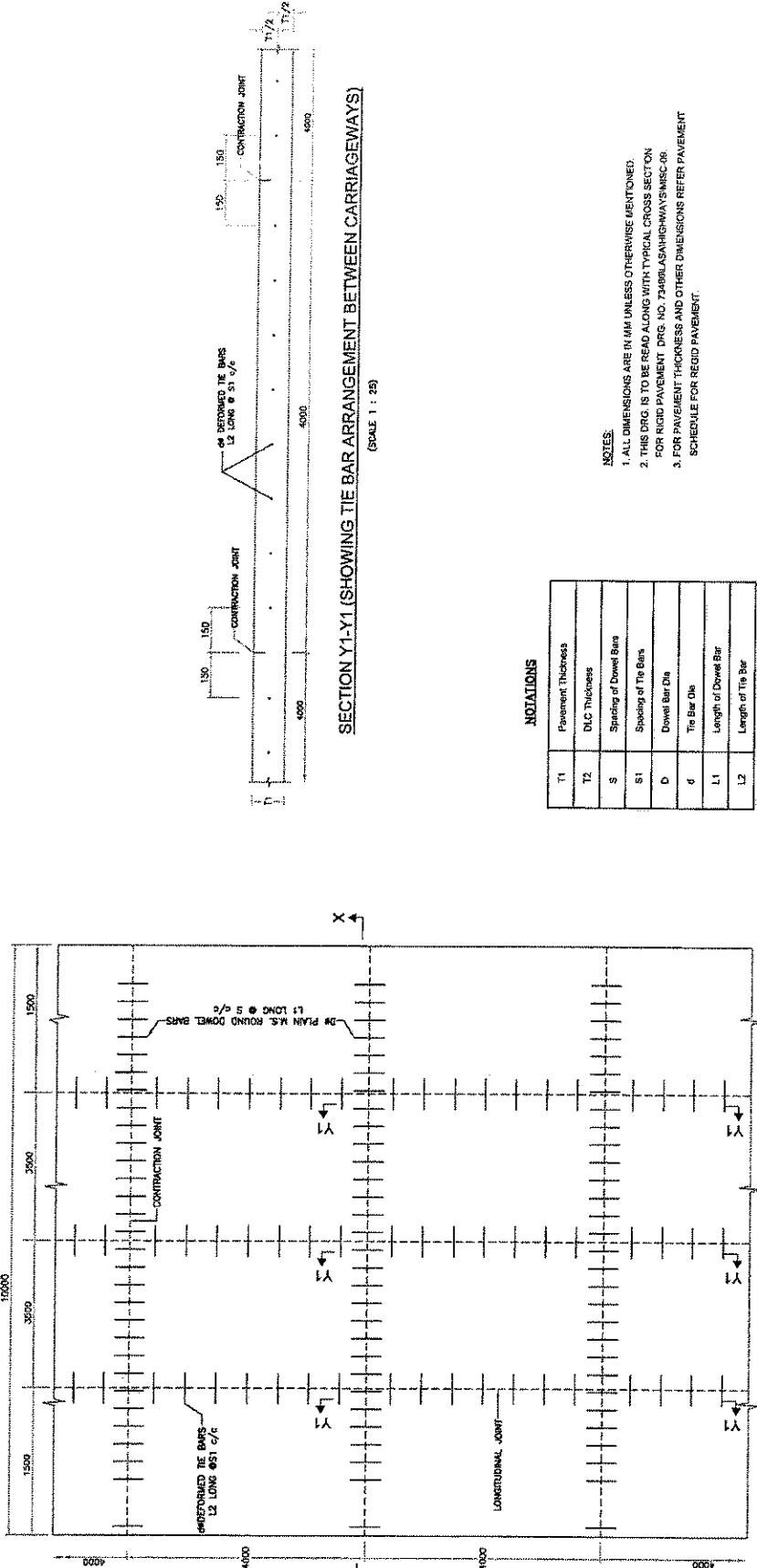
HIGH EMBANKMENT PROTECTION WORK WITH STONE PITCHING
(SCALE 1 : 25)

HIGH EMBANKMENT PROTECTION WORK WITH EROSION CONTROL BLANKET
(SCALE 1 : 25)

For Backbone-Utkal JV
Shobhaish Pattanayak
 Backbone-Utkal JV
 Authorized Signatory
 (Contractor)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

		PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLLI TO DUHURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1		DRAWING NO. : 724681 AS HIGHWAY/91MS-C/6 SCALE	
CLIENT ODISHA WORKS DEPARTMENT		CONSULTANT CONSULTING ENGINEERS GROUP LTD. E-12/ADJ COLONY/JALAYIA MAHAR JUPUR-17 Ph: 2271341, 2271882, 2270556 Fax: 2271341, e-mail: cege@cegroupindia.com		PROJECT MANAGER LEA Marketing South Asia Pvt. Ltd. 4th Floor, P-1, E-22, 3rd Floor, MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MAHURA ROAD, NEW DELHI-110044	
NO.	DATE	PREPARED BY	CHECKED BY	APPROVED BY	SIGNATURE
01	AUGUST 2015	SUBODH CHITRAK PRASHANT	SR. SURVEYSOR MR. BISHNU DEB	SR. ENGINEER MR. RAJESH K.	UP. SAHOO, (U) IN. PRADHAN (C)
02	FEB 2013	VINAY K. SINGH CADD	PRASHANT	PRASHANT	IN. PRADHAN (C)
03	JUNE 2008	C.S.	C.S.	C.S.	IN. PRADHAN (C)



SECTION Y1-Y1 (SHOWING TIE BAR ARRANGEMENT BETWEEN CARRIAGEWAYS)
(SCALE 1 : 25)

SECTION X-X (SHOWING DOWEL BAR ARRANGEMENT)
(SCALE 1 : 30)

- 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. 7408/BLAS/HHWAY/SMISC/08.
 3. FOR PAVEMENT THICKNESS AND OTHER DIMENSIONS REFER PAVEMENT SCHEDULE FOR RIGID PAVEMENT.

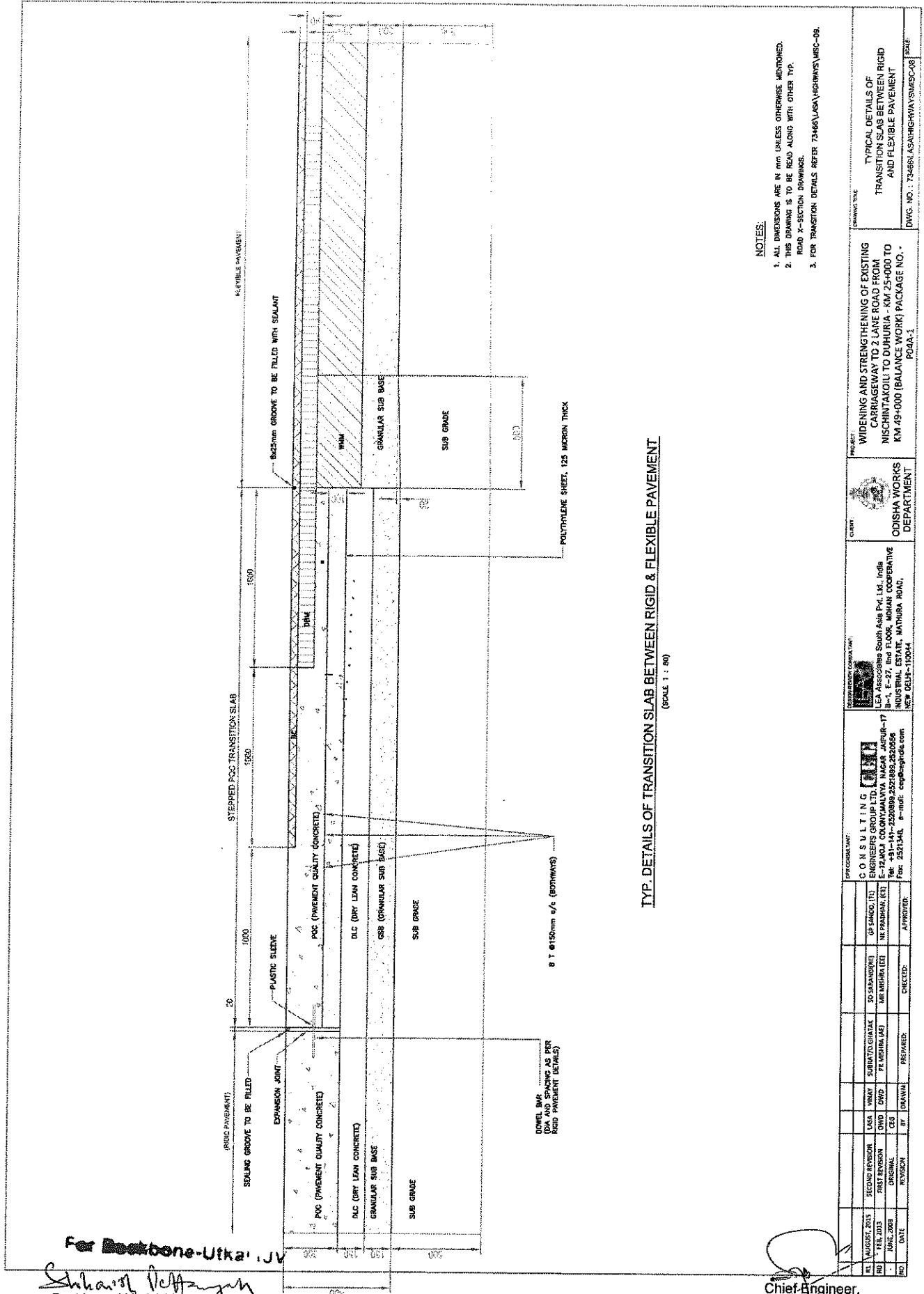
NOTATIONS

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

For Backbone-U/I:
 Shikharth Jha
 Backbone-Utkal (JV)
 (Contractor's Authorized Signatory)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

<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>01</td> <td>AUGUST 2015</td> <td>SECOND REVISION</td> <td>SAHA</td> <td>VIHARI</td> <td>SUBBAY TO CHITRE</td> </tr> <tr> <td>02</td> <td>FEB 2016</td> <td>FIRST REVISION</td> <td>CHAND</td> <td>CHAND</td> <td>PK NISHITH (AO)</td> </tr> <tr> <td>03</td> <td>JUNE 2008</td> <td>ORIGINAL</td> <td>CCO</td> <td>CCO</td> <td>MR. MOHANTO</td> </tr> </table>		NO.	DATE	REVISION	BY	CHKD.	APPVED.	01	AUGUST 2015	SECOND REVISION	SAHA	VIHARI	SUBBAY TO CHITRE	02	FEB 2016	FIRST REVISION	CHAND	CHAND	PK NISHITH (AO)	03	JUNE 2008	ORIGINAL	CCO	CCO	MR. MOHANTO	<p>CONSULTING ENGINEERS GROUP LTD. (JV) 5-72/404 COLONY MALVIYA NAGAR JALPUR-17 INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044 E-mail: ce@cegroup.com For: 2301348</p>	<p>ODISHA WORKS DEPARTMENT</p>	<p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DUHURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1</p>	<p>TYPICAL DETAILS OF DOWEL BAR AND TIE BAR ARRANGEMENT DWG. NO. : 72466/BLAS/HHWAY/SMISC-07</p>
NO.	DATE	REVISION	BY	CHKD.	APPVED.																								
01	AUGUST 2015	SECOND REVISION	SAHA	VIHARI	SUBBAY TO CHITRE																								
02	FEB 2016	FIRST REVISION	CHAND	CHAND	PK NISHITH (AO)																								
03	JUNE 2008	ORIGINAL	CCO	CCO	MR. MOHANTO																								



- NOTES:**
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED.
 2. THIS DRAWING IS TO BE READ ALONG WITH OTHER TYP. ROAD & SECTION DRAWINGS.
 3. FOR TRANSITION DETAILS REFER 73468\ASA\HIGHWAYS\MS-09.

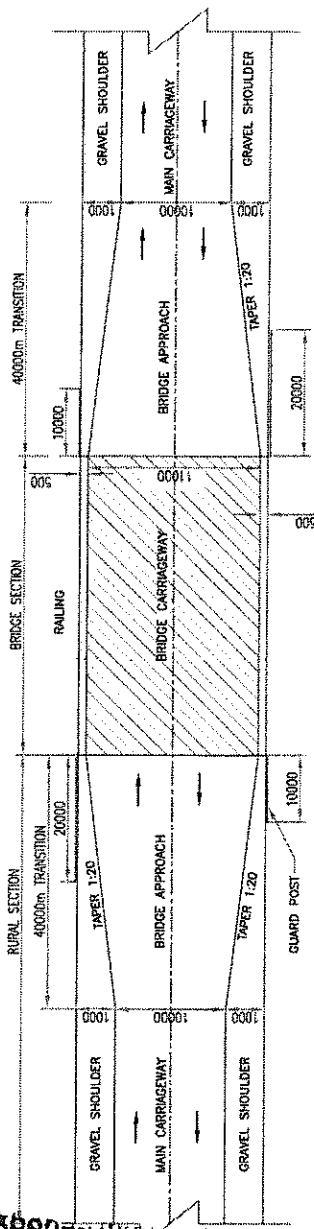
TYP. DETAILS OF TRANSITION SLAB BETWEEN RIGID & FLEXIBLE PAVEMENT

(SCALE 1 : 80)

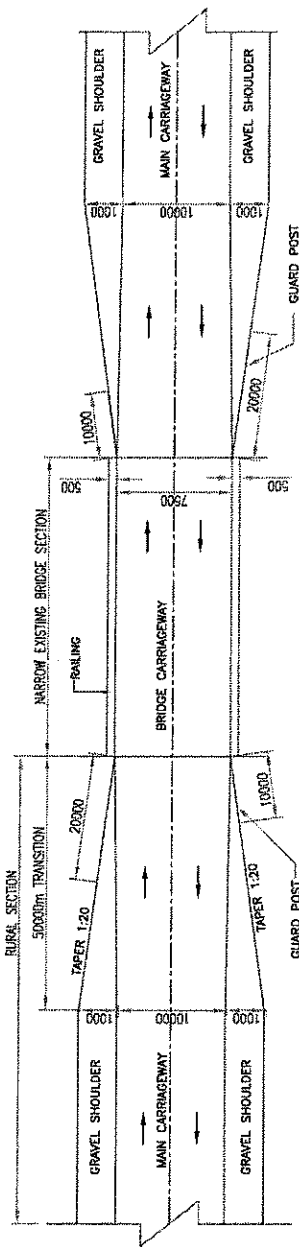
For Backbone-Utkal JV
 Shaikat Debnayan
 Backbone-Utkal (JV)
 (Contractor)
Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

<p>ODISHA WORKS DEPARTMENT</p>		<p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOILI TO DUHURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1</p>	
<p>DESIGNER: TYPICAL DETAILS OF TRANSITION SLAB BETWEEN RIGID AND FLEXIBLE PAVEMENT (DWG. NO. : 73468\ASA\HIGHWAYS\MS-09)</p>		<p>DATE: 15/02/2013</p>	
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<p>VERIFIED: <i>[Signature]</i></p>		<p>DATE: 15/02/2013</p>	



TRANSITION BETWEEN RURAL 12m SECTION TO BRIDGES WITH 11m CLEAR CARRIAGEWAY



TRANSITION BETWEEN RURAL 12m SECTION TO NARROW EXISTING BRIDGES SECTION

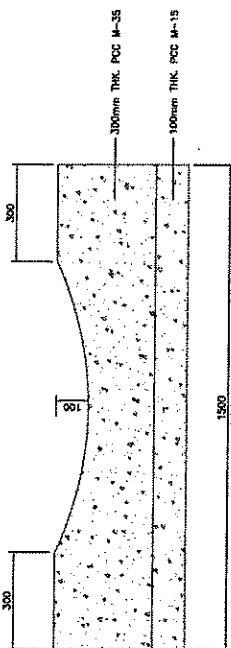
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS INDICATED OTHERWISE.
2. FOR DETAILS OF STRUCTURES REFER STRUCTURAL DRGS.
3. METAL BEAM CRASH BARRIER ARE INSTALLED WHERE EMBANKMENT HEIGHT IS MORE THAN 1.5 METRES & AT BRIDGE APPROACHES.
4. FOR GUARD POST REFER DRG. NO. 73466/ASA/HIGHWAYS/MISC-17.
5. FOR HAZARD MARKER DETAILS REFER TYPICAL ROAD SIGN & DETAILS OF ROAD DELINEATORS

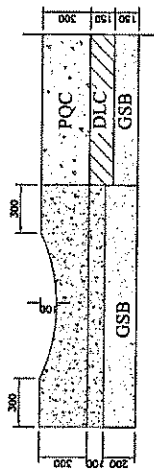
<p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOILI TO DUHURIA - KM 25+000 TO KM 45+000 (BALANCE WORK) PACKAGE NO. P04A-1</p>		<p>SCALE</p>	
<p>CLIENT: ODISHA WORKS DEPARTMENT</p>		<p>DRAWING TITLE: TYPICAL DETAILS OF TRANSITION OF DIFFERENT ROAD SECTIONS</p>	
<p>DESIGNER: LEA Associates South Asia Pvt. Ltd. India B-1, E-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURIA ROAD, NEW DELHI-110044</p>		<p>DATE: 17 AUGUST 2015</p>	
<p>CONTRACTOR: CON SULTING ENGINEERS GROUP LTD. E-12/40/3 COLONY/MAULVI NAGAR JAMPUR-17</p>		<p>DATE: 17 FEB 2013</p>	
<p>NO. 1</p>		<p>DATE: 17 FEB 2013</p>	
<p>DESIGNER: GP SHAMU (U)</p>	<p>CHECKED: []</p>	<p>APPROVED: []</p>	<p>DATE: 17 FEB 2013</p>
<p>DR: MF MATURIA (E)</p>	<p>PREPARED: []</p>	<p>CHECKED: []</p>	<p>DATE: 17 FEB 2013</p>
<p>DR: PR INDIRA (E)</p>	<p>APPROVED: []</p>	<p>CHECKED: []</p>	<p>DATE: 17 FEB 2013</p>
<p>DR: AR MATURIA (E)</p>	<p>APPROVED: []</p>	<p>CHECKED: []</p>	<p>DATE: 17 FEB 2013</p>
<p>DR: AR MATURIA (E)</p>	<p>APPROVED: []</p>	<p>CHECKED: []</p>	<p>DATE: 17 FEB 2013</p>

For Backbone-ULKA (JV)
 Signature: [Handwritten Signature]
 Authorized Signatory
 (Contractor)

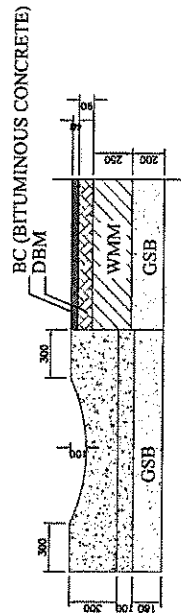
Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



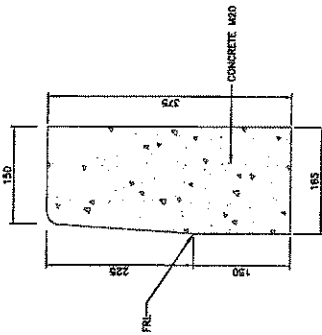
PRECAST SAUCER DRAIN
(SCALE 1 : 10)



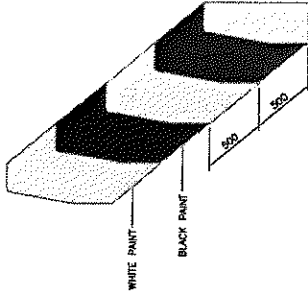
PRECAST SAUCER DRAIN IN RIGID PAVEMENT
(Scale 1:20)



PRECAST SAUCER DRAIN IN FLEXIBLE PAVEMENT
(Scale 1:20)



TYPE-1
KERB FOR CENTRAL
AND DIRECTIONAL ISLAND
(SCALE 1 : 3)



KERB MARKING

Sl. No.	Chainage		Length of Saucer Drain	Type of Drain	SIDE	Total Length (in M)
	From	To				
1	0+000	1+900	1,900.00	Saucer	Both	3,800.00
2	2+200	2+400	200.00	Saucer	Both	400.00
3	2+530	2+800	270.00	Saucer	Both	540.00
4	3+850	4+300	450.00	Saucer	Both	900.00
5	5+800	7+200	1,400.00	Saucer	Both	2,800.00
6	7+550	7+950	400.00	Saucer	Both	800.00
7	9+300	9+680	380.00	Saucer	Both	760.00
8	10+100	10+480	380.00	Saucer	Both	760.00
9	10+600	10+700	100.00	Saucer	Right	100.00
10	10+700	10+850	150.00	Saucer	Left	150.00
11	13+800	14+000	200.00	Saucer	Both	400.00
12	16+600	17+100	500.00	Saucer	Both	1,000.00
13	17+700	20+800	3,100.00	Saucer	Both	6,200.00
14	22+150	22+500	350.00	Saucer	Both	700.00
15	24+000	24+250	250.00	Saucer	Both	500.00
					TOTAL LENGTH	39,770.00

SCHEDULE OF DRAIN - JAGATPUR TO CHANDBALI

NOTES:-

1. THE PROVISION AND LENGTH OF THE LINED DRAIN SHALL BE REASSESSED DURING THE TIME OF CONSTRUCTION.
2. FOOTPATH BARRIERS SHALL BE PROVIDED AS PER DWG No. 73466/ASA/HIGHWAYS/MISC-16.
3. FOR BARRICADES OPENING SHALL BE PROVIDED.
4. LINED DRAIN SCHEDULE SUPER SEED THE PLAN.
5. ALL REINFORCEMENT SHALL BE CONFIRMED TO Fe 500.

For Backbone-Utkal JV
 Shrihari Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

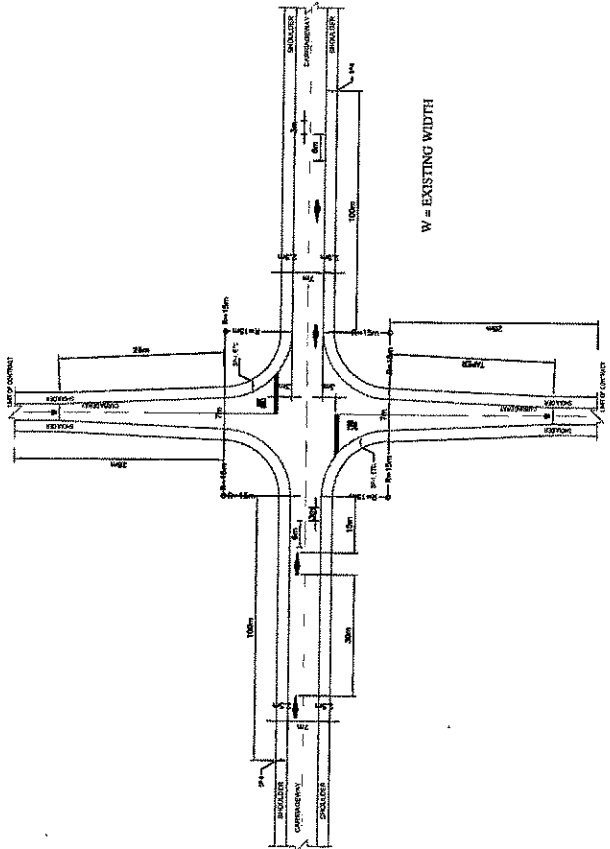
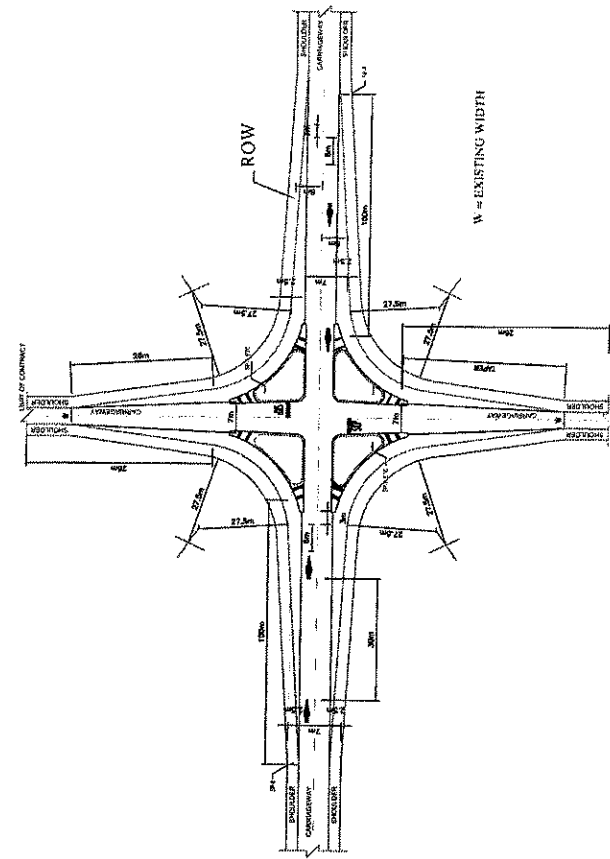
DATE		BY	CHKD	APPD
14	AUGUST 2015	LAKA	WMM	WMM
15	FEB. 2015	DRD	DRD	DRD
16	JUNE 2009	CEG	CEG	CEG
17				
18				
19				
20				

CONSULTANT:
 ENGINEERS GROUP LTD.
 E-2, MOU COLONY, JALANVA NAGAR JAMPUR-17
 INDIA. TEL: 01823-262885, 01823-262888
 Fax: 2021348. E-mail: egrp@egroup.com

PRODUCT:
 WIDENING AND STRENGTHENING OF EXISTING
 CARRIAGEWAY TO 2 LANE ROAD FROM
 NISCHINTAKOLI TO DUHURIA - KM 25+000 TO
 KM 49+000 (BALANCE WORK) PACKAGE NO. -
 P04A-1

CLIENT:
 ODISHA WORKS
 DEPARTMENT

SCALE:
 DWG NO. : 73466/ASA/HIGHWAYS/MISC-16



Sl. No.	Change	Remarks
1	6550	Bullion Section

- NOTES:
1. FOR DETAILS OF ROAD SIGNS NUMBERED SP-1, ETC. SEE DRAWING NO. 72468\ASA\HIGHWAYS\MISC-14.
 2. FOR DETAILS REGARDING DIRECTIONAL ISLAND & CHANNELLING ISLAND REFER DRAWING NO. 72468\ASA\HIGHWAYS\MISC-13,14 & 15.
 3. FOR DETAILS REGARDING ROAD TAMP & OTHER SIGN EDOARDS, MARKING REFER DRAWING NO. 72468\ASA\HIGHWAYS\MISC-13, 14 & 15.
 4. SLOPE GRADIENT ON MINOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH WITH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD.
 5. AS THE ROW IS EITHER SIDE OF THE ROAD IN RURAL SECTION AND B OR EITHER SIDE IN BUILTUP SECTION, DRAWING SHALL BE WORKED AS PER THE LOCATION REQUIREMENT.

TYPICAL DETAILS AND SCHEDULE OF MINOR JUNCTIONS (4-LEGGED)
 DWG. NO. : 72468\ASA\HIGHWAYS\MISC-11 SCALE

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM MISCINTAKOLI TO DUHURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1



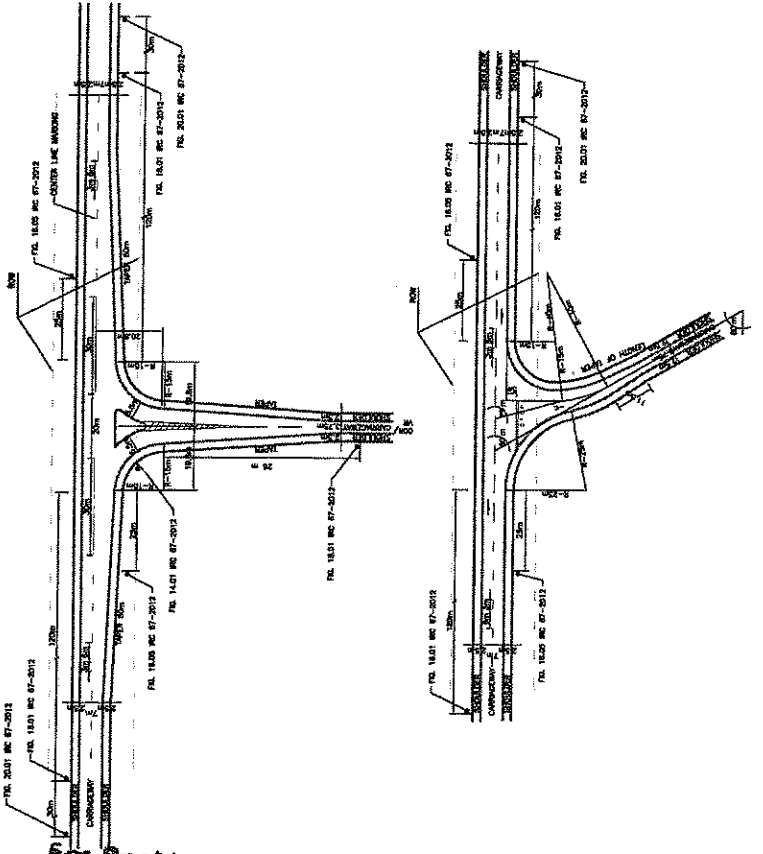
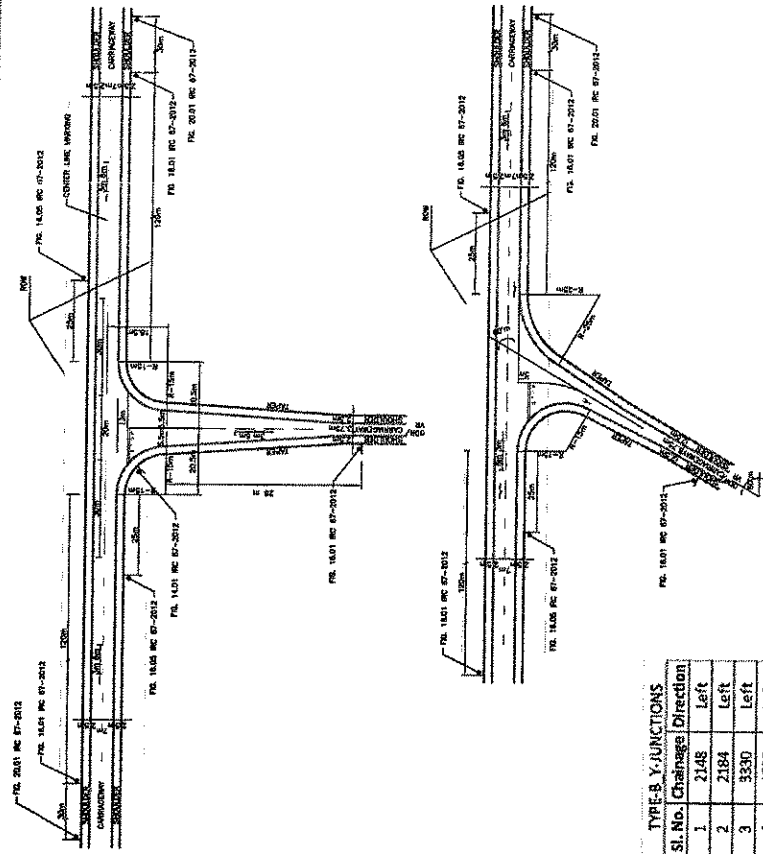
CLIENT
 ODISHA WORKS DEPARTMENT

CONSULTANT
 CONSU L T I N G ENGINEERS GROUP LTD. INDIA
 E-17/403 COLONY, HALWA NAGAR JAIPUR-17
 Ph: 0141-2520899, 2521899, 2520559
 Fax: 2521344, e-mail: congroup@rediffmail.com

NO.	DATE	BY	CHKD.	APPD.
1	AUGUST 2015	JASA	WJAY	SD SAMANTO
2	FEB 2015	SWD	OND	PE MISHRA
3	JAN 2015	CSJ	CSJ	PE MISHRA
4				
5				

For Balance...
 Signature: *[Handwritten Signature]*
 Backbone Utkal (Contractor)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



TYPE-B Y-JUNCTIONS

Sl. No.	Changage	Direction
1	2148	Left
2	2184	Left
3	3330	Left
4	4730	Left
5	5160	Left
6	10858	Right
7	10878	Left
8	13120	Left
9	13530	Left
10	13646	Left
11	18658	Left
12	18917	Right
13	19542	Right
14	19771	Left
15	21319	Left
16	21850	Left
17	24120	Right
18	24430	Left
19	24680	Right
20	24880	Right

TYPE-A Y-JUNCTIONS

Sl. No.	Changage	Direction
1	510	Left
2	1183	Left
3	1366	Left
4	1405	Left
5	6105	Left
6	6315	Left
7	6800	Right
8	7640	Left
9	13895	Right
10	13904	Left
11	16650	Left
12	16891	Right
13	22400	Both

ATT-JUNCTION TYPE-B

Sl. No.	Changage	Direction
1	1805	Right
2	2854	Left
3	3880	Right
4	4450	Left
5	5230	Left
6	5655	Left
7	5885	Left
8	9050	Right
9	9485	Left
10	19555	Left
11	21312	Right
12	24685	Left

ATT-JUNCTION TYPE-A

Sl. No.	Changage	Direction
1	182	Right
2	1000	Left
3	3980	Left
4	4200	Right
5	6075	Right
6	7880	Right
7	9070	Left
8	9445	Left
9	10440	Left
10	20028	Right
11	20075	Left
12	20440	Left

- NOTES:
1. ALL THE DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 2. FOR FURTHER DETAILS OF ROAD MARKINGS REFER FIG. 67-2012.
 3. FOR ROAD MARKING DETAILS REFER DRAWING No. 7546R/ASA/HIGHWAYS/MSC-01.
 4. LONGITUDINAL GRADIENT ON MINOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD.
 5. AS THE ROAD IS 13 m ON EITHER SIDE OF THE ROAD IN RURAL SECTION AND 8 m ON EITHER SIDE IN BUILTUP SECTIONS, DRAWING SHALL BE MODIFIED AS PER THE LOCATIONAL REQUIREMENT.

Backbone-Utkal JV
 Shrihari Pattanayak
 Backbone-Utkal (JV)
 (Contractor) **Authorized Signatory**

Chief Engineer,
 World Bank Projects, Odisha
 CR Employer
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

PROJECT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM MISCHINTAKOLI TO DUHURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1
CLIENT	ODISHA WORKS DEPARTMENT
DESIGNED BY	DR. S. K. SINGH
CHECKED BY	DR. S. K. SINGH
DATE	15/06/2008
REVISION	01
APPROVED BY	DR. S. K. SINGH
DATE	15/06/2008
REVISION	01
CONSULTANT	CONSULTING ENGINEERS GROUP LTD. B-4, E-22, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURA ROAD, NEW DELHI-110044
CONTRACT NO.	7546R/ASA/HIGHWAYS/MSC-01
PROJECT NO.	OSRP-CW-ICB-P04A1
DWG. NO.	7546R/ASA/HIGHWAYS/MSC-01
SCALE	AS SHOWN
SHEET NO.	18 OF 20

TYPE-Y JUNCTIONS

Sl. No.	Chainage	Direction
1	745	Left
2	794	Left
3	3130	Left
4	4720	Left
5	5160	Left
6	1052	Right
7	1072	Left
8	1170	Left
9	1350	Left
10	1565	Left
11	1825	Left
12	1887	Right
13	1962	Right
14	1973	Left
15	2130	Left
16	2180	Left
17	2410	Right
18	2440	Left
19	2480	Right
20	2480	Right

TYPE-A JUNCTIONS

Sl. No.	Chainage	Direction
1	510	Left
2	1381	Left
3	1365	Left
4	1605	Left
5	5105	Left
6	6315	Left
7	6800	Right
8	7290	Left
9	13895	Right
10	13901	Left
11	15650	Left
12	16801	Right
13	22400	Right

ATT-JUNCTION TYPE-B

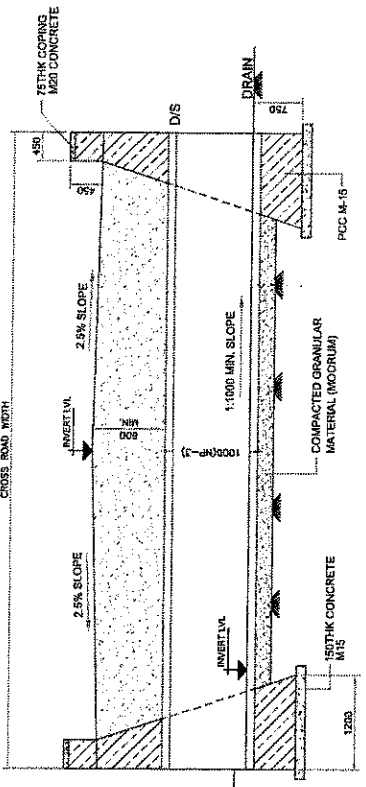
Sl. No.	Chainage	Direction
1	1805	Right
2	2854	Left
3	2880	Right
4	4890	Left
5	5730	Left
6	5805	Left
7	5805	Left
8	5830	Right
9	5830	Right
10	13905	Left
11	13912	Right
12	14805	Left

ATT-JUNCTION TYPE-A

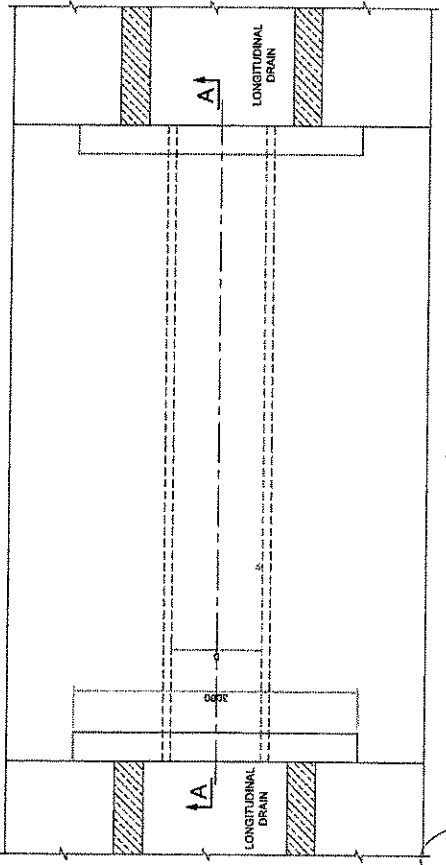
Sl. No.	Chainage	Direction
1	357	Right
2	1100	Left
3	3980	Left
4	4200	Right
5	6005	Right
6	7880	Right
7	8070	Left
8	8445	Right
9	8530	Left
10	20108	Right
11	20205	Left
12	20200	Left

Major Intersections

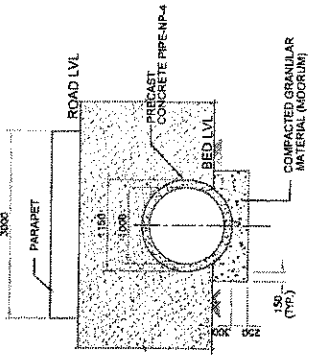
Sl. No.	Chainage	Direction
1	6593	Right



SECTION A-A



SECTION B-B



For Backdrome-01
 Signature
 Backdrome-01
 (Contractor)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Sl. No.	Chainage	Direction
1	6593	Right

Sl. No.	Chainage	Direction
1	510	Left
2	1381	Left
3	1365	Left
4	1605	Left
5	5105	Left
6	6315	Left
7	6800	Right
8	7290	Left
9	13895	Right
10	13901	Left
11	15650	Left
12	16801	Right
13	22400	Right

Sl. No.	Chainage	Direction
1	1805	Right
2	2854	Left
3	2880	Right
4	4890	Left
5	5730	Left
6	5805	Left
7	5805	Left
8	5830	Right
9	5830	Right
10	13905	Left
11	13912	Right
12	14805	Left

Sl. No.	Chainage	Direction
1	357	Right
2	1100	Left
3	3980	Left
4	4200	Right
5	6005	Right
6	7880	Right
7	8070	Left
8	8445	Right
9	8530	Left
10	20108	Right
11	20205	Left
12	20200	Left

Sl. No.	Chainage	Direction
1	6593	Right

Sl. No.	Chainage	Direction
1	745	Left
2	794	Left
3	3130	Left
4	4720	Left
5	5160	Left
6	1052	Right
7	1072	Left
8	1170	Left
9	1350	Left
10	1565	Left
11	1825	Left
12	1887	Right
13	1962	Right
14	1973	Left
15	2130	Left
16	2180	Left
17	2410	Right
18	2440	Left
19	2480	Right
20	2480	Right

Sl. No.	Chainage	Direction
1	510	Left
2	1381	Left
3	1365	Left
4	1605	Left
5	5105	Left
6	6315	Left
7	6800	Right
8	7290	Left
9	13895	Right
10	13901	Left
11	15650	Left
12	16801	Right
13	22400	Right

Sl. No.	Chainage	Direction
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6	5805	Left
7	5805	Left
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9	5830	Right
10	13905	Left
11	13912	Right
12	14805	Left

Sl. No.	Chainage	Direction
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2	1100	Left
3	3980	Left
4	4200	Right
5	6005	Right
6	7880	Right
7	8070	Left
8	8445	Right
9	8530	Left
10	20108	Right
11	20205	Left
12	20200	Left

Sl. No.	Chainage	Direction
1	6593	Right

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1	745	Left
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7	1072	Left
8	1170	Left
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14	1973	Left
15	2130	Left
16	2180	Left
17	2410	Right
18	2440	Left
19	2480	Right
20	2480	Right

Sl. No.	Chainage	Direction
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1	1805	Right
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5	5730	Left
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Sl. No.	Chainage	Direction
1	6593	Right

Sl. No.	Chainage	Direction
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8	1170	Left
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18	2440	Left
19	2480	Right
20	2480	Right

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Sl. No.	Chainage	Direction
1	6593	Right

Sl. No.	Chainage	Direction
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8	1170	Left
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7	6800	Right
8	7290	Left
9	13895	Right
10	13901	Left
11	15650	Left
12	16801	Right
13	22400	Right

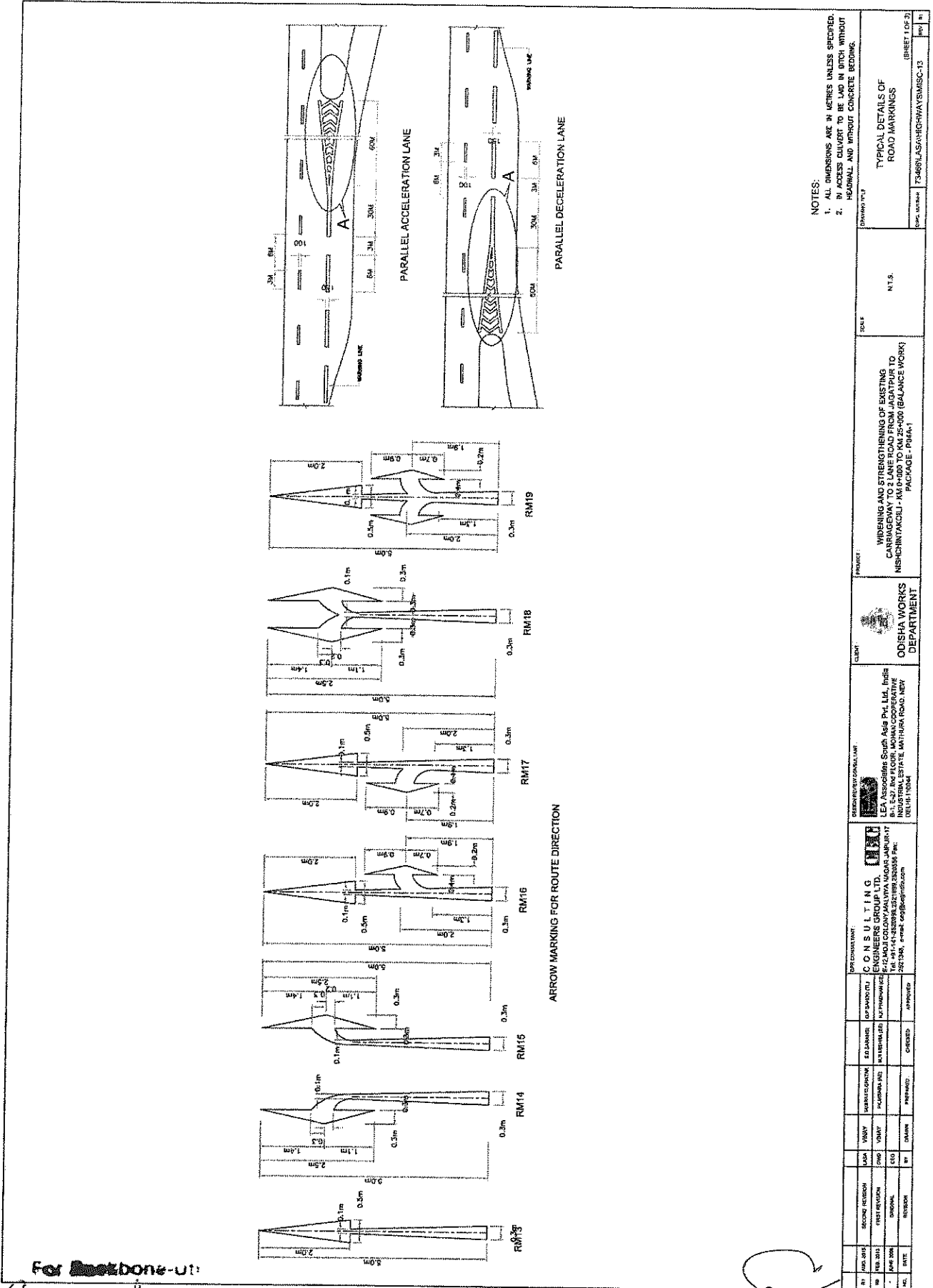
Sl. No.	Chainage	Direction
1	1805	Right
2	2854	Left
3	2880	Right
4	4890	Left
5	5730	Left
6	5805	Left
7	5805	Left
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12	14805	Left

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6	7880	Right
7	8070	Left
8	8445	Right
9	8530	Left
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Sl. No.	Chainage	Direction
1	6593	Right

Sl. No.	Chainage	Direction
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6	1052	Right
7	1072	Left
8	1170	Left
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12	1887	Right
13	1962	Right
14	1973	Left
15	2130	Left
16	2180	Left
17	2410	Right
18	2440	Left
19	2480	Right
20	2480	Right

Sl. No.	Chainage	Direction
1	510	Left
2	1381	Left
3	1365	Left
4	1605	Left
5	5105	Left



NOTES:
 1. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED.
 2. IN ACCESS CULVERT TO BE Laid IN DITCH WITHOUT SIDEWALL AND WITHOUT CONCRETE BEDDING.

Drawn by: T. J.	Scale: N.T.S.	Project: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1	Sheet: 7348(LASAI)HIGHWAY/MISC-13
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Client: ODISHA WORKS DEPARTMENT	Project: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1
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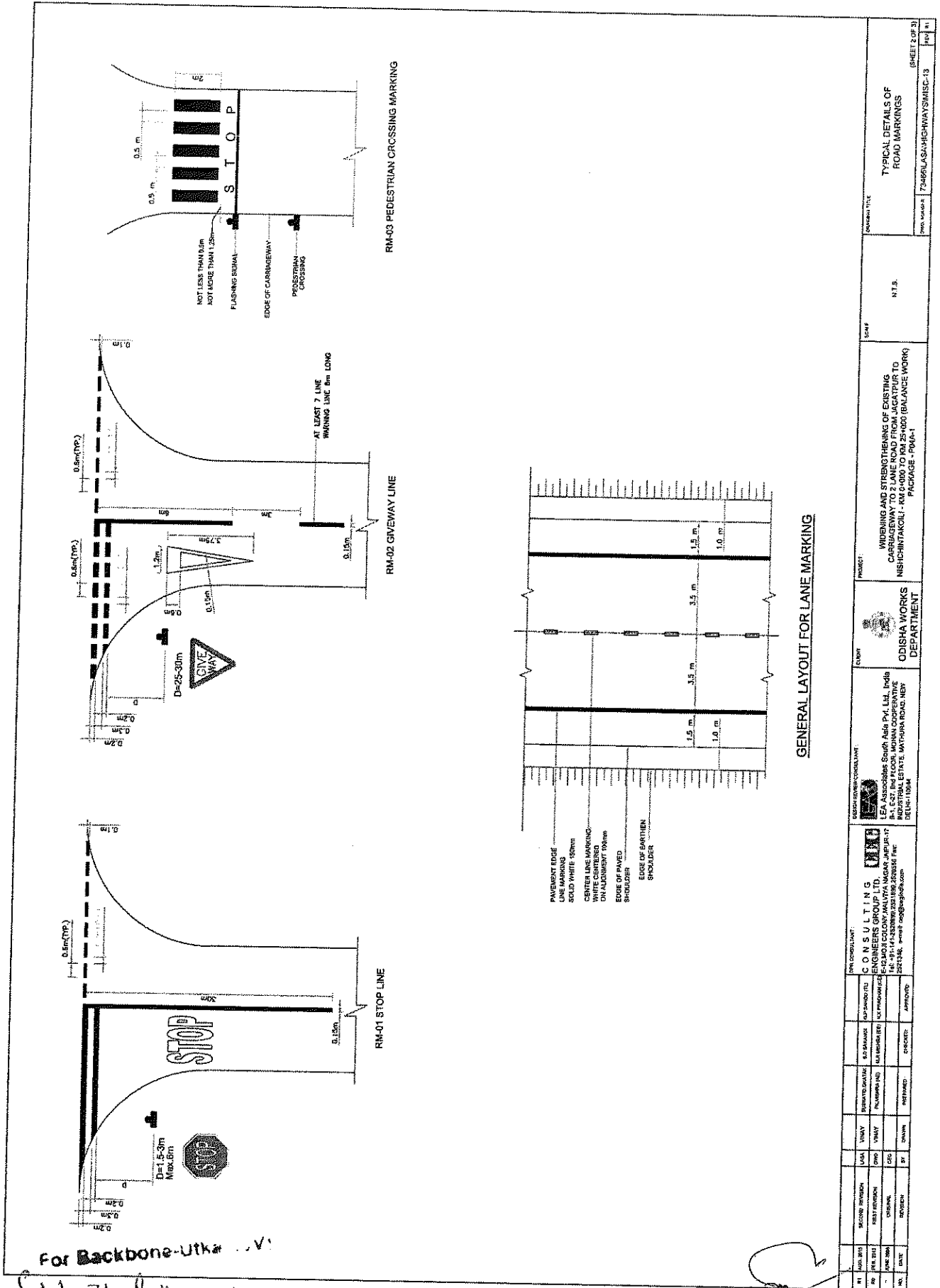
Client: LCI ASSOCIATING SOUTH ASIA PVT. LTD., India	Project: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1
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Client: CONSULTING ENGINEERS GROUP LTD.	Project: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKULI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1
---	--

NO.	DATE	BY	CHKD	APP'D	REVISION

For Backbone-Ut:
 S. Banik Pattanayak
 Backbone Utikal (JV)
 (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



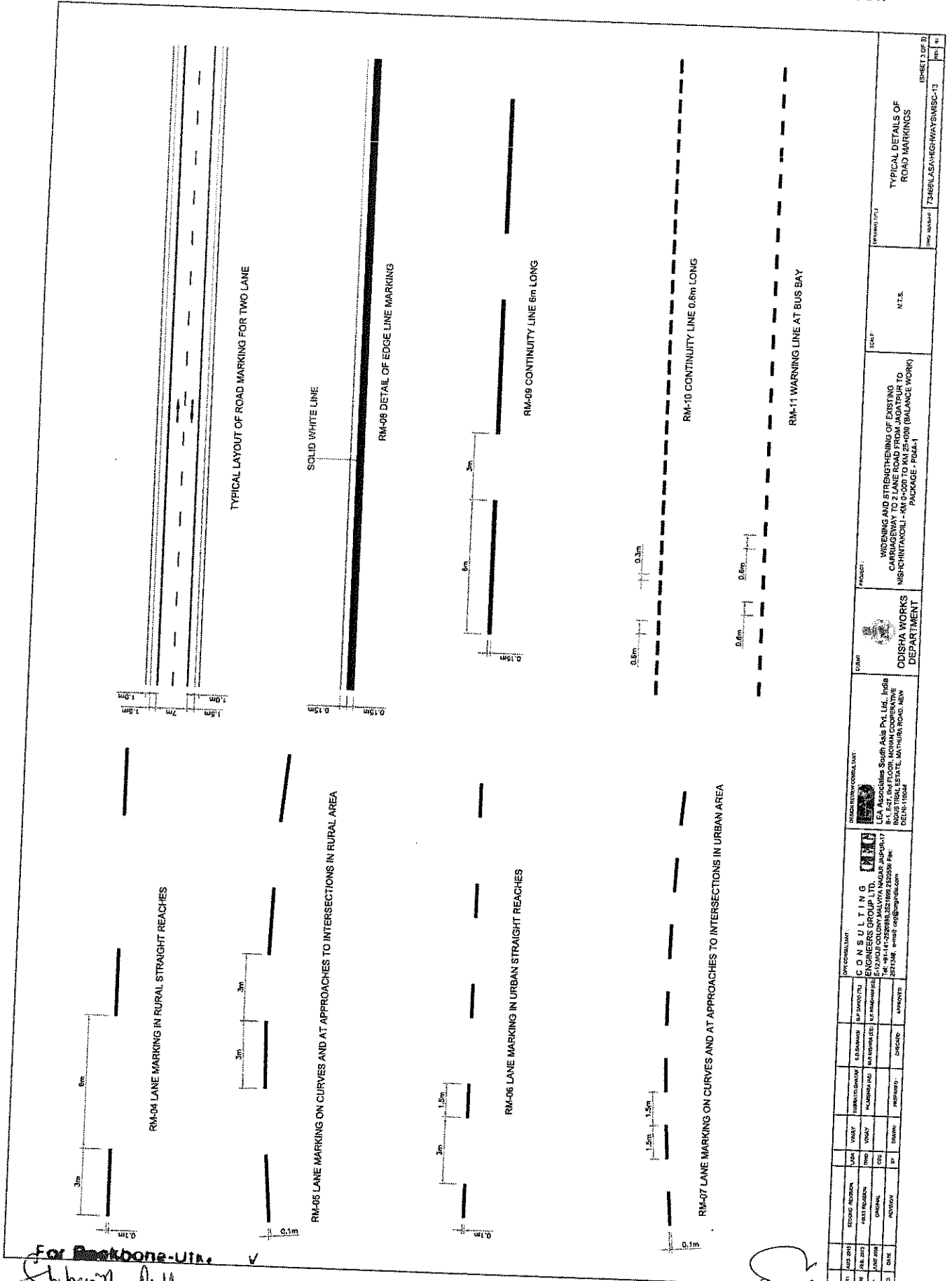
For Backbone-Utkal ...V:

Signature
Authorized Signatory
Backbone-Utkal (JV)
(Contractor)

Signature
Chief Engineer,
World Bank Project, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the F.I.C.(C), Odisha, BBSR

NO.	DATE	REVISION	BY	CHKD	APP'D
1	10/11/2011				
2	10/11/2011				
3	10/11/2011				
4	10/11/2011				
<p>FOR CONSULTANT:</p> <p>CONSULTING ENGINEERS GROUP LTD. (C.E.G.L.) B-1, C-2, and F-302, MIDC, WARDHA ROAD, WARDHA (M.S.) INDUSTRIAL ESTATE, MATOURA ROAD, NEW DELHI-110044 2013198; email: ceeg@ceeg.co.in</p> <p>FOR EMPLOYER/CONSULTANT:</p> <p>ODISHA WORKS DEPARTMENT ODISHA WIDENING AND STRENGTHENING OF EXISTING TO CARRIAGEWAY TO 2 LANE ROAD FROM NEBHINTAKOLI - KM 0+000 TO KM 25+000 (BALANCE WORK) PACKAGE - PMA-1</p> <p>PROJECT NO. 4145</p> <p>SCALE: N.T.S.</p> <p>TYPICAL DETAILS OF ROAD MARKINGS</p> <p>7346RLASH-HIGHWAYS/MISC-13</p> <p>SHEET 2 OF 3</p>					



<p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARPETED ROAD FROM JAGA PUR TO NISHCHINTAKULI (RURAL) KM 25-4000 (BALANCE WORK) PACKAGE - P04A1</p>		<p>REVISION TITLE: TYPICAL DETAILS OF ROAD MARKINGS</p>		<p>73486LASHHIGHWAYSMS13</p>	
<p>CLIENT: N.T.S.</p>		<p>SCALE: N.T.S.</p>		<p>(SHEET 3 OF 8)</p>	
<p>DESIGNER: LEA ASSOCIATES SOUTH ASIA PVT. LTD., INDIA B-4, 2-27, 1st FLOOR, MAIN ROAD, INDUSTRIAL ESTATE, MATUNGA ROAD, NEW DELHI-110044</p>		<p>ODISHA WORKS DEPARTMENT</p>		<p>73486LASHHIGHWAYSMS13</p>	
<p>CONTRACTOR: BACKBONE-UITA</p>		<p>APPROVED: [Signature]</p>		<p>DATE: [Blank]</p>	

For Backbone-UITA. ✓
 Backbone-UITA (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

STOP [FIG. 14.01] 800 (800) (1200) mm

GIVE WAY [FIG. 14.02] 800 (800) (1200) mm

HORN PROHIBITED [FIG. 14.18] 750 (800) mm

NO ENTRY [FIG. 14.19] 800 mm

ONE WAY SIGN [FIG. 14.20] 750 (800) mm

NO STOPPING AND NO STANDING [FIG. 14.21] 470 (800) mm

LEFT TURN PROHIBITED [FIG. 14.21] 750 (800) mm

RIGHT TURN PROHIBITED [FIG. 14.21] 750 (800) mm

OVER TAKING PROHIBITED [FIG. 14.23] 750 (800) mm

U-TURN PROHIBITED [FIG. 14.24] 925 mm

NO STANDING [FIG. 14.27] 470 (800) mm

NO STOPPING AND NO STANDING [FIG. 14.28] 470 (800) mm

NO PARKING [FIG. 14.29] 900 (900) mm

MAXIMUM SPEED LIMIT [FIG. 14.37] 470 (800) mm

MAXIMUM SPEED LIMIT VEHICLE TYPE [FIG. 14.38] 860 mm

COMPULSORY AHEAD [FIG. 14.41] 450 mm

COMPULSORY AHEAD OR RIGHT TURN [FIG. 14.42] 450 mm

NOTES:-
 1. ALL ROAD SIGNAGE DETAILS ARE AS PER IRC-67: 2012.
 2. FIGURE NUMBERS AS PER SPECIFIED IN IRC-67: 2012.

PROJECT: WIDENING AND STRENGTHENING OF EXISTING TO CARRIAGEWAY TO 7 LANE ROAD FROM NH-31HANTARCOLL - KM 9+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1

SCALE: AS SHOWN

DESIGNER: ODISHA WORKS DEPARTMENT

CONSULTING ENGINEERS GROUP LTD. (CGL) 15/1, 16/1, 17/1, 18/1, 19/1, 20/1, 21/1, 22/1, 23/1, 24/1, 25/1, 26/1, 27/1, 28/1, 29/1, 30/1, 31/1, 32/1, 33/1, 34/1, 35/1, 36/1, 37/1, 38/1, 39/1, 40/1, 41/1, 42/1, 43/1, 44/1, 45/1, 46/1, 47/1, 48/1, 49/1, 50/1, 51/1, 52/1, 53/1, 54/1, 55/1, 56/1, 57/1, 58/1, 59/1, 60/1, 61/1, 62/1, 63/1, 64/1, 65/1, 66/1, 67/1, 68/1, 69/1, 70/1, 71/1, 72/1, 73/1, 74/1, 75/1, 76/1, 77/1, 78/1, 79/1, 80/1, 81/1, 82/1, 83/1, 84/1, 85/1, 86/1, 87/1, 88/1, 89/1, 90/1, 91/1, 92/1, 93/1, 94/1, 95/1, 96/1, 97/1, 98/1, 99/1, 100/1

FOR CONTRACTOR'S USE

NO.	DATE	BY	REVISION

Signature: *Subhojit Nath*
 Backbone-Utkal (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

For Backbone-UIR

COMPULSORY AHEAD OR LEFT TURN (FIG. 14.5) **COMPULSORY TURN RIGHT IN ADVANCE OF JUNCTION** (FIG. 14.4) **COMPULSORY TURN LEFT IN ADVANCE OF JUNCTION** (FIG. 14.5) **COMPULSORY TURN RIGHT IN ADVANCE OF JUNCTION** (FIG. 14.4)

COMPULSORY KEEP RIGHT (FIG. 14.6) **COMPULSORY TURN LEFT** (FIG. 14.6) **COMPULSORY TURN RIGHT** (FIG. 14.5)

LEFT HAND CURVE (FIG. 15.01) **RIGHT HAND CURVE** (FIG. 15.02)

SIDE ROAD LEFT (FIG. 15.10) **SIDE ROAD RIGHT** (FIG. 15.09)

LEFT (FIG. 15.11) **RIGHT** (FIG. 15.12)

'Y' INTERSECTIONS

'Y' INTERSECTIONS

T-INTERSECTIONS

T-INTERSECTION MAJOR ROAD AHEAD (FIG. 15.13) **T-INTERSECTION MAJOR ROAD AHEAD** (FIG. 15.14) **T-INTERSECTION MAJOR ROAD AHEAD** (FIG. 15.15) **T-INTERSECTION MAJOR ROAD AHEAD** (FIG. 15.16) **T-INTERSECTION MAJOR ROAD AHEAD** (FIG. 15.17)

TRAFFIC SIGNALS (FIG. 15.18)

MERGING TRAFFIC AHEAD (FROM LEFT) (FIG. 15.20) **MERGING TRAFFIC AHEAD (FROM RIGHT)** (FIG. 15.21)

STAGGERED INTERSECTIONS RIGHT (FIG. 15.20) **STAGGERED INTERSECTIONS LEFT** (FIG. 15.21)

ROAD WIDENS (FIG. 15.24)

MAJOR ROAD AHEAD (FIG. 15.19)

NARROW ROAD AHEAD (FIG. 15.23)

ROAD WIDENS (FIG. 15.24)

NOTES -
1. ALL ROAD SIGNAGE DETAILS ARE AS PER IRC-87, 2012.
2. FIGURE NUMBERS AS PER SPECIFIED IN IRC 67, 2012.

TYPICAL DETAILS OF ROAD SIGNS (SHEET 2 OF 6)

SERIAL NO.	DATE	REVISION	BY	CHKD	DATE	REVISION	BY	CHKD
01	08.05.2018	SECURE DRAWING	UNSA	VMATY	08.05.2018	4.2	MAMUNDA	UNSA
02	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA
03	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA
04	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA
05	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA

SR NO.	DATE	REVISION	BY	CHKD	DATE	REVISION	BY	CHKD
01	08.05.2018	SECURE DRAWING	UNSA	VMATY	08.05.2018	4.2	MAMUNDA	UNSA
02	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA
03	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA
04	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA
05	08.05.2018	FINAL DRAWING	UNSA	VMATY	08.05.2018	1.0	UNSA	UNSA

DESIGNER: UNESA CONSULTANTS
 CHECKER: UNESA CONSULTANTS
 APPROVED: UNESA CONSULTANTS

UNESA CONSULTANTS
 25/21548, 4th floor, Odisha
 INDUSTRIAL ESTATE, MATURA ROAD, NEW DELHI-110044

UNESA CONSULTANTS SOUTH ASIA PVT. LTD. (India)
 5A, 6TH FLOOR, WASHINGTON ROAD,
 NISCHINTAKOLI - KM 5-100 TO KM 2P-000 (BALANCE WORK)
 PACKAGE - P04A-1

ODISHA WORKS DEPARTMENT

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISCHINTAKOLI - KM 5-100 TO KM 2P-000 (BALANCE WORK) PACKAGE - P04A-1

AS SHOWN

SCALE

For Backbone-UIR
 S. Chandan
 Backbone-UIR (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha (Employer)
 Chief Engineer,
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

For Backbone

NARROW BRIDGE AHEAD
FIG 13.25

START OF DUAL CARRIAGEWAY
FIG 13.30

END OF DUAL CARRIAGEWAY
FIG 13.31

GAP IN MEDIAN
FIG 13.32

PEDESTRIAN CROSSING
FIG 13.33

SCHOOL AHEAD
FIG 13.34

SPEED BREAKER
FIG 13.48

OVERHEAD CABLES
FIG 13.57

BARRIER
FIG 13.59

SINGLE CHEVRON (NORMAL)
FIG 13.72

SINGLE CHEVRON (>100kmph speed)
FIG 13.73

DOUBLE CHEVRON
FIG 13.74

TRIPLE CHEVRON
FIG 13.75

OBJECT HAZARD (Left)
FIG 13.76

OBJECT HAZARD (Right)
FIG 13.77

TWO WAY HAZARD MARKER
FIG 13.78

GUARDED RAILWAY CROSSING
FIG 13.71

FIG 13.25: Narrow Bridge Ahead (Triangular warning sign with bridge symbol, radius 45mm)

FIG 13.30: Start of Dual Carrieway (Triangular warning sign with two arrows pointing outwards)

FIG 13.31: End of Dual Carrieway (Triangular warning sign with two arrows pointing inwards)

FIG 13.32: Gap in Median (Triangular warning sign with a gap symbol)

FIG 13.33: Pedestrian Crossing (Triangular warning sign with a pedestrian symbol)

FIG 13.34: School Ahead (Triangular warning sign with a school building symbol)

FIG 13.48: Speed Breaker (Triangular warning sign with a speed breaker symbol)

FIG 13.57: Overhead Cables (Triangular warning sign with a lightning bolt symbol)

FIG 13.59: Barrier (Triangular warning sign with a barrier symbol)

FIG 13.72: Single Chevron (Normal) (Chevron symbol with dimensions: 500x220, 250x250, 250x250)

FIG 13.73: Single Chevron (>100kmph speed) (Chevron symbol with dimensions: 750x500, 375x375, 375x375)

FIG 13.74: Double Chevron (Chevron symbol with dimensions: 1550x400, 1550x400)

FIG 13.75: Triple Chevron (Chevron symbol with dimensions: 2300x400, 2300x400, 2300x400)

FIG 13.76: Object Hazard (Left) (Rectangular hazard marker with dimensions: 300x300)

FIG 13.77: Object Hazard (Right) (Rectangular hazard marker with dimensions: 300x300)

FIG 13.78: Two Way Hazard Marker (Rectangular hazard marker with dimensions: 450x225, 450x225)

FIG 13.71: Guarded Railway Crossing (Two types: (a) At 200m and (b) At 50-100m (Plain/Rolling) and 30-60m (Hill). Dimensions include 300x300 and 150x150.

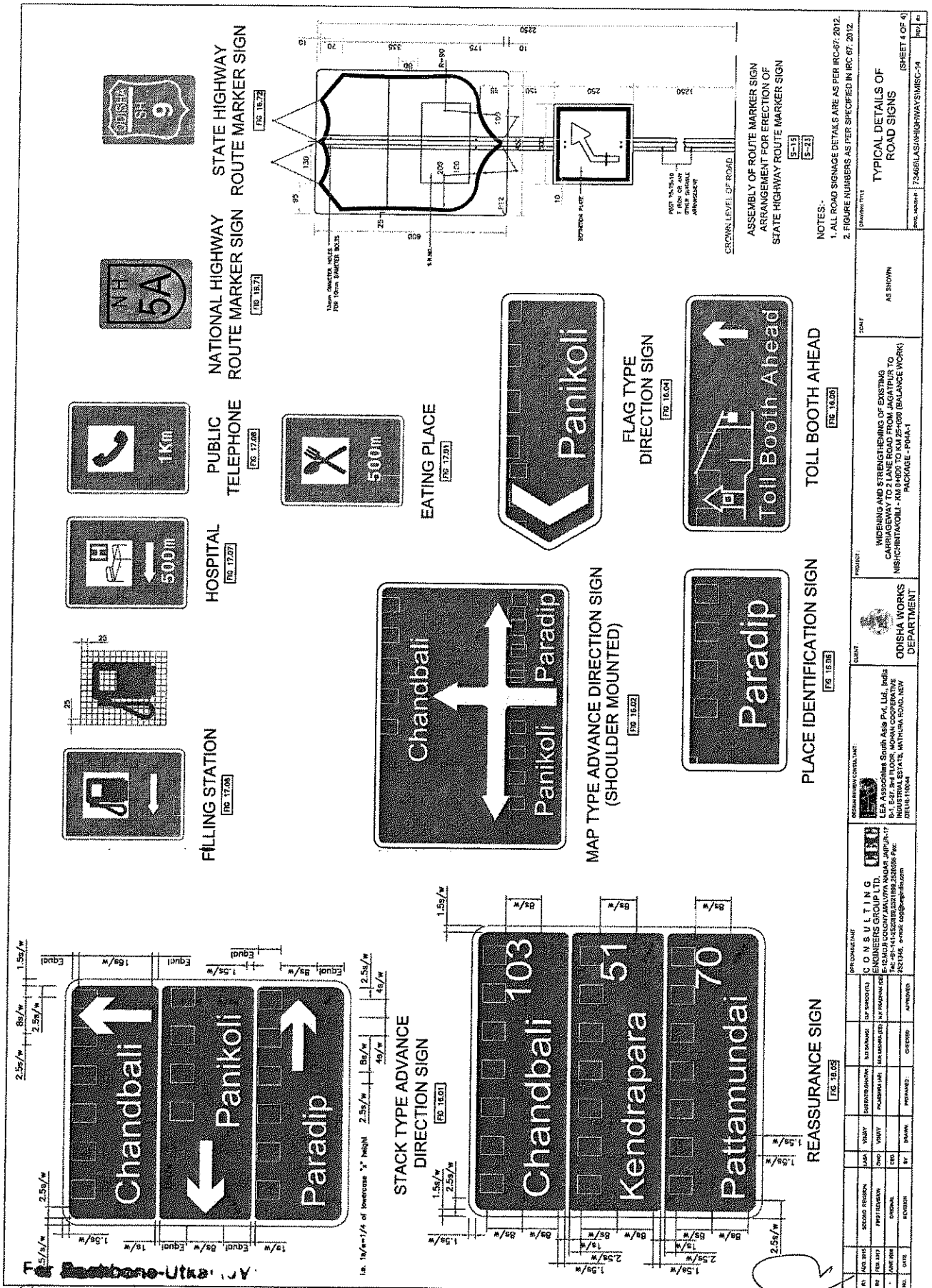
NOTES:

1. ALL ROAD SIGNAGE DETAILS ARE AS PER IRC-67:2012.
2. FIGURE NUMBERS AS PER SPECIFIED IN IRC 67:2012.

TYPICAL DETAILS OF ROAD SIGNS (SHEET 3 OF 4)

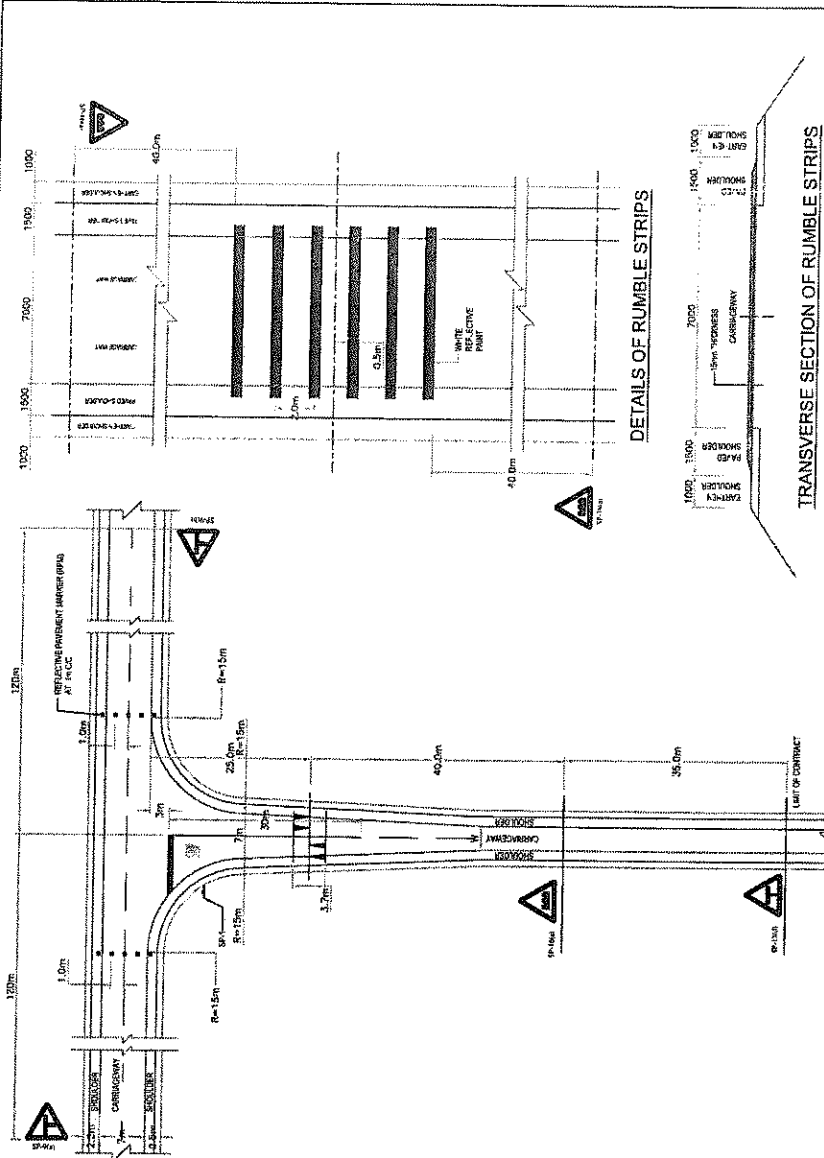
Signature of Contractor: *Ch. ...*
 Backbone Vikal (JV)
 (Contractor)

Signature of Chief Engineer
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



Signature
 Backbone-Utkal (JV)
 (Contractor)

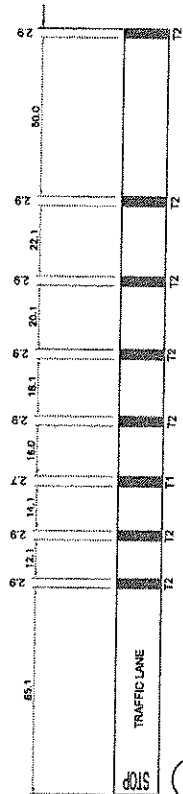
Signature
 Chief Engineer,
 World Bank Projects, Odisha
 Chief Engineer (Employer)
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



LOCATION OF ROAD HUMP AT MINOR ROAD INTERSECTIONS

NOTES:

1. THE DESIGN OF ROAD HUMP IS IN ACCORDANCE WITH IRC (AS PER CURVE LINES).
2. ROAD HUMP IS PROVIDED AT UNCONTROLLED INTERSECTIONS OF MINOR ROADS WITH MAJOR ROADS ON THE MINOR ARMS.
3. ALL ROAD HUMPS SHOULD BE OF THE DESIGN 'HUMP OR ROUGH ROAD' DETAILED IN IRC. (AS PER TECHNICAL SPECIFICATION) OF THE DESIGN 'HUMP OR ROUGH ROAD' DETAILED IN IRC. (AS PER TECHNICAL SPECIFICATION) OF THE DESIGN 'HUMP OR ROUGH ROAD' DETAILED IN IRC.
4. ROAD HUMP SHOULD BE CONSTRUCTED AT A SPECIFIED DISTANCE UP/DOWN ROAD FROM THE INTERSECTION AS PER TECHNICAL SPECIFICATION.
5. TO MAINTAIN SUFFICIENT VISIBILITY, ROAD HUMPS SHOULD BE NOT APPLIED THERMO-PLASTIC MATERIAL CONFORMING TO MA 3000/3000/3000.
6. RUMBLE STRIPS ARE PROVIDED ON ALL SHARP CURVES WITH RADIUS LESS THAN 170M AND AT VILLAGE AND URBAN APPROACHES.
7. HEIGHT OF RUMBLE STRIP IS 15mm.
8. SPACING OF RUMBLE STRIPS SHOULD BE AS PER TECHNICAL SPECIFICATION.
9. SURFACING (TYPE AND AS PER TECHNICAL SPECIFICATION).
10. MATERIAL OF CONSTRUCTION FOR ROAD HUMP IS BITUMINOUS CONCRETE AS PER TECHNICAL SPECIFICATION.
11. REFLECTIVE PAVEMENT MARKERS ARE PROVIDED AS SHOWN IN DRAWING NO. TMS/COMMUNICATIONS/15 BEFORE AND AFTER RUMBLE STRIP/ROAD HUMP.
12. FUNDING FOR ROAD HUMP IS TO BE PROVIDED ONLY THE EXACT LOCATION SHALL BE PROVIDED BY THE ENGINEER PRIOR TO START OF EXECUTION.



PLAN OF RUMBLE STRIPS AT STOPS (ALL DIMENSIONS ARE IN METRES)

DETAILS OF RUMBLE STRIPS

TRANSVERSE SECTION OF RUMBLE STRIPS

PEDESTRIAN CROSSING DETAIL

APPLICATIONS:-

1. INSTALL ON APPROACHES TO INTERSECTIONS WHERE IT IS NECESSARY FOR VEHICLES TO COME TO A COMPLETE STOP OR TO A VERY SLOW SPEED TO STOP OR YIELD SITUATION OR A PEDESTRIAN CROSSING.
2. MAY ALSO BE INSTALLED ON A CURVE OF RADIUS 300m PROVIDED THE DEVICE DOES NOT START ON THE CURVE.
3. TEMPORARY DEVIATION: SHORT SECTIONS OF RUMBLE STRIPS SHOULD BE CONSTRUCTED ON APPROACHES TO A DIVERSION. IT IS PERMISSIBLE FOR STRIPS IN THIS PARTICULAR APPLICATION ONLY TO BE CONSTRUCTED USING HOT MIX ASPHALT. AFTER REOPENING THE ROAD IT IS ESSENTIAL THAT THE RUMBLE STRIPS BE IMMEDIATELY REMOVED.

TYPICAL DETAILS AND SCHEDULES OF PEDESTRIAN CROSSING, HUMPS AND RUMBLE STRIPS

Scale: N.T.S.

Revision: N.T.S.

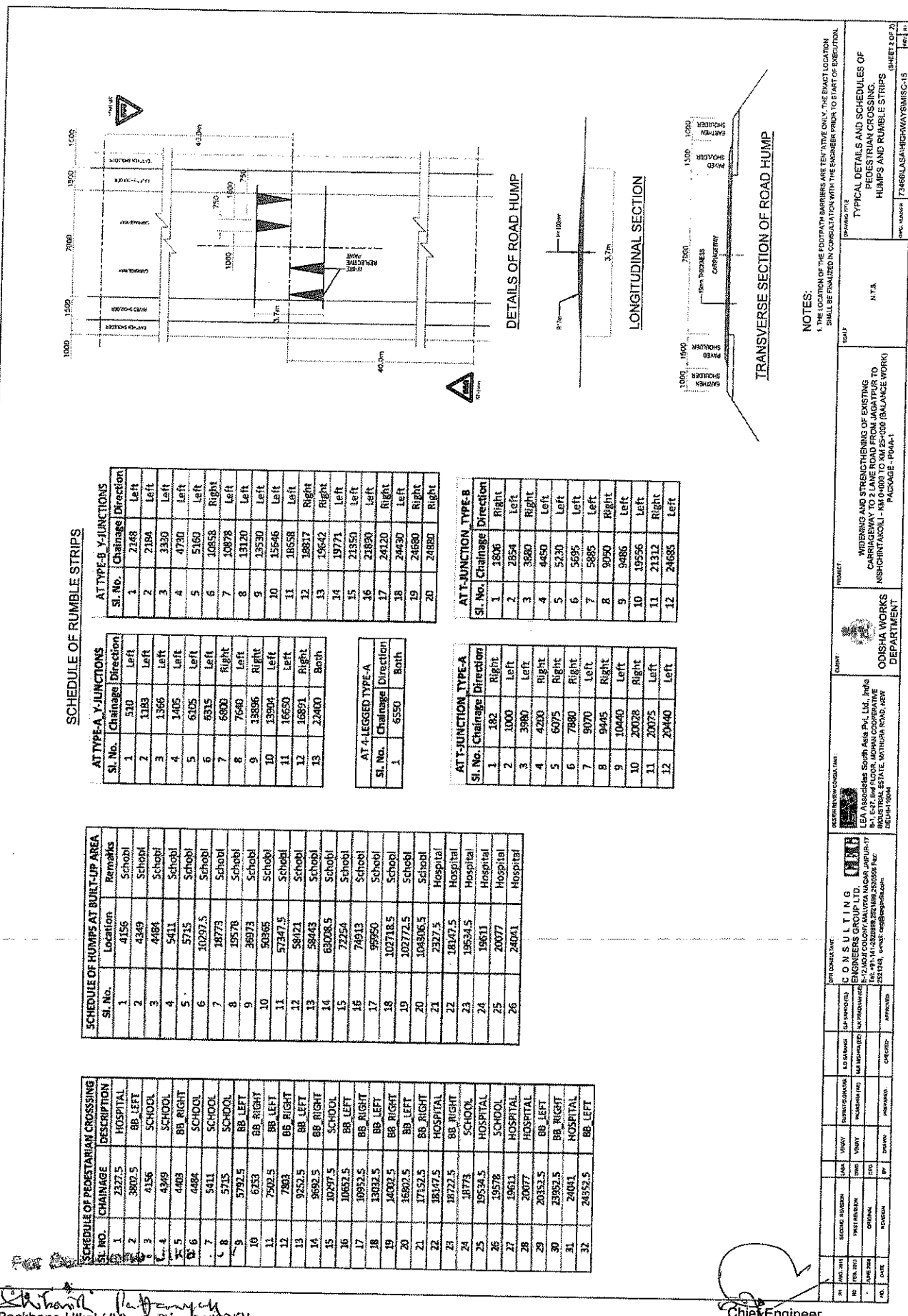
Date: 2018.05.15

For Backbone-Utkal

Shibant Lal Singhania
Backbone-Utkal
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
Of the E.I.C.(C), Odisha, BBSR



SCHEDULE OF RUMBLE STRIPS

AT TYPE-A, X-JUNCTIONS		AT TYPE-B, Y-JUNCTIONS	
Sl. No.	Chainage Direction	Sl. No.	Chainage Direction
1	510 Left	1	2148 Left
2	1183 Left	2	2189 Left
3	4484 Left	3	3330 Left
4	5411 Left	4	4740 Left
5	5715 Left	5	5163 Left
6	10293.5 Left	6	10958 Right
7	18773 School	7	10878 Left
8	19578 School	8	13120 Left
9	26973 School	9	13530 Left
10	50385 School	10	15646 Left
11	57347.5 School	11	18658 Left
12	58421 School	12	18817 Right
13	58443 School	13	19642 Right
14	63098.5 School	14	19771 Left
15	72294 School	15	21350 Left
16	74913 School	16	21850 Left
17	98950 School	17	24120 Right
18	102718.5 School	18	24430 Left
19	102772.5 School	19	24680 Right
20	104306.5 School	20	24880 Right
21	18472.5 Hospital		
22	18472.5 Hospital		
23	19634.5 Hospital		
24	19611 Hospital		
25	20077 Hospital		
26	24041 Hospital		

AT TYPE-A, X-JUNCTIONS	
Sl. No.	Chainage Direction
1	510 Left
2	1183 Left
3	4484 Left
4	5411 Left
5	5715 Left
6	10293.5 Left
7	18773 Right
8	19578 Right
9	26973 Right
10	50385 Left
11	57347.5 Left
12	58421 Right
13	58443 Left
14	63098.5 Both
15	72294 Both
16	74913 Both
17	98950 Both
18	102718.5 Both
19	102772.5 Both
20	104306.5 Both

AT-4-LEGGED TYPE-A	
Sl. No.	Chainage Direction
1	6550 Both

AT T-JUNCTION TYPE-B	
Sl. No.	Chainage Direction
1	1806 Right
2	2884 Left
3	3880 Right
4	4450 Left
5	5230 Left
6	5695 Left
7	5885 Left
8	9050 Right
9	9486 Left
10	19596 Left
11	21312 Right
12	24685 Left

AT T-JUNCTION TYPE-A	
Sl. No.	Chainage Direction
1	182 Right
2	1000 Left
3	3980 Left
4	4200 Right
5	6075 Right
6	7880 Right
7	9070 Left
8	9945 Right
9	10440 Left
10	20028 Left
11	20075 Left
12	20440 Left

SCHEDULE OF HUMPS AT BUILT-UP AREA

Sl. No.	Location	Remarks
1	4156	School
2	4369	School
3	4484	School
4	5411	School
5	5715	School
6	10293.5	School
7	18773	School
8	19578	School
9	26973	School
10	50385	School
11	57347.5	School
12	58421	School
13	58443	School
14	63098.5	School
15	72294	School
16	74913	School
17	98950	School
18	102718.5	School
19	102772.5	School
20	104306.5	School
21	18472.5	Hospital
22	18472.5	Hospital
23	19634.5	Hospital
24	19611	Hospital
25	20077	Hospital
26	24041	Hospital

SCHEDULE OF PEDESTRIAN CROSSING

Sl. No.	Chainage	Description
1	2327.5	HOSPITAL
2	3802.5	BB LEFT
3	4156	SCHOOL
4	4369	SCHOOL
5	4483	BB RIGHT
6	4484	SCHOOL
7	5411	SCHOOL
8	5715	SCHOOL
9	5792.5	BB LEFT
10	6253	BB RIGHT
11	7502.5	BB LEFT
12	7803	BB RIGHT
13	9252.5	BB LEFT
14	9692.5	BB RIGHT
15	10297.5	SCHOOL
16	10652.5	BB LEFT
17	10952.5	BB RIGHT
18	13032.5	BB LEFT
19	14002.5	BB RIGHT
20	16802.5	BB LEFT
21	17452.5	BB RIGHT
22	18347.5	HOSPITAL
23	18722.5	BB RIGHT
24	18773	SCHOOL
25	19534.5	HOSPITAL
26	19578	SCHOOL
27	19611	HOSPITAL
28	20352.5	BB LEFT
29	23852.5	BB RIGHT
30	24041	HOSPITAL
31	24041	HOSPITAL
32	24352.5	BB LEFT

Backbone-Utkal
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

NOTES:
1. THE LOCATION OF FOOTPATH BARRIERS ARE TENTATIVE ONLY. THE EXACT LOCATION SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

DESIGN TYPE: N.T.A.
TYPICAL DETAILS AND SCHEDULES OF HUMPS AND RUMBLE STRIPS

WIDENING AND STRENGTHENING OF EXISTING TO CARRIAGEWAY TO 2 LANE ROAD FROM INDUSTRIAL ESTATE - KBI 0-408 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1

ODISHA WORKS DEPARTMENT

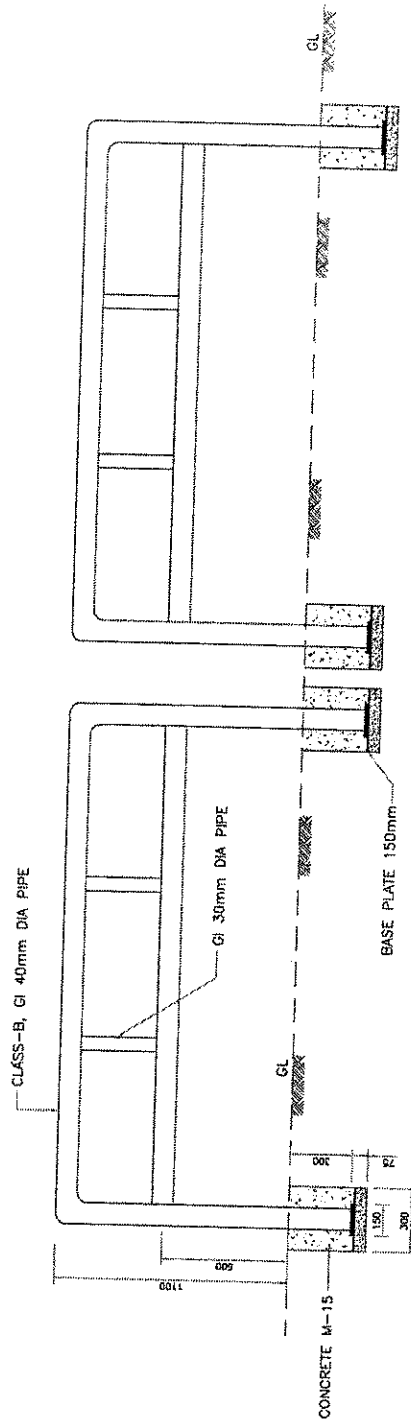
CONTRACTOR: ODISHA SOUTH SIDE P&L LTD., I/III-102, CORNER OF KALAKATA ROAD AND INDUSTRIAL ESTATE, ANTPURA ROAD, NEW DELHI-110044

CONSULTING ENGINEERS GROUP LTD., 14/15, ANNAPURNA VIHAR, JALPAIGURI, WEST BENGAL-751004

Sl. No.	Date	Description	Checked	Approved
1				
2				

Sl. No.	Date	Description	Checked	Approved
1				
2				

Sl. No.	Date	Description	Checked	Approved
1				
2				



ELEVATION OF FOOTPATH BARRIER
(SCALE 1:10)

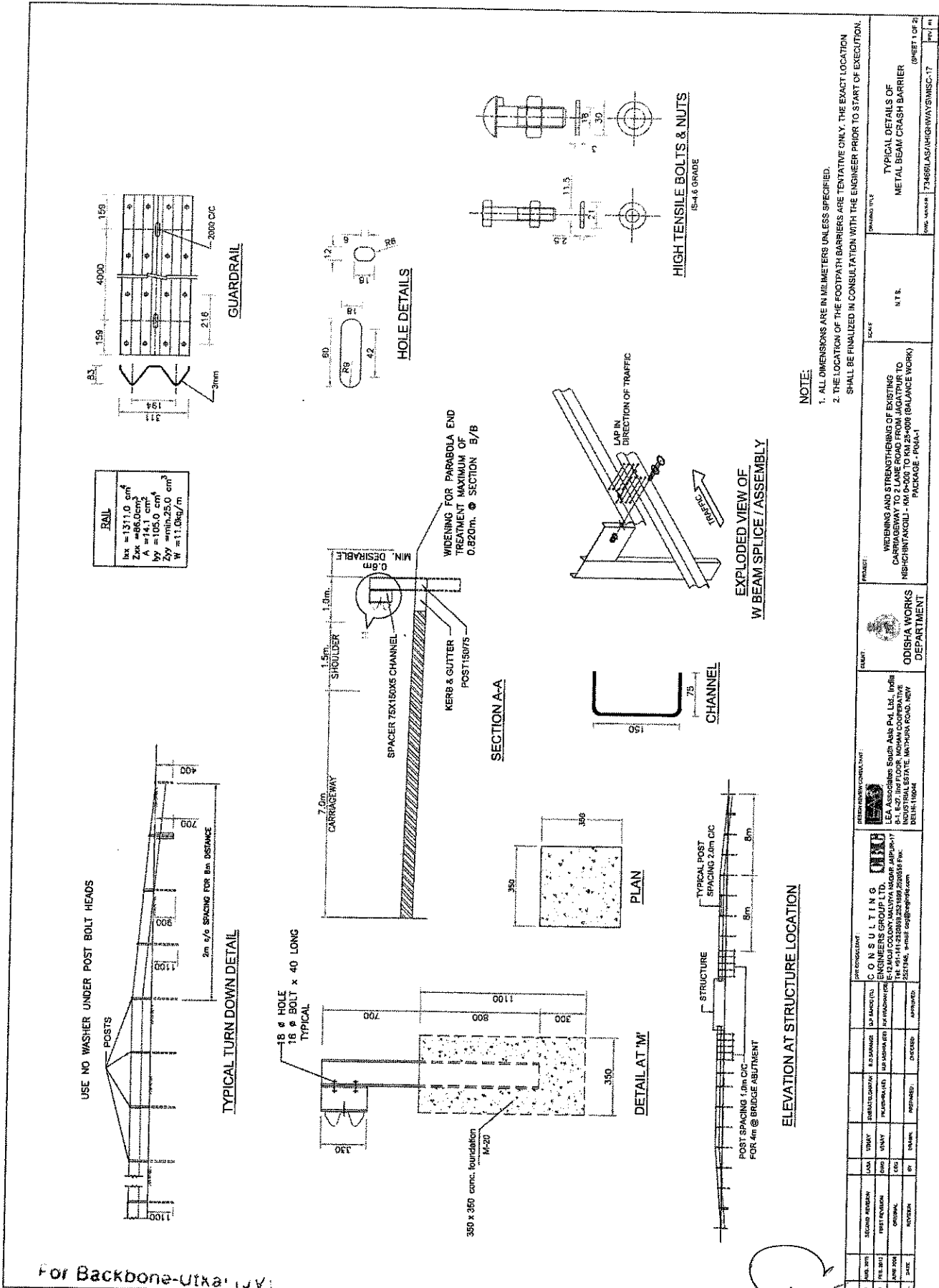
NOTE:
 1. LENGTH OF FOOTPATH BARRIER AT EACH BUS BAY SHALL BE 15m (MIN.)
 2. LENGTH OF FOOTPATH BARRIER AT BUILDUP/VILLAGE AREA SHALL BE 147.7m (MIN.)
 3. THE LOCATION OF FOOTPATH BARRIER AT BUILDUP/VILLAGE AREA SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE TO 6M CLEARANCE (BALANCE WORK) INSHCHINTAKOLI - KM 0+000 TO KM 2B+000 (PACKAGE - P04A-1)		SCALE AS SHOWN		TYPICAL DETAILS OF FOOTPATH BARRIER	
CLIENT ODISHA WORKS DEPARTMENT		CONSULTANT LEA ASSOCIATES SOUTH ASIA PVT. LTD. 1st FLOOR, INDUSTRIAL ESTATE, MATYURA ROAD, NEW DELHI-110044		DRAWN BY 2346BALASARHIGHWAY/SM/SEC-16	
NO. OF SHEETS 01	SHEET NO. 01	DATE 15/08/2018	PROJECT NO. OSRP-CW-ICB-P04A1	DRAWN BY [Signature]	CHECKED BY [Signature]
APPROVED BY [Signature]	PREPARED BY [Signature]	CHECKED BY [Signature]	APPROVED BY [Signature]	DATE 15/08/2018	SCALE AS SHOWN

For Backbone-Utkal (JV)
 [Signature]
 Backbone-Utkal (JV)
 Authorized Signatory

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



RAIL

$I_{xx} = 1371.0 \text{ cm}^4$
 $Z_{xx} = 142.2 \text{ cm}^3$
 $A = 143.1 \text{ cm}^2$
 $I_{yy} = 105.0 \text{ cm}^4$
 $Z_{yy} = 50.0 \text{ cm}^3$
 $W = 11.0 \text{ kg/m}$

- NOTE:**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED.
 2. THE LOCATION OF THE FOOTPATH BARRIERS ARE TENTATIVE ONLY. THE EXACT LOCATION SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

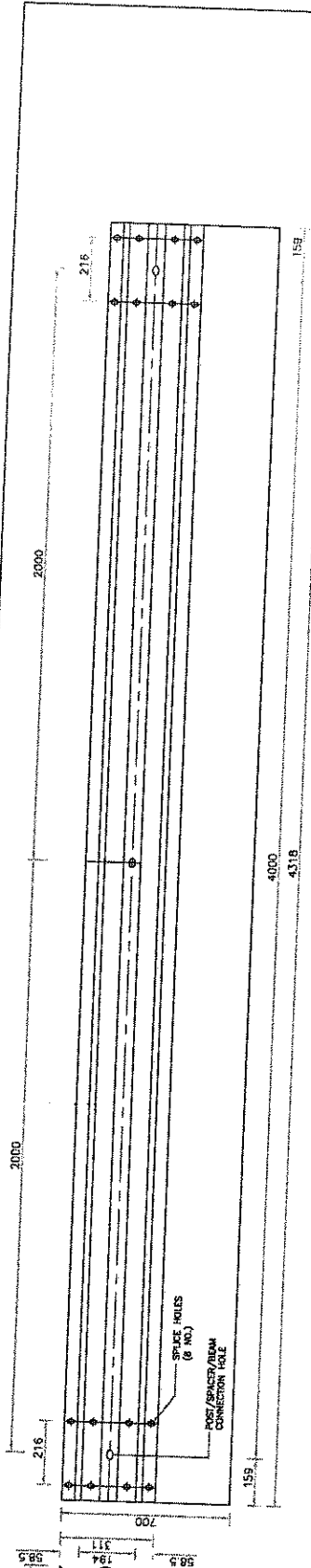
Sl. No.	Rev.	Date	Description	Approved	Checked	Prepared	By	Scale	Drawn

PROJECT:	REVISIONS:	SCALE:
CONSULTANT:	PROJECT NO.:	DATE:
ENGINEERS GROUP LTD.	011-26105246	2023/04/10
INDUSTRIAL ESTATE, MATUHURA ROAD, NEW DELHI 110044		
OWNER:	PACKAGE - PMA-1	TITLE:
ODISHA WORKS DEPARTMENT		TYPICAL DETAILS OF METAL BEAM CRASH BARRIER

For Backbone-Utkal JV

Chiranjit Pattanayak
 Backbone-Utkal JV
 (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



SPECIFICATION

W-PROFILED CORRUGATED BEAM

- HOT ROLL FORMED
- YIELD STRENGTH 255 MPA
- TENSILE STRENGTH 410-520 MPA
- THE W BEAMS ARE FABRICATED IN THICKNESS OF 3.0mm/2.67mm AND IS OF DIMENSIONS 311mm x 83mm. THE RAW MATERIAL FOR THE W BEAMS SHALL CONFORM TO STEEL AS PER IS 5986 GRADE Fe 360/Fe, 410/Fe 510 AND THEY ARE HOT DIP GALVANIZED TO 350gms/sqm. IN GENERAL THE W BEAMS ARE SUPPLIED ACCORDING TO THE CLIENT'S SPECIFICATIONS AND REQUIREMENT.

GUARD POST AND SPACER

- THE POSTS AND SPACERS ARE FABRICATED IN THICKNESS OF 5.0mm AND ARE OF DIMENSION 150mm x 75mm. THE RAW MATERIAL SHALL CONFORM TO STEEL AS PER IS 5986 GRADE Fe 360/Fe 410 AND THEY ARE HOT DIP GALVANIZED TO 550gms/sqm. THE POSTS ARE GENERALLY VARYING IN LENGTHS FROM 1500mm TO 1800mm AND THE SPACER IS OF 330mm LENGTH.
- CHANNEL SECTION
- ANCHORED ON FOUNDATION OR GROUND
- YIELD STRENGTH :210-235mpa
- TENSILE STRENGTH :360-410mpa

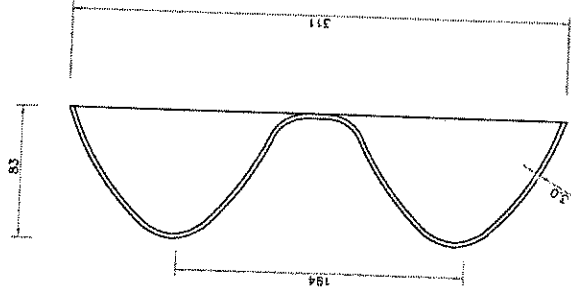
FASTENERS

- ALL FASTENERS ARE HOT DIP GALVANIZED FOR LONGER LIFE AND CONFORM TO IS 1367. THEY CONSIST OF
 - A) M16/M20 HEXAGON HEAD BOLT, NUT AND WASHER FOR SPACER TO POST CONNECTION IN GRADE 4.6.
 - B) M16 BUTTON HEAD BOLT, NUT AND WASHER FOR BEAM TO BEAM SPLICE IN GRADE 4.6.
 - C) M16 BUTTON HEAD BOLT, NUT AND WASHER FOR BEAM TO POST JOINT IN GRADE 4.6.
- END TERMINAL / SPECIALS
 - ALL END TERMINALS SHALL BE ONE OF THE FOLLOWING TYPES DEPENDING ON THEIR APPLICATION.
 - MEDIAN END TERMINALS WITH SAME CROSS SECTION AS THE W BEAMS.
 - FORMED TERMINAL (FISH TAIL)
 - MITRED TURNED DOWN TERMINAL WITH THE SAME CROSS SECTION AS THE W BEAM.
- ANCHORAGE
 - THE POSTS MAY BE DRIVEN POSTS, ANCHORED IN THE GROUND WITH CONCRETE OR BOLTED TO THE FRAMES ON BRIDGE DECK LOCATIONS.

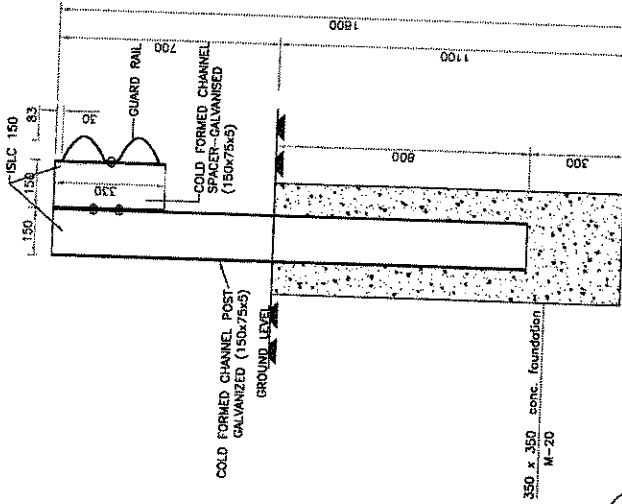
NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED.
2. THE LOCATION OF THE FOOTPATH BARRIERS ARE TENTATIVE ONLY. THE EXACT LOCATION SHALL BE FINALIZED IN CONSULTATION WITH THE ENGINEER PRIOR TO START OF EXECUTION.

W-GUARD RAIL BEAM
(SCALE 1:10)



DETAILS OF W-BEAM SECTION



POST AND SPACER CHANNEL

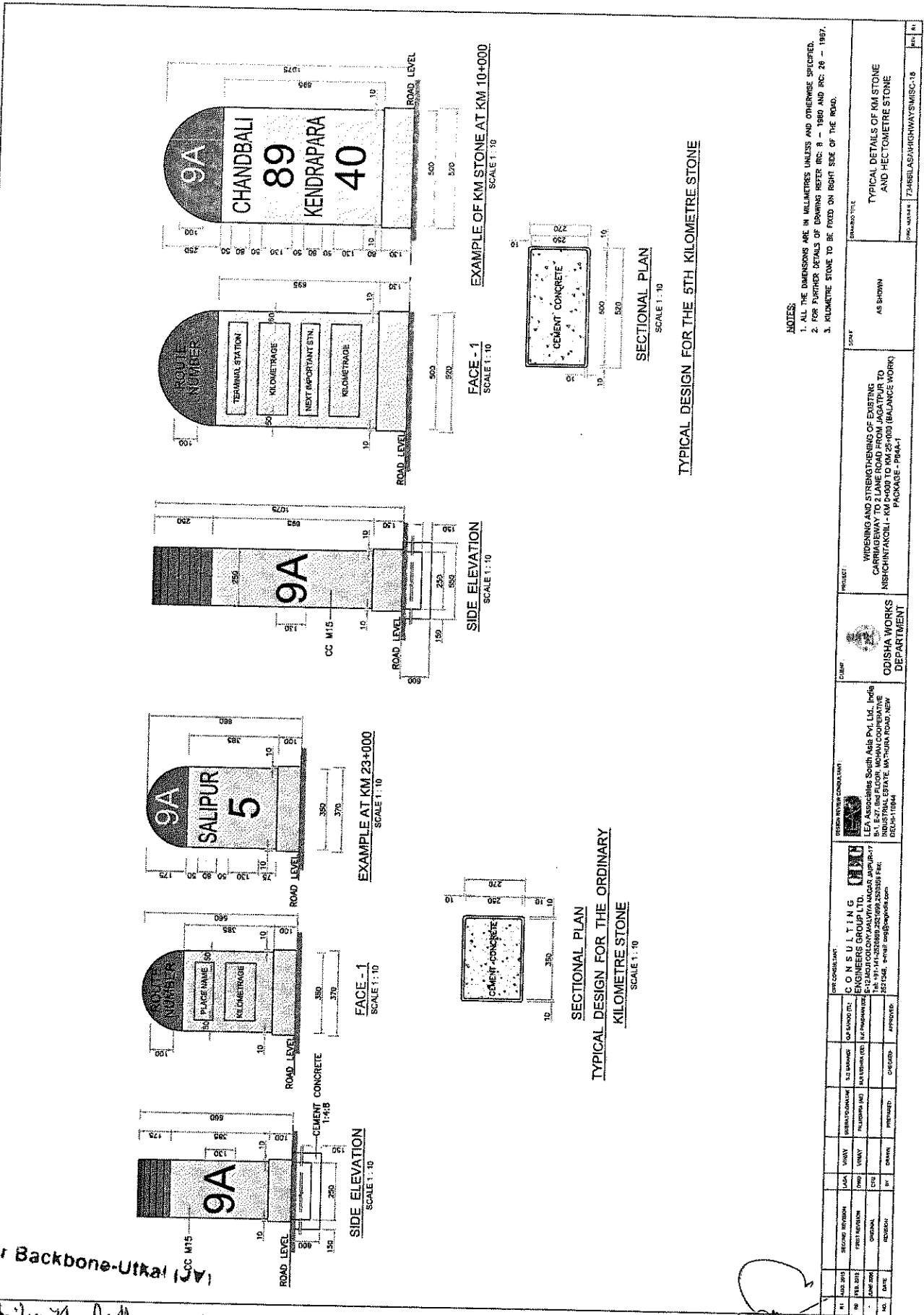
GUARD POST
(SCALE 1:10)

For Backbone-Utkal UV

Signature of Contractor: Backbone-Utkal UV, Singhpur

Chief Engineer, World Bank Projects, Odisha
Chief Engineer, World Bank Projects
O/o the E.I.C.C, Cuttack, BBSR

DESIGN NO: 173HBBLAS/AH/CHHWAYS/MSBC-17 SHEET 2 OF 2	
PROJECT: ODISHA WORKS DEPARTMENT	DRAWING NO: A173
CLIENT: ODISHA WORKS DEPARTMENT	TITLE: TYPICAL DETAILS OF METAL BEAM CRASH BARRIER
DESIGNER: LEA Associates South Asia Pvt. Ltd., Indraprastha, New Delhi, India.	CHECKED BY:
APPROVED BY:	DATE:
PREPARED BY:	DATE:
CHECKED BY:	DATE:
APPROVED BY:	DATE:



TYPICAL DESIGN FOR THE 5TH KILOMETRE STONE

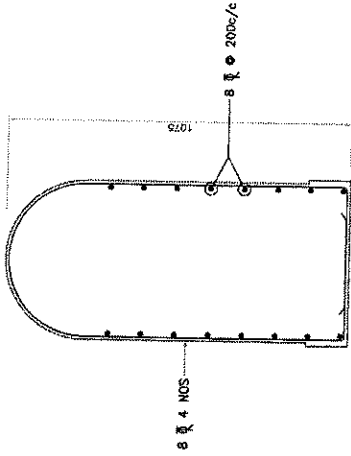
TYPICAL DESIGN FOR THE ORDINARY KILOMETRE STONE

- NOTES:**
1. ALL THE DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. FOR FURTHER DETAILS OF DRAWINGS REFER IRC: 8 - 1980 AND IRC: 26 - 1987.
 3. KILOMETRE STONE TO BE FIXED ON RIGHT SIDE OF THE ROAD.

<p>DESIGNER: M/S. T. S. ENGINEERS CONSULTANTS T. S. ENGINEERS CONSULTANTS 15/1, K. V. ROAD, JAGTIPUR TO INDUSTRIAL ESTATE, MATURA ROAD, NEW DELHI-110044</p>		<p>CLIENT: ODISHA WORKS DEPARTMENT</p>		<p>PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY FROM JAGTIPUR TO NISCHINTANGILL - KM PHOBD TO KM 28.50 (BALANCE WORK) PACKAGE - P/04A-1</p>		<p>AS SHOWN</p>		<p>TYPICAL DETAILS OF KM STONE AND HECTOMETRE STONE</p>	
NO.	REV.	DATE	BY	CHKD.	APPROVED	DATE	BY	CHKD.	APPROVED
1									

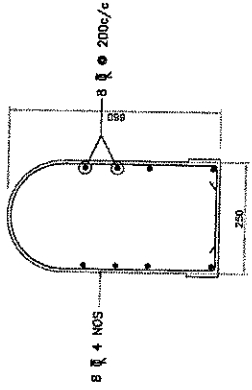
For Backbone-Utkal
 Backbone-Utkal Signaler
 (Contractor)

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR



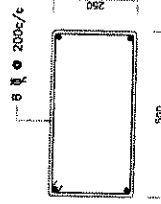
FACE - 1
SCALE 1 : 10

SECTIONAL PLAN
TYP. DESIGN FOR THE 5TH KILOMETRE STONE
SCALE 1 : 10



FACE - 1
SCALE 1 : 10

SECTIONAL PLAN
TYP. REINFORCEMENT DETAIL FOR THE ORDINARY
KILOMETRE STONE
SCALE 1 : 10



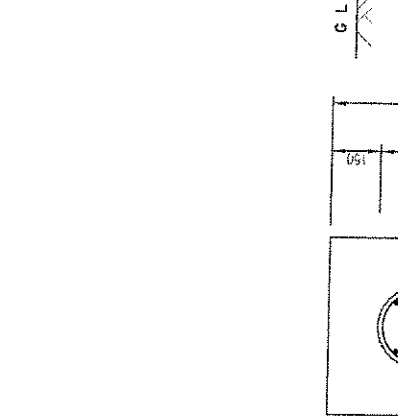
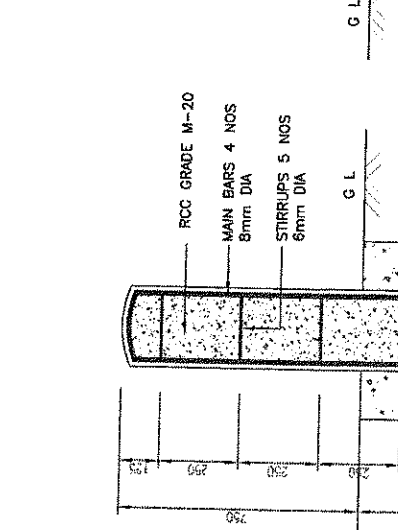
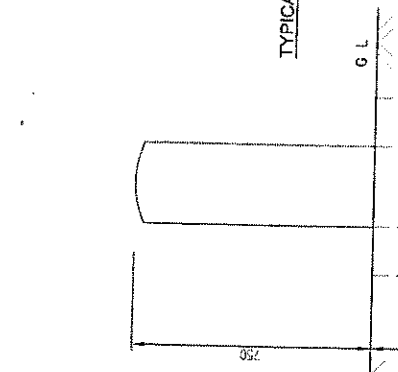
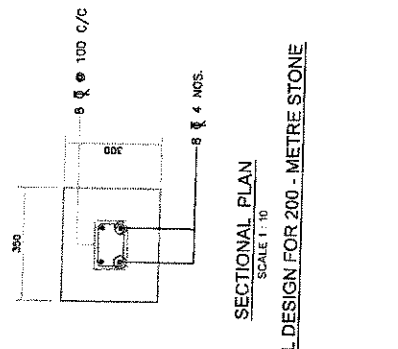
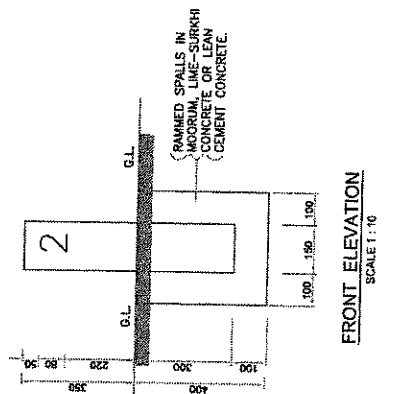
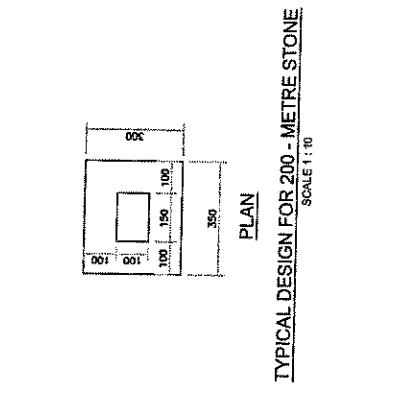
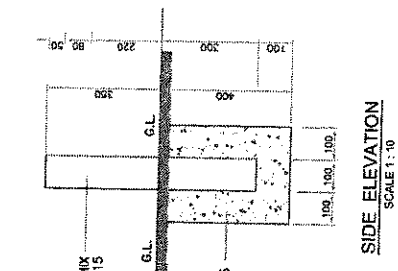
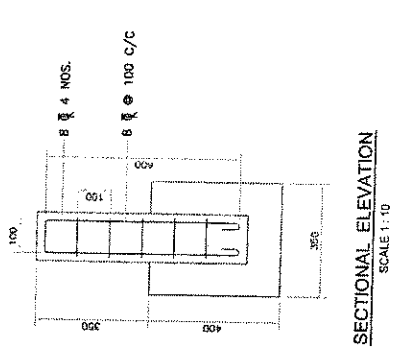
- NOTES:**
1. ALL THE DIMENSIONS ARE IN MILLIMETRES UNLESS AND OTHERWISE SPECIFIED.
 2. CLEAR COVER 25mm
 3. GRADE OF CONCRETE SHALL BE M-30. THE REINFORCEMENT SHALL BE 16 500.
 4. FOR DIMENSION DETAILS REFER DMR-7346(USA) HIGHWAY/MISC-19

For Backbone-Utkal JY:

Signature
Backbone-Utkal (JV)
 Authorized Signatory
 (Contractor)

Signature
Chief Engineer,
World Bank Projects, Odisha
 (Employer)
Chief Engineer,
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD IN NISHCHINTAKOLI - KM 0+000 TO KM 2+600 (BALANCE WORK) PACKAGE - P04A-1		SPECIES AS SHOWN		REINFORCEMENT DETAILS OF KM STONE AND RECTANGLE STONE	
CLIENT ODISHA WORKS DEPARTMENT		DESIGNER/CONSULTANT USA CONSULTING ENGINEERS GROUP LTD. 11/13, POCOLAB SOUTH ASIA Pk. Ltd., Indira Nagar, INDUSTRIAL ESTATE, MATHURA ROAD, NEW DELHI-110044		DATE OF DRAWING 22/08/14	
PREPARED BY S.P. JAIN	CHECKED BY S.P. JAIN	APPROVED BY S.P. JAIN	DATE 22/08/14	SCALE 1:10	SHEET NO. 33



- NOTES:-**
1. ALL DIMENSIONS ARE IN mm EXCEPT WHERE OTHERWISE MENTIONED
 2. REINFORCEMENT - WILD STEEL BARS CONFORMING TO U.S. A307/1918 GRADE 1 TESTED STEEL
 3. CONCRETE MIX -
CC : GRADE M - 15
RCC : GRADE M - 20
 4. GUARD POST TO BE PROVIDED ON DIMENSIONS 2m TO 3m HIGH AT 5m INTERVAL ON BOTH SIDE OF THE ROADWAY

PROJECT:-
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DULHARIA - R&D 25-100 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

DESIGNED BY:-
TYPICAL DETAILS OF GUARD POST & 200mm STONE

DWG. NO. : 73ABRLASAHIGHWAYSMBSC-20

For Backbone-Utkal (JV)
Sriharan D. Dhanraj
Backbone-Utkal (JV)
(Contractor)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

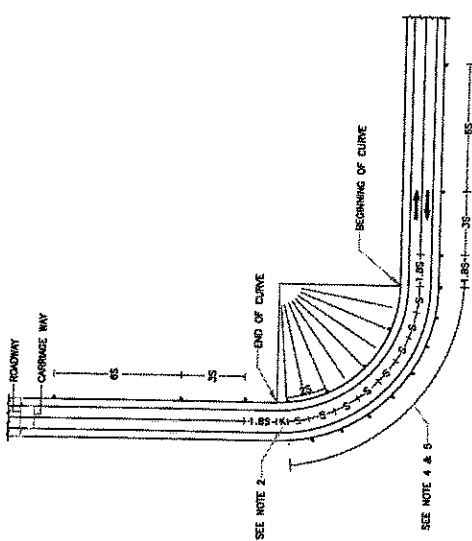
NO.	DATE	REVISION	BY	PREPARED	CHECKED	APPROVED
01	YANUARY, 2015	SECOND REVISION	LASA	WHAT	SUBRATTO GHATAK	SRIBANJAN DUTTA
02	FEB. 2015	FIRST REVISION	CWD	CWD	PR. MISHRA (AE)	SRIBANJAN DUTTA
03	JUNE 2008	ORIGINAL	LEG	LEG	M. K. MISHRA (EE)	SRIBANJAN DUTTA

CONSULTANT:
CONSULTING ENGINEERS GROUP LTD.
B-1, E-22, 1st FLOOR, NEELAM COOPERATIVE INDUSTRIAL ESTATE, MATUNGA ROAD, NEW DELHI-110044
Tel: +91-11-26104131, Fax: +91-11-26104132, e-mail: ceg@cegroup.com

REGISTRATION NO. (INDIA):
LEA/AS/2008/0004 South Side P.O. 1st, 1st floor B-1, E-22, 1st FLOOR, NEELAM COOPERATIVE INDUSTRIAL ESTATE, MATUNGA ROAD, NEW DELHI-110044

CLIENT:
ODISHA WORKS DEPARTMENT

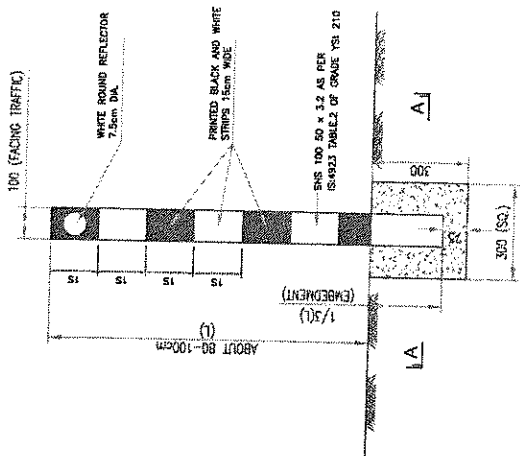
PROJECT:-
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DULHARIA - R&D 25-100 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1



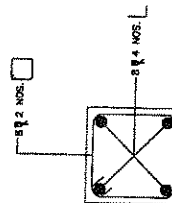
ROADWAY DELINEATOR SPACING ON CURVES

TABLE FOR RECOMMENDED SPACING FOR ROADWAY DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (METRES)	SPACING ON CURVE, S (METRES)
30	6
50	8
100	12
200	20
300	25
400	30
500	35
600	38
700	42
800	45
900	48
1000	50



DELINATOR WITH RECTANGULAR REFLECTOR



SECTION A-A

REINFORCEMENT DETAILS

- NOTES:
1. ALL DIMENSIONS ARE IN MM EXCEPT WHERE OTHERWISE MENTIONED.
 2. ADJUST DISTANCE 'X' SUFFICIENTLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE BEGINNING OF THE CURVE.
 3. INSTALL ALL DELINEATORS AT EDGE OF THE ROADWAY PERPENDICULAR TO THE CIRCUMFERENCE OF THE CURVE.
 4. SEE TABLE FOR VALUE OF 'S' i.e. SPACING OF DELINEATORS ON THE CURVE.
 5. THE SPACING OF FIRST, SECOND & THIRD DELINEATORS ON THE APPROACHES SHALL BE 1.85S, 3S & 5S RESPECTIVELY BUT NOT EXCEEDING 50m.
 6. THE GRADE OF CONCRETE FOR FOUNDATION SHALL BE M-20.
 7. THE GRADE OF STEEL SHALL BE F430.
 8. CLEAR COVER TO ALL REINFORCEMENT SHALL BE 40mm.

For Backbone-Utkal (JV)
 Shrihari Saha
 Backbone-Utkal (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 On the E.I.C.(C), Odisha, BBSR

REV	DATE	BY	CHKD	DESCRIPTION	SCALE	PROJECT	COUNTY	CLIENT
BT	NOV 2013	SECOND REVISION	UT SAKHAI	UT SAKHAI	1:1	WIDENING AND STRUCTURAL REPAIR OF EXISTING CARRIAGEWAY TO 2 LANE ROAD ON NIBHCHINTAKOLI - KM P-000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1	ODISHA WORKS DEPARTMENT	LEA Associates South Asia Pvt. Ltd. India B-1, 8/27, 1st FLOOR, VIKRAM CHANDRA INDUSTRIAL ESTATE, MATUURA ROAD, NEW DELHI-110044
BT	NOV 2013	FIRST REVISION	UT SAKHAI	UT SAKHAI	1:1		ODISHA WORKS DEPARTMENT	LEA Associates South Asia Pvt. Ltd. India B-1, 8/27, 1st FLOOR, VIKRAM CHANDRA INDUSTRIAL ESTATE, MATUURA ROAD, NEW DELHI-110044
BT	NOV 2013	ORIGINAL	UT SAKHAI	UT SAKHAI	1:1		ODISHA WORKS DEPARTMENT	LEA Associates South Asia Pvt. Ltd. India B-1, 8/27, 1st FLOOR, VIKRAM CHANDRA INDUSTRIAL ESTATE, MATUURA ROAD, NEW DELHI-110044
BT	NOV 2013	REVISION	UT SAKHAI	UT SAKHAI	1:1		ODISHA WORKS DEPARTMENT	LEA Associates South Asia Pvt. Ltd. India B-1, 8/27, 1st FLOOR, VIKRAM CHANDRA INDUSTRIAL ESTATE, MATUURA ROAD, NEW DELHI-110044

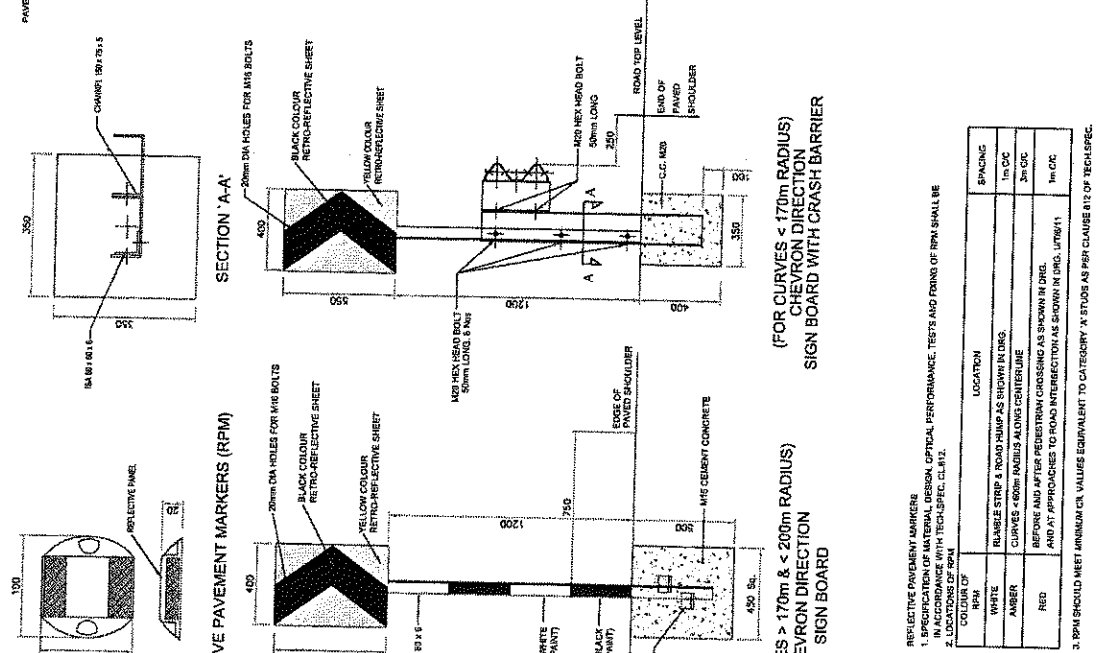
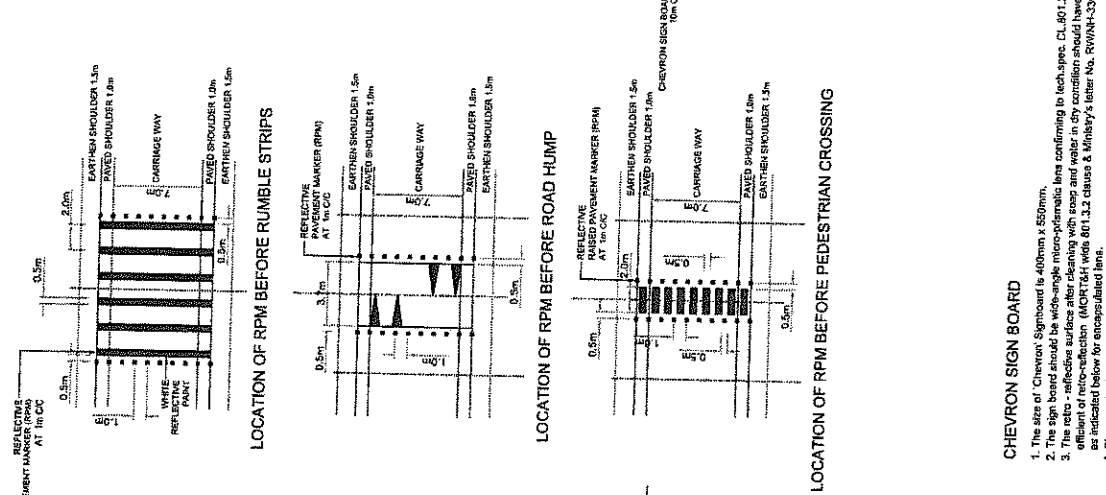
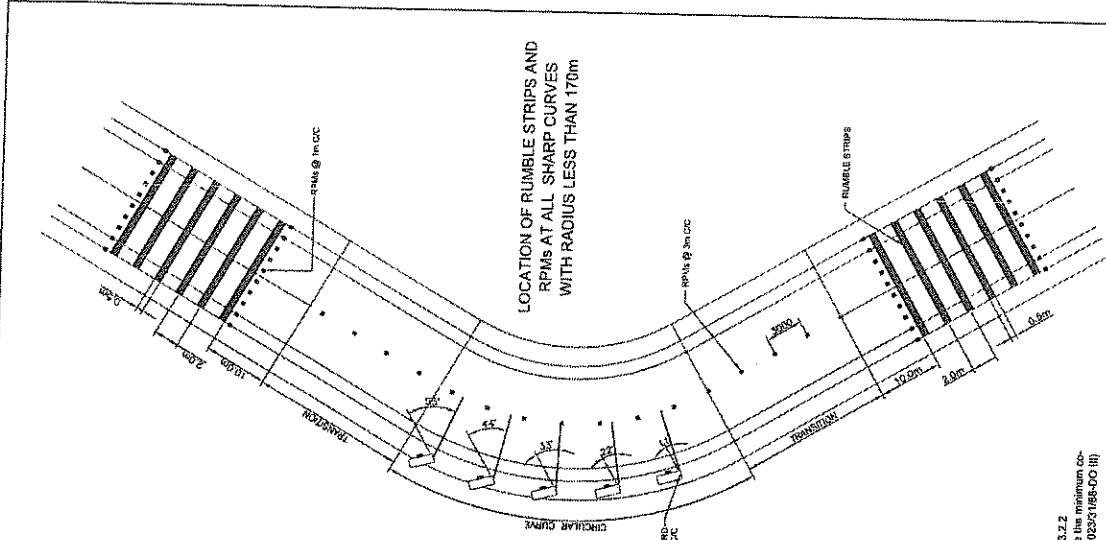
TYPICAL DETAILS OF DELINEATOR

DRAWING TITLE

DWG. NUMBER: 72466LASA(HIGHWAYS)MSC-21

SHEET NO.

TOTAL SHEETS



CHEVRON SIGN BOARD

1. The size of 'Chevron' Signboard is 400mm x 550mm.
2. The sign board should be wide-angle retro-reflective lines conforming to tech-spec. CL 601.3.2.2
3. The retro - reflective surfaces after cleaning with soap and water in the condition should have the minimum coefficient of retro-reflection (MORT&H) with 801.3.2.2 clause & Ministry letter No. RWPN-33025/198-00 (ii)
4. 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.

REFLECTIVE PAVEMENT MARKERS
IN ACCORDANCE WITH TECH SPEC. CL. 612.

TYPE OF MARKER	SPACING	LOCATION
WHITE	1m C/C	ROAD HUMP AS SHOWN IN DRG.
AMBER	2m C/C	CURVES < 600m RADIUS ALONG CENTERLINE
RED	1m C/C	BEFORE AND AFTER PEDESTRIAN CROSSING AS SHOWN IN DRG. AND AT APPROACHES TO ROAD INTERSECTION AS SHOWN IN DRG. (100/1)

3. RPM SHOULD MEET MINIMUM C.I. VALUE EQUIVALENT TO CATEGORY 'X' STOPS AS PER CLAUSE 812 OF TECHSPEC.

PROVIDED DATE: _____
SCALE: N.T.S.
TYPICAL DETAILS OF RPM MARKERS

WIDENING AND STRAIGHTENING OF EXISTING CARRIAGEWAY TO PLANE ROAD FROM NIBHCHINTAKOLI - KM 0+00 TO KM 25+00 (BALANCE WORK) PACKAGE - PMA-1

ODISHA WORKS DEPARTMENT

LEAD ENGINEER: South Side P.M. Ltd. India
S-1, 2nd FLOOR, MOHANA ROAD, INDUSTRIAL ESTATE, MAYAPUR ROAD, NEW DELHI-110044

CONSULTING ENGINEERS GROUP LTD. (INCORPORATED IN INDIA)
2521296, email: oeg@oeggroup.com

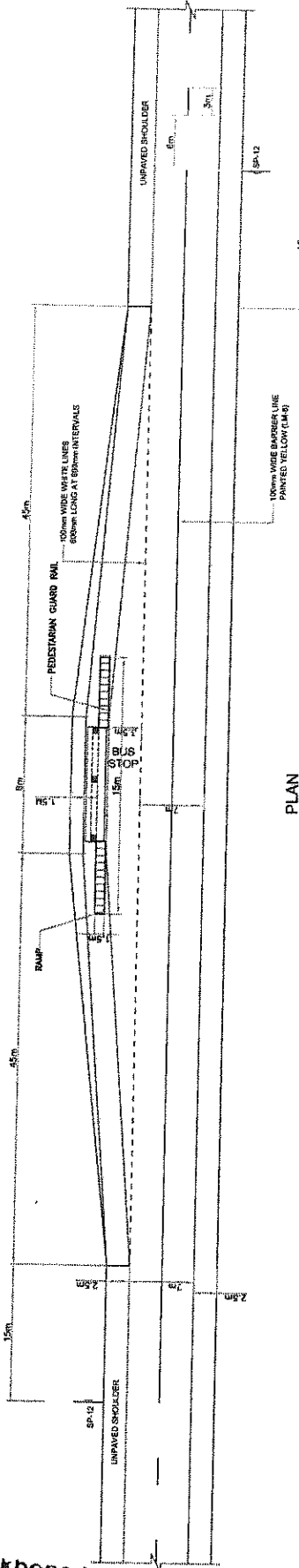
NO.	DATE	BY	REVISION	APPROVED

NO.	DATE	BY	REVISION	APPROVED

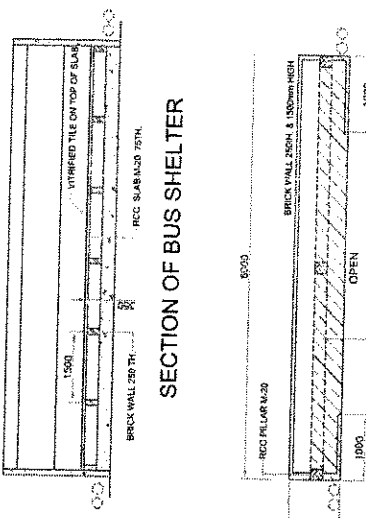
NO.	DATE	BY	REVISION	APPROVED

For Backbone-U...
S. K. Bhatnagar
Backbone Unit (Contractor)

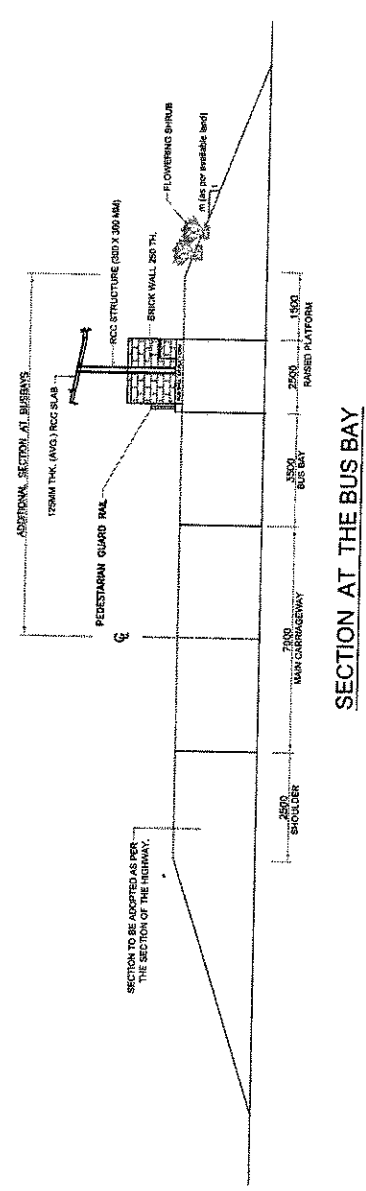
Chief Engineer,
World Bank Projects, Odisha
Chief Employer
World Bank Project
On the S.I.C.O., Cuttack, BBSR



PLAN
BUS BAY DETAILS



SECTION OF BUS SHELTER



SECTION AT THE BUS BAY

PLAN FOR BUS SHELTER

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 T/C'S
3. ALL DIMENSIONS FOR BUS STOP DRAWING AND DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD DRAWING PUBLISHED BY BARS AND SHALL BE IN ACCORDANCE WITH THE EXACT LOCATION OF THE EXISTING BUS STOP
4. THE LOCATION OF THE EXISTING BUS STOP SHALL BE IN ACCORDANCE WITH THE EXACT LOCATION OF THE EXISTING BUS STOP

PROJECT TITLE
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DURURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

CLIENT
ODISHA WORKS DEPARTMENT

DESIGNER
ODISHA WORKS DEPARTMENT

DATE
JUNE 2008

DWG. NO. : 7348BLASAHORWAY/SMREC-23

(SHEET 1 OF 2)

PROJECT TITLE
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DURURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

CLIENT
ODISHA WORKS DEPARTMENT

DESIGNER
ODISHA WORKS DEPARTMENT

DATE
JUNE 2008

DWG. NO. : 7348BLASAHORWAY/SMREC-23

(SHEET 1 OF 2)

PROJECT TITLE
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DURURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

CLIENT
ODISHA WORKS DEPARTMENT

DESIGNER
ODISHA WORKS DEPARTMENT

DATE
JUNE 2008

DWG. NO. : 7348BLASAHORWAY/SMREC-23

(SHEET 1 OF 2)

PROJECT TITLE
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DURURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

CLIENT
ODISHA WORKS DEPARTMENT

DESIGNER
ODISHA WORKS DEPARTMENT

DATE
JUNE 2008

DWG. NO. : 7348BLASAHORWAY/SMREC-23

(SHEET 1 OF 2)

PROJECT TITLE
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DURURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

CLIENT
ODISHA WORKS DEPARTMENT

DESIGNER
ODISHA WORKS DEPARTMENT

DATE
JUNE 2008

DWG. NO. : 7348BLASAHORWAY/SMREC-23

(SHEET 1 OF 2)

PROJECT TITLE
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM NISCHINTAKOLI TO DURURIA - KM 25+000 TO KM 49+000 (BALANCE WORK) PACKAGE NO. - P04A-1

CLIENT
ODISHA WORKS DEPARTMENT

DESIGNER
ODISHA WORKS DEPARTMENT

DATE
JUNE 2008

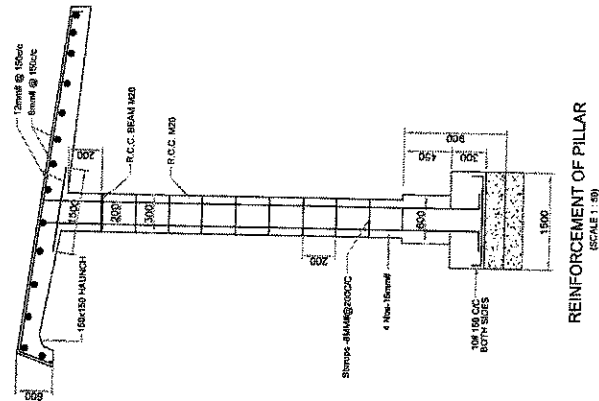
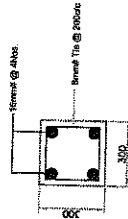
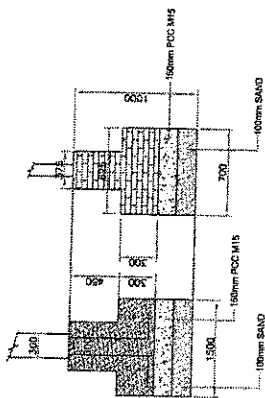
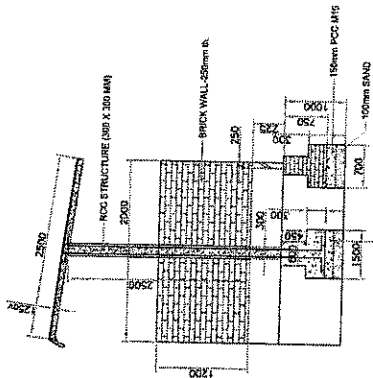
DWG. NO. : 7348BLASAHORWAY/SMREC-23

(SHEET 1 OF 2)

For Backbone-Utkal (JV)
Sibonish Pattanayak
Backbone-Utkal (JV)
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

SCHEDULE OF BUSBAYS		
Sl. No.	Chainage	Side Pavement
1	1900	L Flexible
2	2000	R Flexible
3	3750	L Flexible
4	4350	R Flexible
5	5740	L Flexible
6	6200	R Rigid
7	7450	L Flexible
8	7750	R Rigid
9	9200	L Flexible
10	9640	R Rigid
11	10000	L Flexible
12	10200	R Rigid
13	10600	L Flexible
14	10900	R Flexible
15	12980	L Flexible
16	13950	R Flexible
17	14000	L Flexible
18	15600	L Flexible
19	15650	R Flexible
20	16750	L Rigid
21	17100	R Rigid
22	18650	L Rigid
23	18670	R Rigid
24	19555	R Rigid
25	19775	L Rigid
26	20300	L Rigid
27	22220	L Flexible
28	22300	R Flexible
29	23900	R Flexible
30	24300	L Flexible



PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 3 LANE ROAD FROM NISCHINTAKOLI TO DURJURA - KRI 25+00 TO KM 49+000 (BALANCE WORK) PACKAGE NO. P04A-1		CLIENT ODISHA WORKS DEPARTMENT	DESIGNER/CONSULTANT LEA Associates South Asia Pvt. Ltd. India B-1, E-22, 1st FLOOR, KANAK CO-OPERATIVE INDUSTRIAL ESTATE, MATRUHA ROAD, NEW DELHI-110044
DATE AUGUST, 2015 FEB, 2013 JUNE, 2008	REVISION SECOND REVISION FIRST REVISION ORIGINAL	BY VAW DWD CEC	APPROVED SD SRANGANJEE MR. MISHRA (AE) MR. MISHRA (AE)
CONTRACTOR For Backbone-Utkal (JV)			

For Backbone-Utkal (JV)
 Authorized Signatory

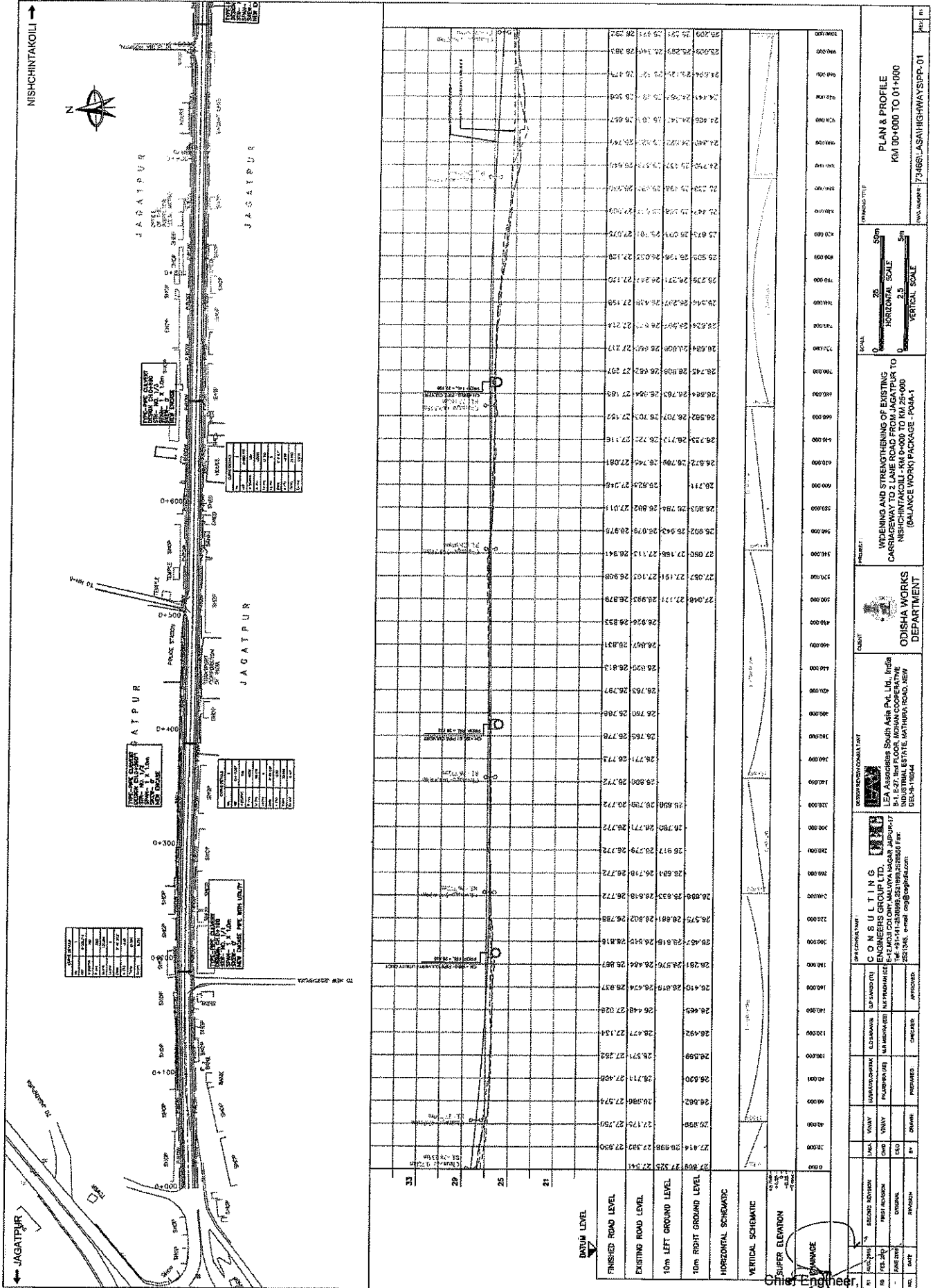
Chief Engineer,
 World Bank Projects, Odisha
 Chief (Employer),
 World Bank Project
 O/o the E.I.C.(C), Odisha, 65BSR

PLAN & PROFILE (KM 0+000 TO 25+000)

For Backbone-Under...

Shihabul Peffanyan
Backbone-Under
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR

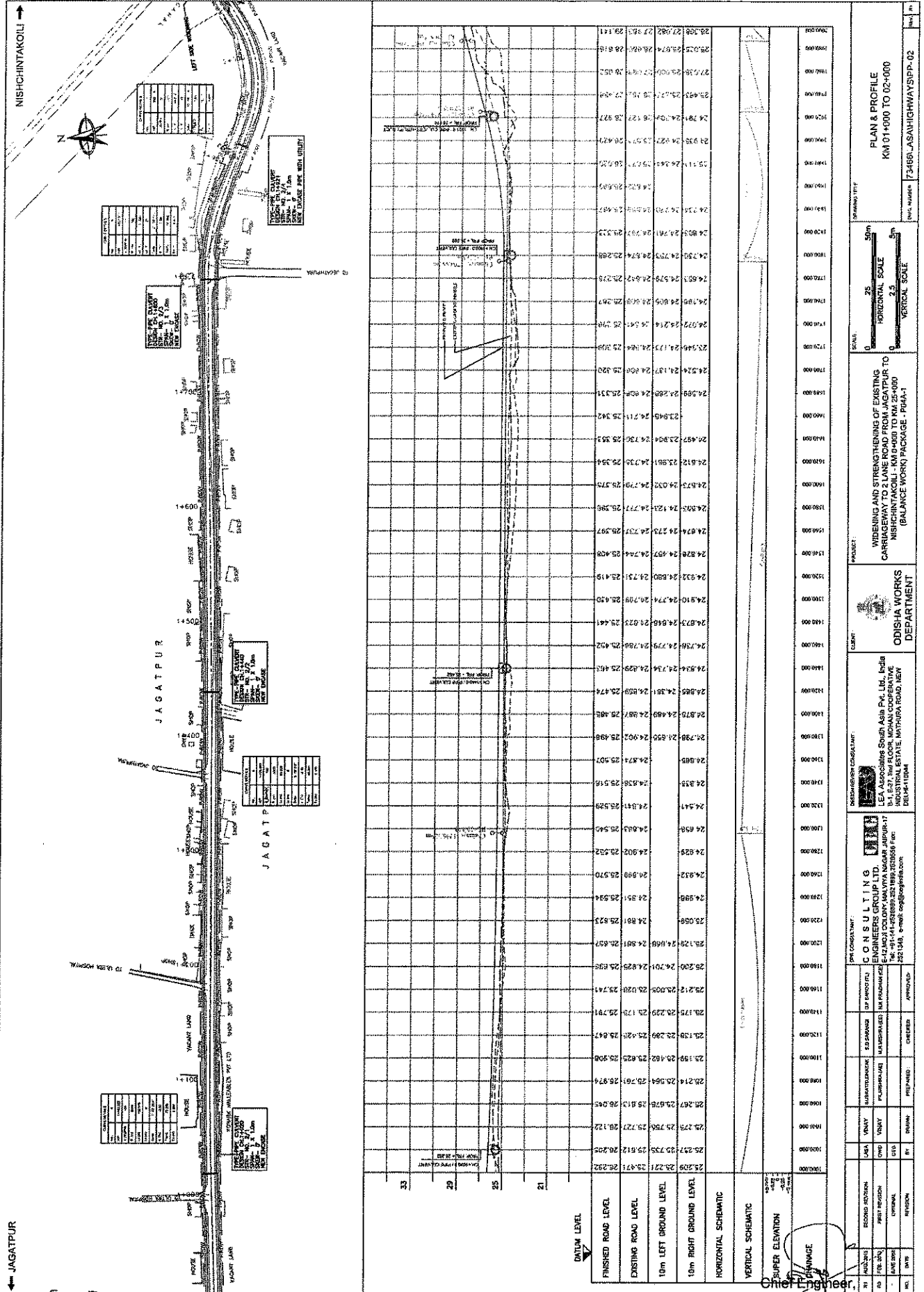


Backbone-Utkal (JV)
(Contractor)

Shouvik Pattanayak
Authorized Signatory

World Bank Projects, Odisha
Employer's Project
World Bank Road BSR
O/o the E.I.C.(C), Odisha, BBSR

Chief Engineer,

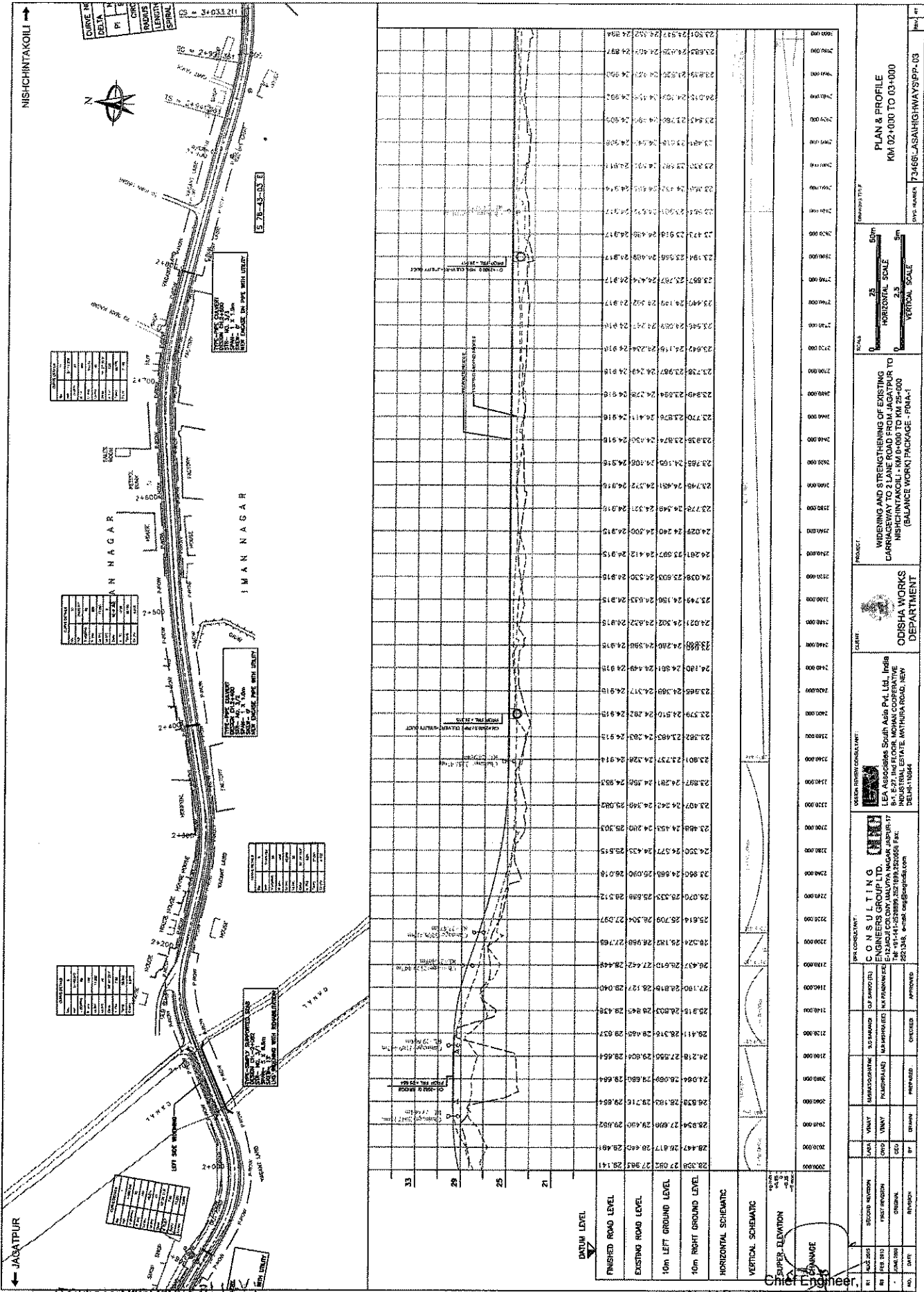


Back to Back - Utkala JV (Contractor)

World Bank Projects, Odisha (Employer)

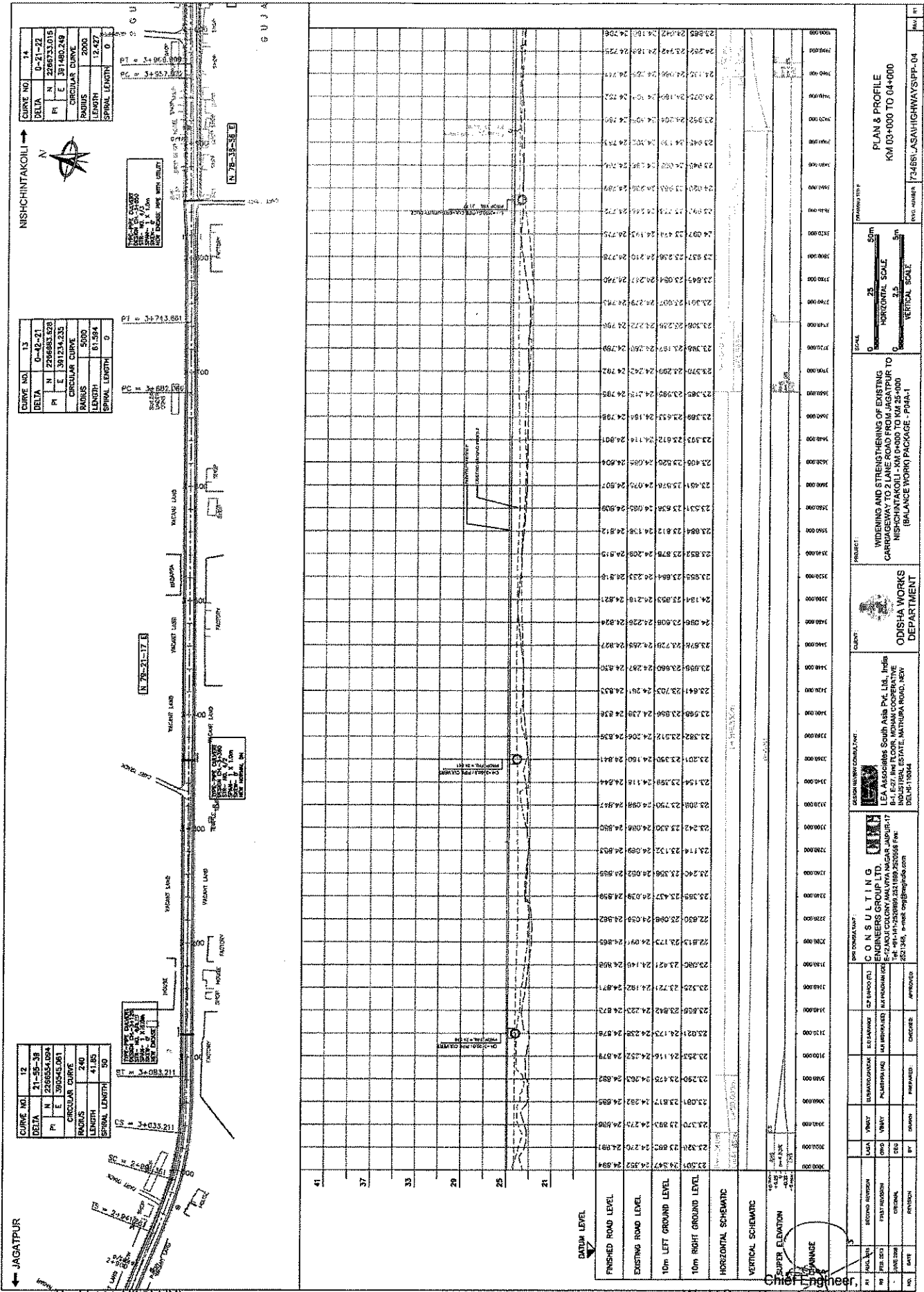
Sriharish Pattnayak
Authorized Signatory

Chief Engineer,
World Bank Project
On the E.I.C.(C), Odisha, BBSR



S. K. Mohanty & Associates
 (Contractor)

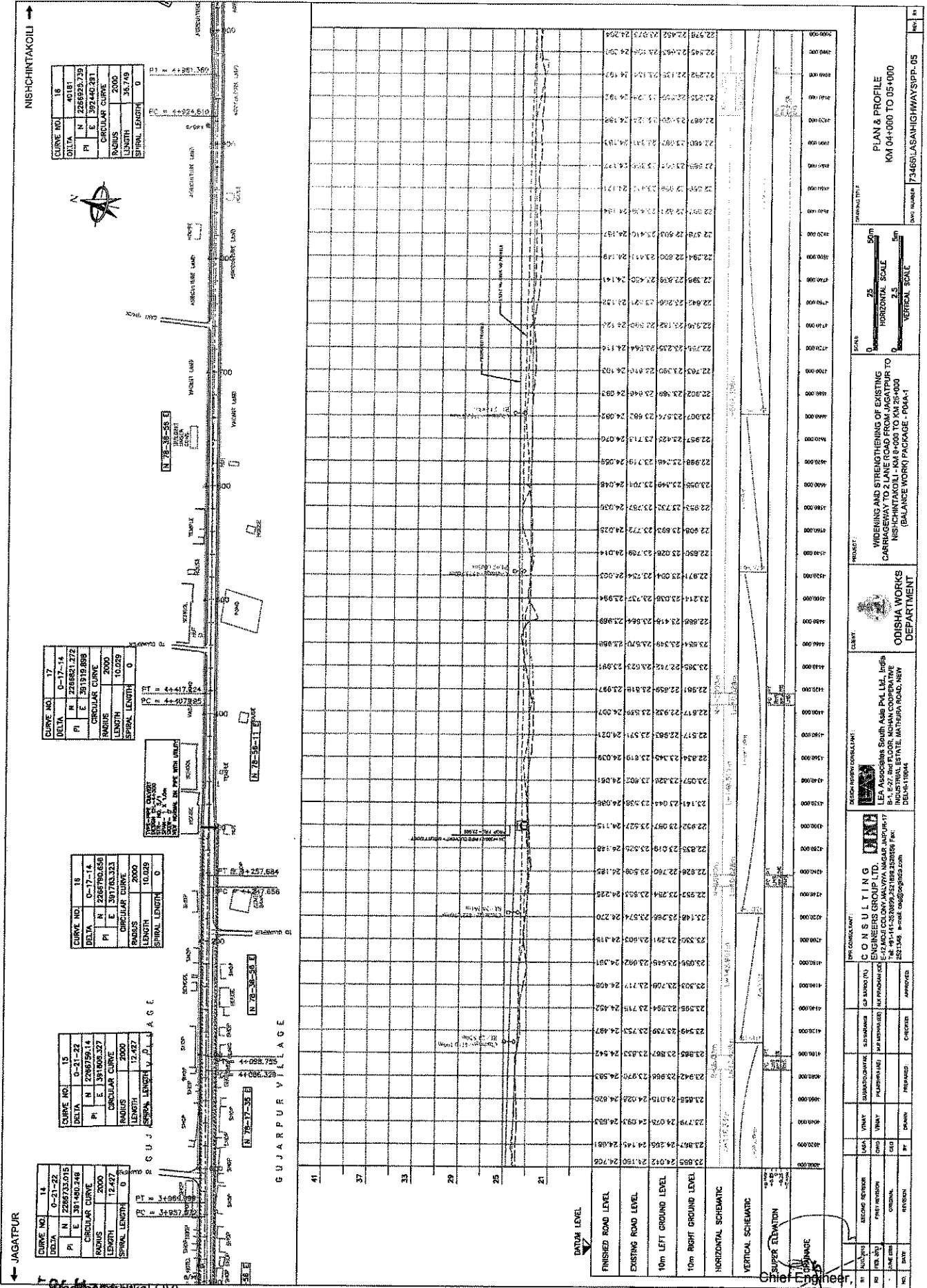
World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.C.C.O., Odisha, EBSI



Backbone-Utkal (JV)
 For Backbone-Utkal JV
 Sh. Hemant Pattnayak
 Authorized Signatory

World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 O/o the F.I.C.(C), Odisha, BBSR

<p>PLAN & PROFILE KM 03+000 TO 04+000 DRAWING NO. 734(BS) LASHAHIGHWAYS-PFP-04</p>											
<p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOILI (BALANCE WORK) PACKAGE - P04A-1</p>											
<p>ODISHA WORKS DEPARTMENT</p>	<p>LEA ASSOCIATES SOUTH ASIA PVT. LTD. India B-1, 6-27, 1st FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURA ROAD, NEW DELHI-110044</p>										
<p>ENGINEERS GROUP LTD. (PVT.) LTD. SUPD-17 1st Floor, 2nd Stage, 2nd Phase, P.O. (20) 348, e-mail: eng@egpltd.com</p>	<table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>PREPARED</th> <th>CHECKED</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	PREPARED	CHECKED	APPROVED					
NO.	DATE	PREPARED	CHECKED	APPROVED							



Backhouse (Contractor)
 Authorized Signatory

World Bank Projects, Odisha
 Chief Engineer, (Employer)
 Chief Engineer,
 World Bank Project
 O/o the E.C.C.O, Odisha, EBSR

PLAN & PROFILE
 KM 04+000 TO 05+000

PROJEC: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO INSURANCE WORKS PACKAGE - P04A-1 (BALANCE WORK) PACKAGE - P04A-1

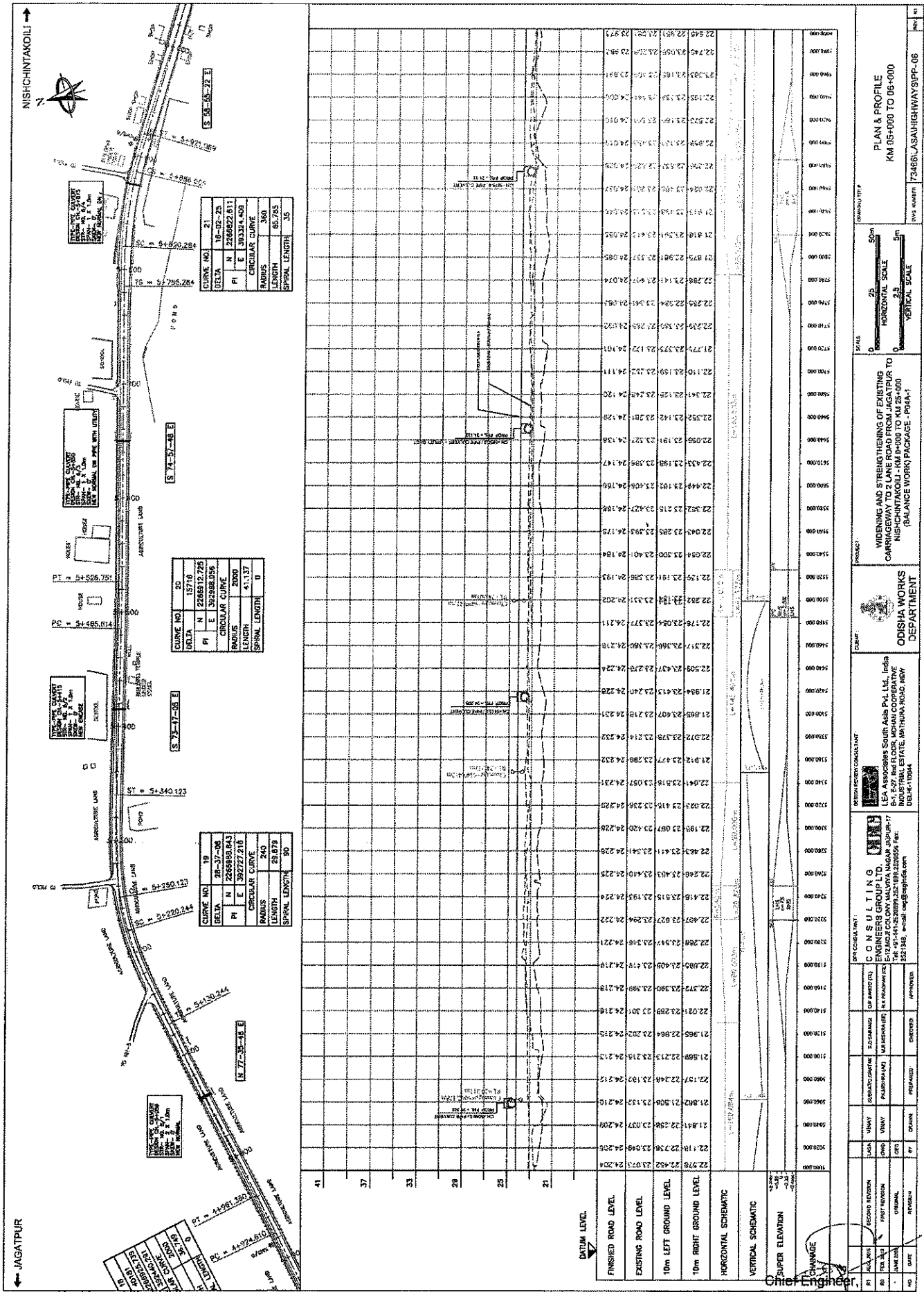
CLIENT: ODISHA WORKS DEPARTMENT

DESIGN RESPONSIBILITY: LEA Associates South Asia Pvt. Ltd. B-1, 2-27, 2nd FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, JAMTHURA ROAD, NEW DELHI-110064

DATE: 25.11.2014

SCALE: HORIZONTAL SCALE: 1:2500, VERTICAL SCALE: 1:500

NO.	DATE	REVISION	BY	CHKD	APPVED



Backbone-Utkal (JV)
(Contractor) K Dore-uta
Shibank Pattnayak
Authorized Signatory

World Bank Project, Odisha
Chief Engineer (Employer)
World Bank Project
O/o the E.I.C.C, Odisha, BBSR

PLAN & PROFILE
KM 05+000 TO 06+000
72466/LASAHIGHWAY/SPP-08

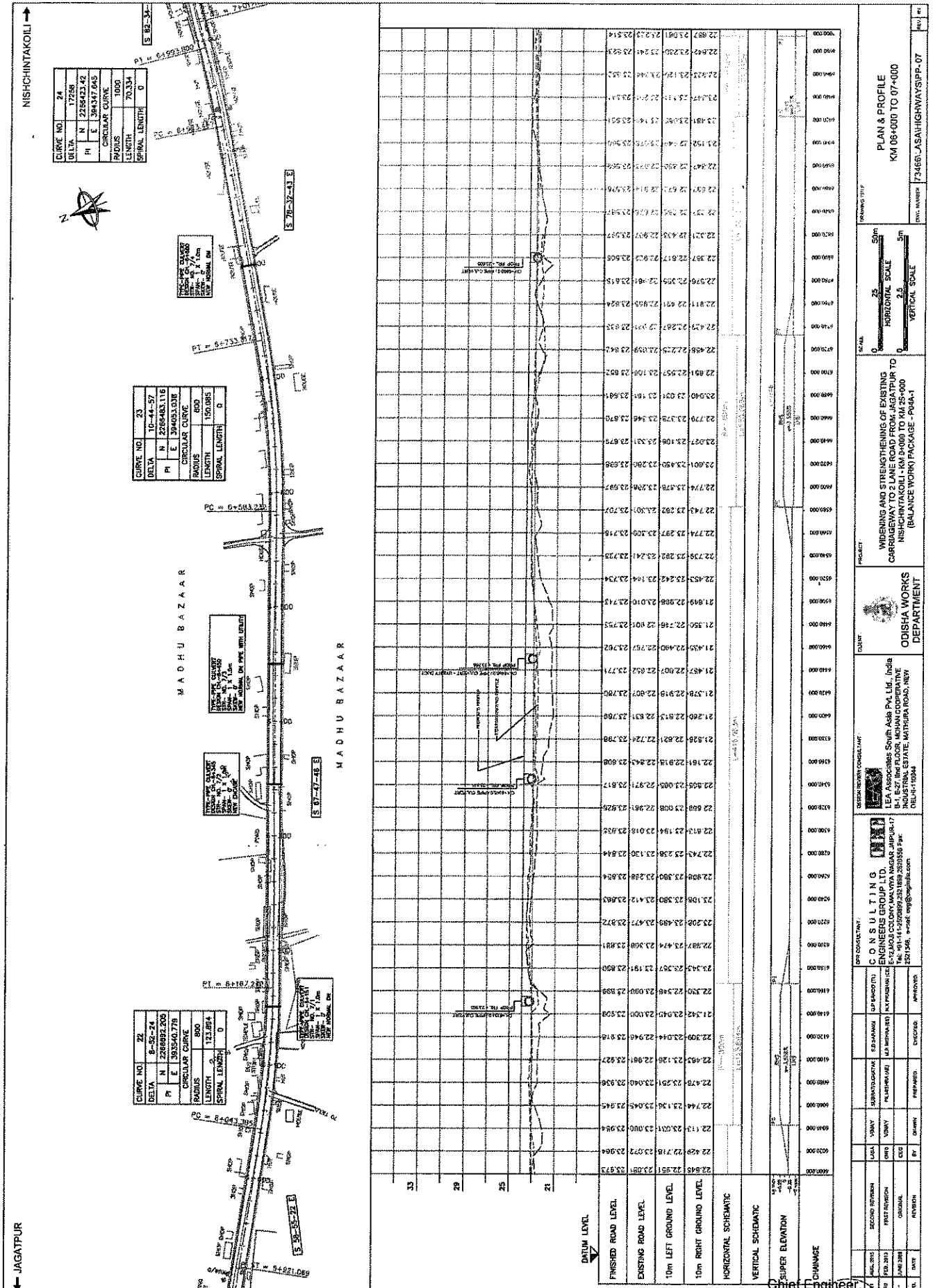
WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOLI (KM 05+000 TO KM 06+000) (PACKAGE WORK) PACKAGE - P04A-1

ODISHA WORKS DEPARTMENT

LEA ASSOCIATES SOUTH ASIA PVT. LTD. (India)
B-1, B-27, Badli, OKH, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURA ROAD, NEW DELHI-110044

CONSULTING ENGINEERS GROUP LTD.
172, JALDIPURIA, VILVA NAGAR, JALDIPUR-17
DELHI-110017
2521348, e-mail: ceag@ceagindia.com

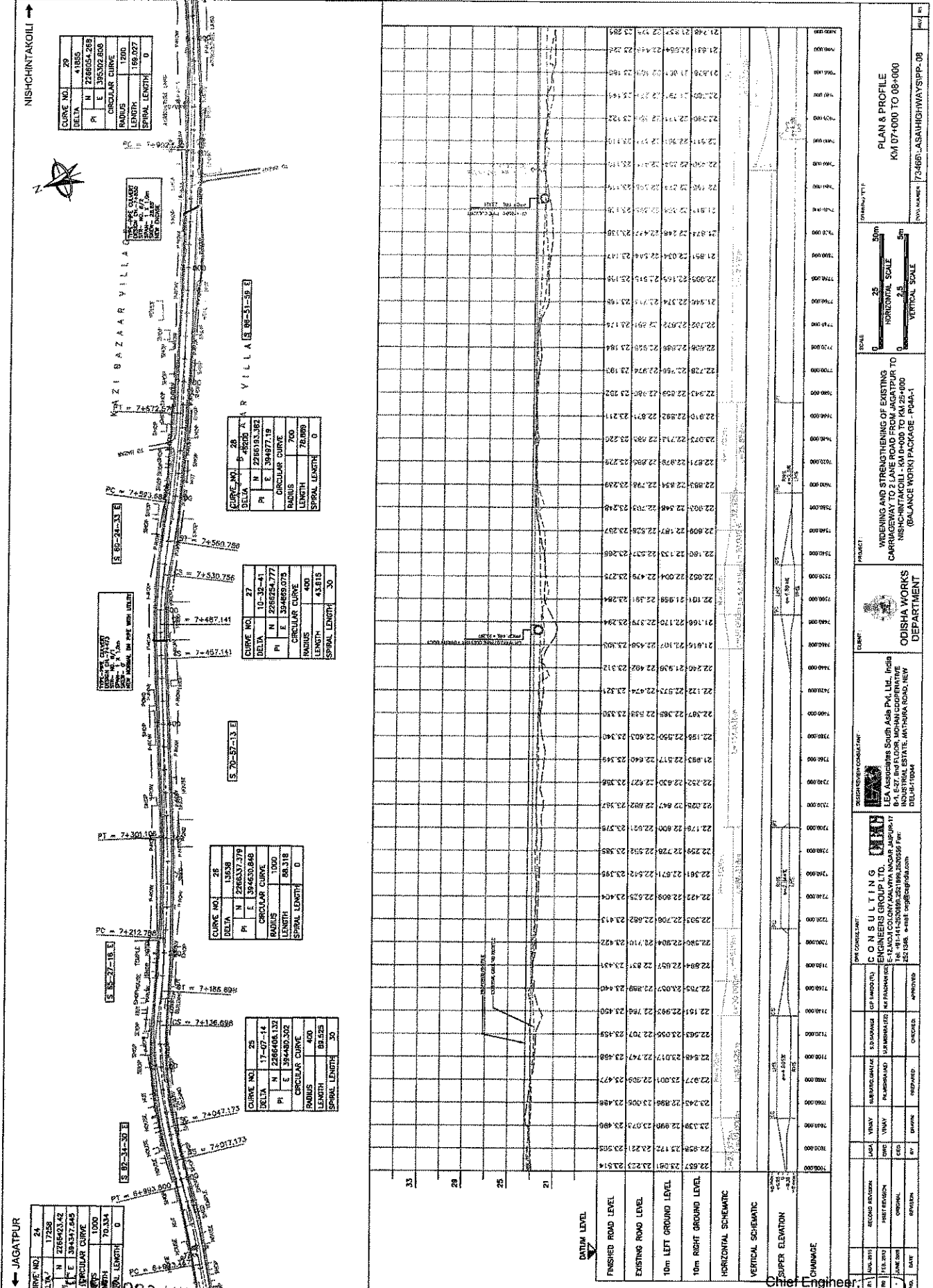
NO.	DATE	REVISION	PREPARED	CHECKED	APPROVED



Chief Engineer, (Contractor)
 (Contractor)
 Signature
 Authorized Signatory

Chief Engineer, (Employer)
 World Bank Projects, Odisha
 Chief Engineer
 World Bank Project
 No. the E.C.C.C, Odisha, E.O.

<p>PROJECT</p> <p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM AGATPUR TO NISHCHINTAKOLI - KMS 0+00 TO KM 25+00 (BALANCE WORK) PACKAGE - P04A-1</p>	<p>PLAN & PROFILE</p> <p>KM 06+00 TO 07+00</p> <p>DWG. NUMBER: 73465/LA/HIGHWAYS/PP-07</p>
<p>DESIGNER/REVISIONS</p> <p>CON SULT I N G ENGINEERS GROUP LTD. (PVT) LTD. INDIA</p> <p>77, JAGATI COLONY, WARDHA NAGAR, JALPAIGURI-735101, WEST BENGAL, INDIA</p>	<p>ODISHA WORKS DEPARTMENT</p> <p>LEA Agatpur, Odisha, P.O. India B-1, B-27, 1st FLOOR, MOHANI COOPERATIVE INDUSTRIAL ESTATE, MATURPA ROAD, NEW DELHI-110044</p>
<p>DATE</p> <p>NO</p> <p>REVISION</p>	<p>DATE</p> <p>NO</p> <p>REVISION</p>



JAGATPUR

NISHCHINTAKOILI

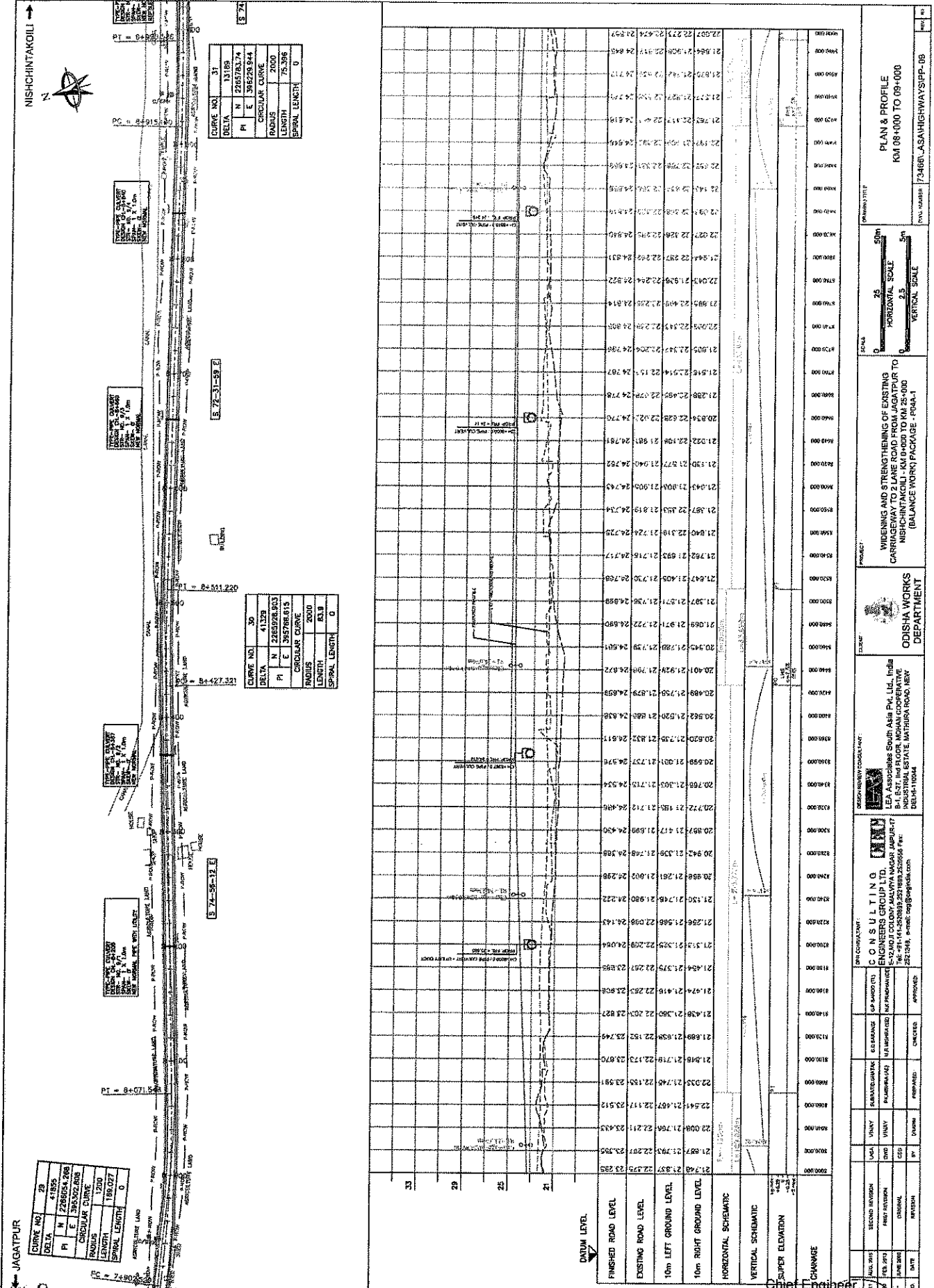
Backbone-Utkar (JV) & JV
(Contractor)

Signature
Authorized Signatory

World Bank Projects, Orissa
(Employer)
Chief Engineer,
W.B.P. Project
7/1/2010

DATE	REVISION	BY	CHKD	APPV

DESIGNER/CONSULTANT	ODISHA WORKS DEPARTMENT
CLIENT	ODISHA WORKS DEPARTMENT
PROJECT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOILI - KM 07+000 TO 08+000 (BACCANE WORK PACKAGE - P04A-1)
SCALE	HORIZONTAL SCALE: 1:25 VERTICAL SCALE: 1:5
PROJECT TITLE	PLAN & PROFILE
PROJECT NO.	KM 07+000 TO 08+000
REV. NO.	72466-LASAHIGHWAYS/PP-08



CURVE NO.	31
DELTA	111.93
PI	N 2065781.74 E 3516239.844
CIRCULAR CURVE	
RADIUS	2100
LENGTH	75.596
SPIRAL LENGTH	0

CURVE NO.	32
DELTA	111.93
PI	N 2065781.74 E 3516239.844
CIRCULAR CURVE	
RADIUS	2100
LENGTH	75.596
SPIRAL LENGTH	0

CURVE NO.	33
DELTA	41.529
PI	N 2269298.933 E 3517786.815
CIRCULAR CURVE	
RADIUS	2000
LENGTH	83.8
SPIRAL LENGTH	0

CURVE NO.	29
DELTA	41.529
PI	N 2269298.933 E 3517786.815
CIRCULAR CURVE	
RADIUS	1200
LENGTH	186.027
SPIRAL LENGTH	0

STATION	FINISHED ROAD LEVEL	EXISTING ROAD LEVEL	10m LEFT GROUND LEVEL	10m RIGHT GROUND LEVEL	HORIZONTAL SCHEMATIC	VERTICAL SCHEMATIC	SUPER ELEVATION	CHANGE
21.742	21.837	22.297	22.297	22.297				
21.857	21.793	22.297	22.297	22.297				
22.008	21.706	22.297	22.297	22.297				
22.545	21.607	22.117	23.515	23.515				
23.035	21.745	22.153	23.581	23.581				
23.819	21.719	22.173	23.670	23.670				
24.689	21.638	22.152	23.745	23.745				
25.456	21.560	22.203	23.827	23.827				
26.426	21.416	22.253	23.908	23.908				
27.456	21.379	22.297	24.054	24.054				
28.513	21.329	22.209	24.054	24.054				
29.586	21.586	22.038	24.433	24.433				
31.130	21.748	21.980	24.222	24.222				
32.968	21.261	21.807	24.299	24.299				
35.042	21.339	21.748	24.389	24.389				
37.402	21.339	21.699	24.450	24.450				
40.087	21.417	21.599	24.530	24.530				
43.050	21.485	21.712	24.646	24.646				
46.354	21.705	21.712	24.646	24.646				
50.000	21.715	21.715	24.534	24.534				
54.000	21.737	21.737	24.376	24.376				
58.000	21.735	21.832	24.611	24.611				
62.000	21.882	21.882	24.838	24.838				
66.000	21.758	21.891	24.838	24.838				
70.000	21.735	21.832	24.611	24.611				
74.000	21.852	21.852	24.838	24.838				
78.000	21.758	21.891	24.838	24.838				
82.000	21.735	21.832	24.611	24.611				
86.000	21.852	21.852	24.838	24.838				
90.000	21.758	21.891	24.838	24.838				
94.000	21.735	21.832	24.611	24.611				
98.000	21.852	21.852	24.838	24.838				
102.000	21.758	21.891	24.838	24.838				
106.000	21.735	21.832	24.611	24.611				
110.000	21.852	21.852	24.838	24.838				
114.000	21.758	21.891	24.838	24.838				
118.000	21.735	21.832	24.611	24.611				
122.000	21.852	21.852	24.838	24.838				
126.000	21.758	21.891	24.838	24.838				
130.000	21.735	21.832	24.611	24.611				
134.000	21.852	21.852	24.838	24.838				
138.000	21.758	21.891	24.838	24.838				
142.000	21.735	21.832	24.611	24.611				
146.000	21.852	21.852	24.838	24.838				
150.000	21.758	21.891	24.838	24.838				
154.000	21.735	21.832	24.611	24.611				
158.000	21.852	21.852	24.838	24.838				
162.000	21.758	21.891	24.838	24.838				
166.000	21.735	21.832	24.611	24.611				
170.000	21.852	21.852	24.838	24.838				
174.000	21.758	21.891	24.838	24.838				
178.000	21.735	21.832	24.611	24.611				
182.000	21.852	21.852	24.838	24.838				
186.000	21.758	21.891	24.838	24.838				
190.000	21.735	21.832	24.611	24.611				
194.000	21.852	21.852	24.838	24.838				
198.000	21.758	21.891	24.838	24.838				
202.000	21.735	21.832	24.611	24.611				
206.000	21.852	21.852	24.838	24.838				
210.000	21.758	21.891	24.838	24.838				
214.000	21.735	21.832	24.611	24.611				
218.000	21.852	21.852	24.838	24.838				
222.000	21.758	21.891	24.838	24.838				
226.000	21.735	21.832	24.611	24.611				
230.000	21.852	21.852	24.838	24.838				
234.000	21.758	21.891	24.838	24.838				
238.000	21.735	21.832	24.611	24.611				
242.000	21.852	21.852	24.838	24.838				
246.000	21.758	21.891	24.838	24.838				
250.000	21.735	21.832	24.611	24.611				

PLAN & PROFILE
KM 08+000 TO 09+000
NISHCHINTAKOILI - KM 10+000 TO KM 25+000
(BALANCE FOR) PACKAGE - P04A-1

PROJ. NO. 7246(B)-ASA HIGHWAYS (P)-08

ODISHA WORKS DEPARTMENT

DESIGN ENGINEER: LEA ASSOCIATES SOUTH ASIA PVT. LTD. (INDIA)
B-1, B-2, and FLOOR, MOHAN COOPERATIVE INDUSTRIAL ESTATE, MATURHA ROAD, NEW DELHI-110044

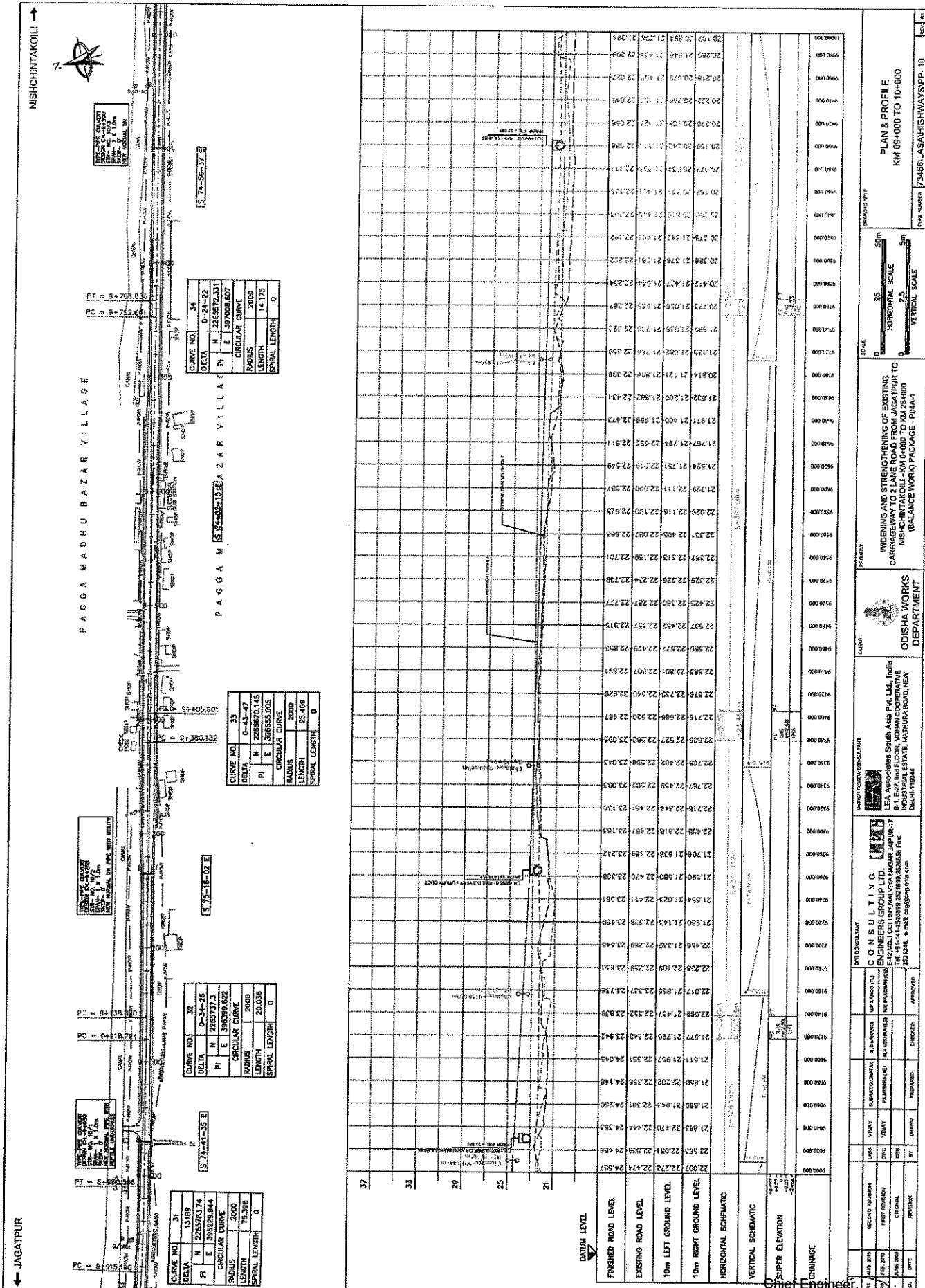
CONSULTING ENGINEERS GROUP LTD. (INDIA)
34, 35 & 36, VIKRAM JAGATI, JALPAIGURI, WEST BENGAL-745001, INDIA
Tel: +91 31 44 520000, Fax: +91 31 44 520000, Email: enge@engdel.com

NO.	DATE	REVISION	BY	CHECKED	APPROVED
1					
2					

Chief Engineer, (Employer)
Chief Engineer, World Bank Project
Osaka Engineering Consultants, Osaka, BGR

JAGATPUR
Baskbone, Utkal (JV)
(Contractor)
G. Bhowmik Paltanayak
Authorized Signature

World Bank Projects, Odisha
Chief Engineer, (Employer)
Chief Engineer, World Bank Project
Osaka Engineering Consultants, Osaka, BGR



Backbone-Utkal (JV)
 Contractor
 Shantik Pattanaj
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 On the E.I.C.P., Odisha, BBSR

PLAN & PROFILE
 KM 09+000 TO 10+000
 7/3468/ASAHIGHWAYSPP-10

SCALE
 HORIZONTAL SCALE 1:25
 VERTICAL SCALE 1:5

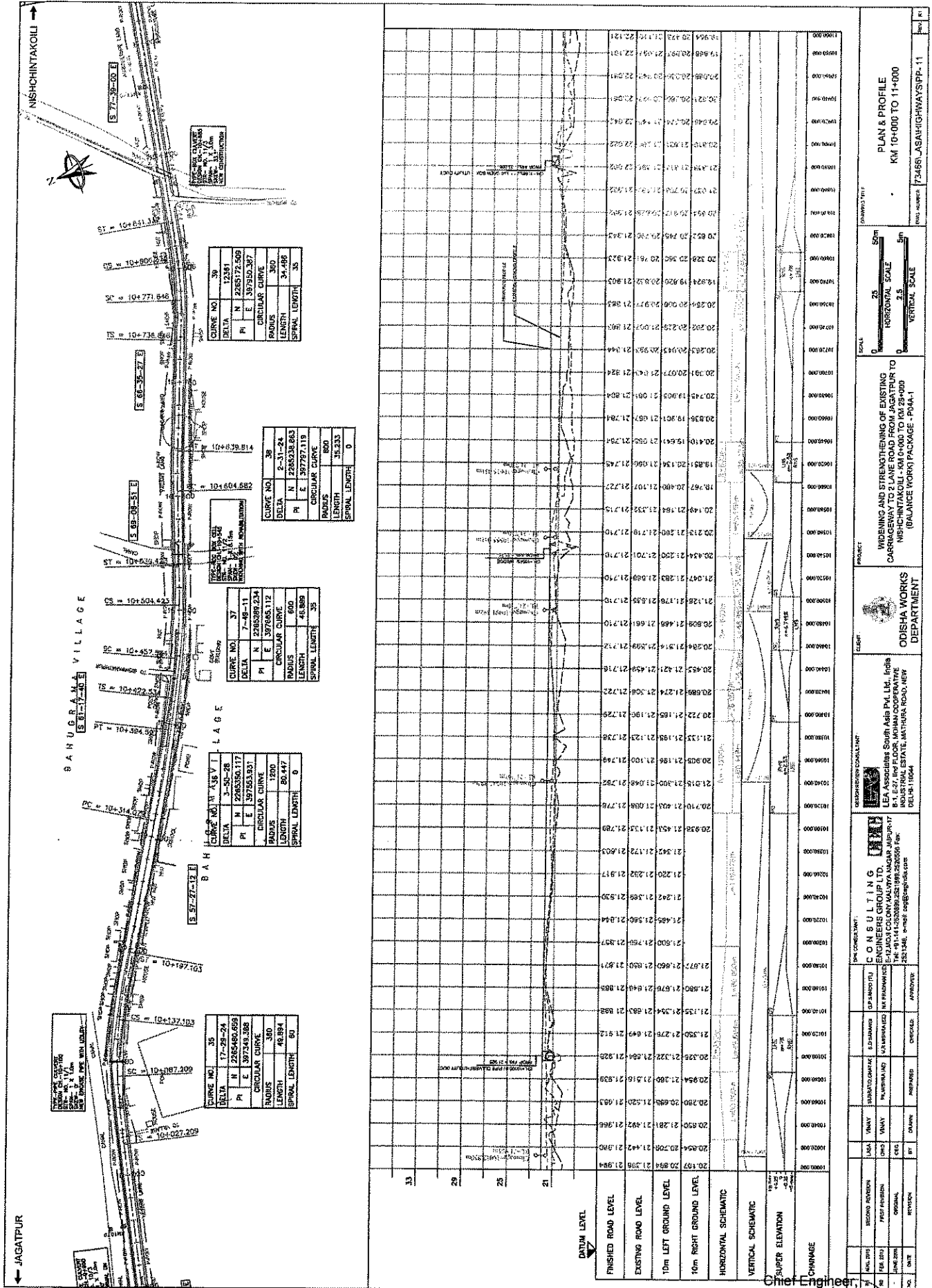
PROJECT
 WIDENING AND STRENGTHENING OF EXISTING
 CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO
 NISHCHINTAKOILI-KM 0+000 TO KM 25+000
 (BALANCE WORK) PACKAGE -PHN-1

CLIENT
 ODISHA WORKS
 DEPARTMENT

CONSULTING ENGINEER/ARCHITECT
 LEA Associates South Asia Pk. Ltd. (Pvt.)
 B-1, E-07, 1st FLOOR, MOHAN CO-OPERATIVE
 INDUSTRIAL ESTATE, MATURBA ROAD, NEW
 DELHI-110044

IFC CONSULTANT
 CONSULTING ENGINEERS GROUP LTD.
 2nd Floor, 17, Park Road, Jagatpur-751004
 Tel: 91-674-4422288, 4422299, 4422300
 Fax: 91-674-4422288, 4422299, 4422300
 e-mail: ceg@cegroupindia.com

NO.	DATE	REVISION	BY	CHKD	APPD

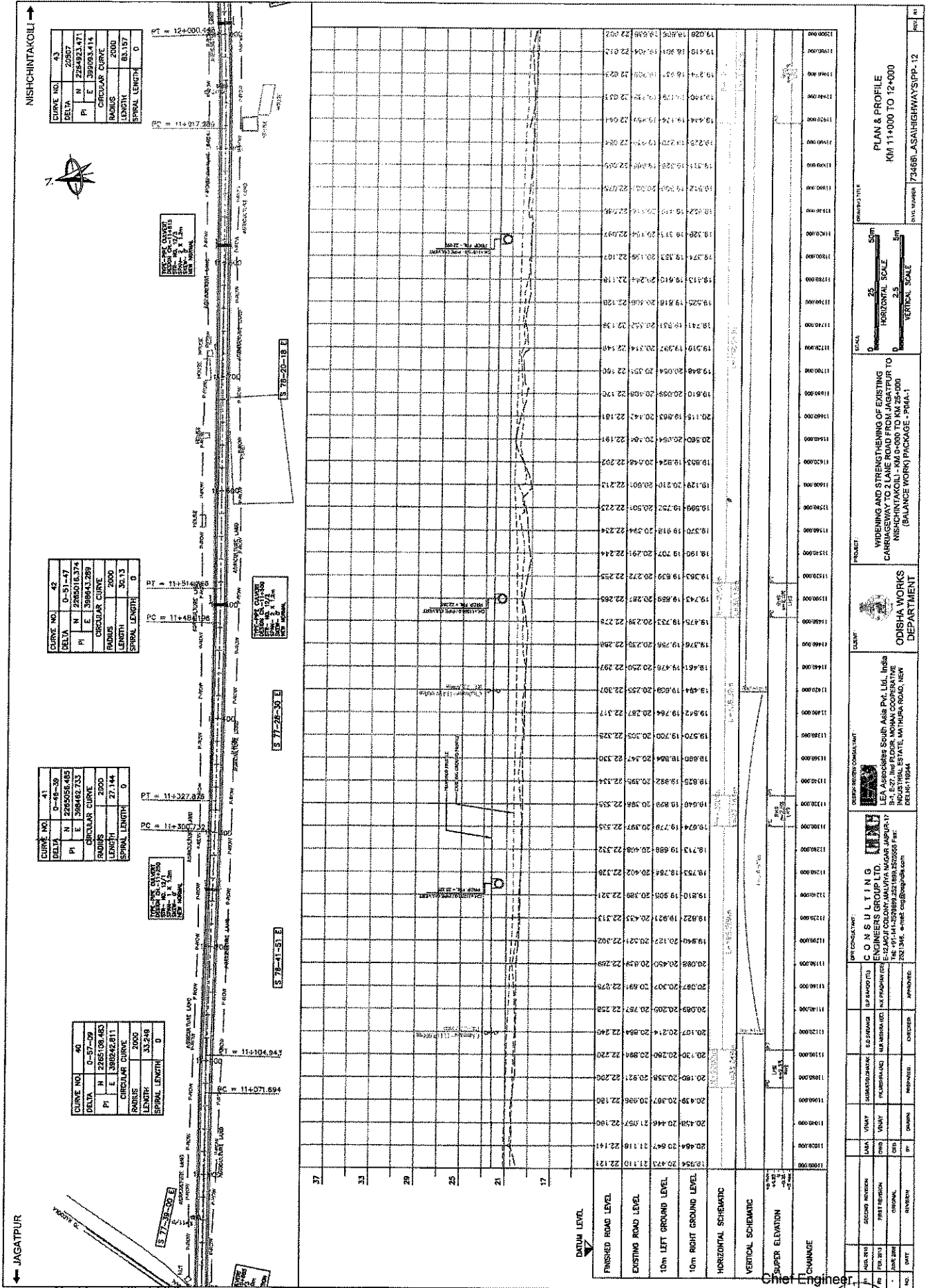


Bachchan Lal Jaiswal
For Backbone-Utilai JV
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

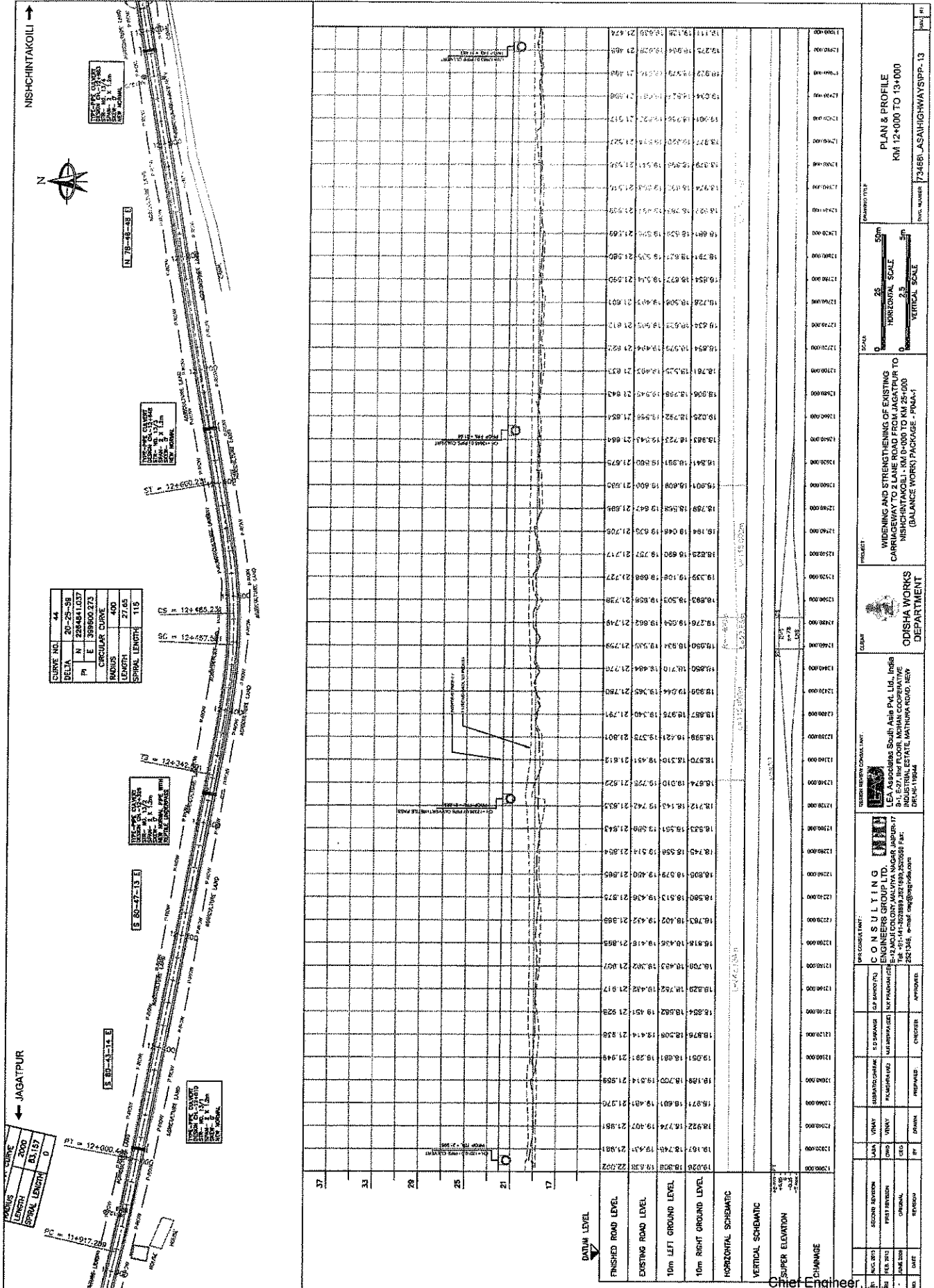
Sh. bairi K. Hamayun
Authorized Signatory

Wolfgang
Ole the...
Calson... OSRP



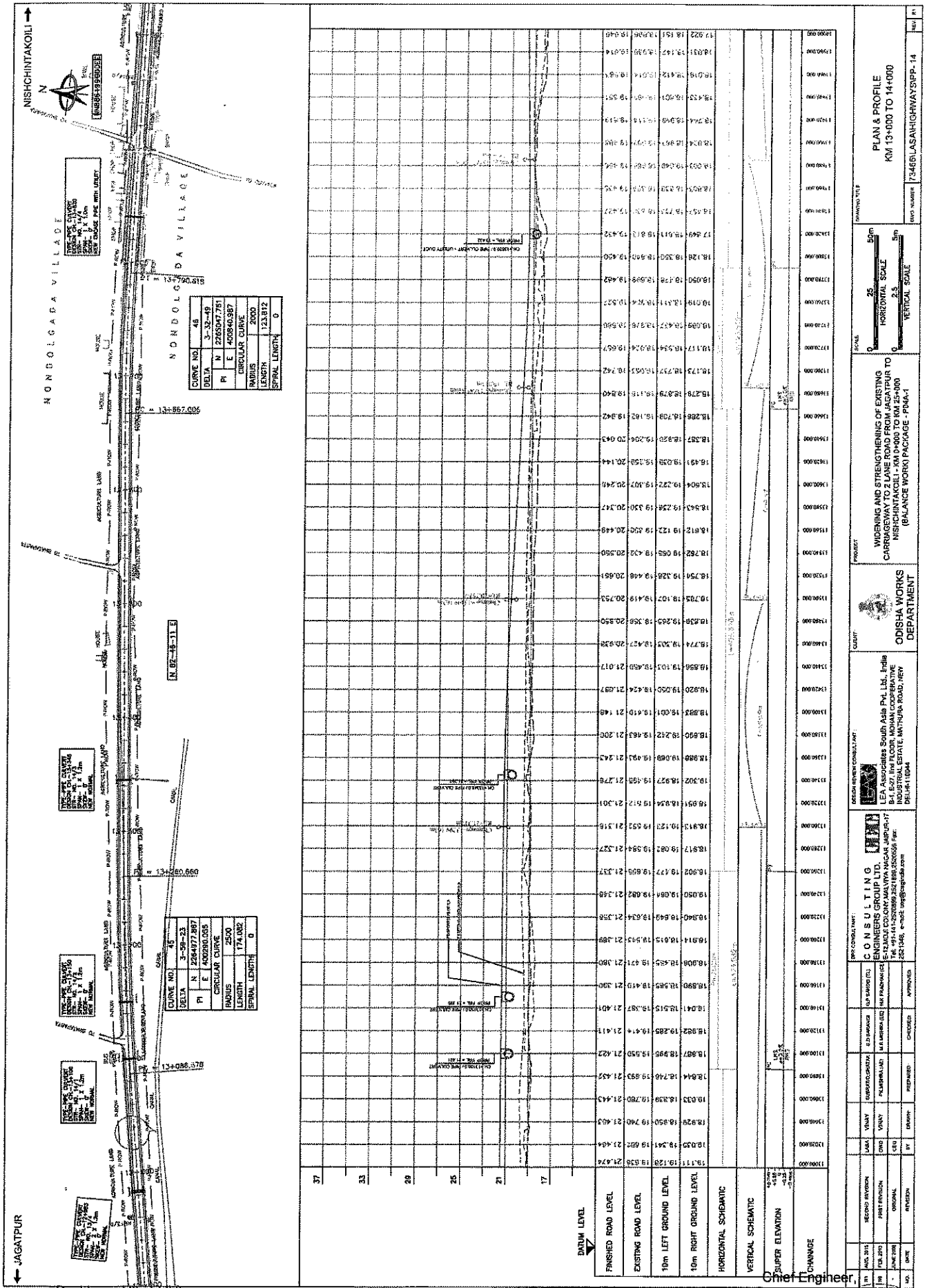
Backbone-Utkal (JV)
 Backbone-Utkal (JV):
Shibach Pattnayak
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
World Bank Projects
 O/o the E.I.C.O., Odisha, BBSR



Backbone-Utkal (JV)
 For Backbone-Utkal JV:
Sitikanth Pattnayak
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
Sitikanth Pattnayak
 Chief Engineer,
 World Bank Projects,
 O/o the E.I.C.(C), Odisha, Odisha



Backbone-Utkal (JV)
 For (Contractor) Utkal JV
 Shikhar Pattnayak
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Projects,
 O/o the E.I.C.(C), Odisha, BBSR

PLAN & PROFILE
 KM 13+000 TO 14+000
 73466/LASAHIGHWAY/PPP-14

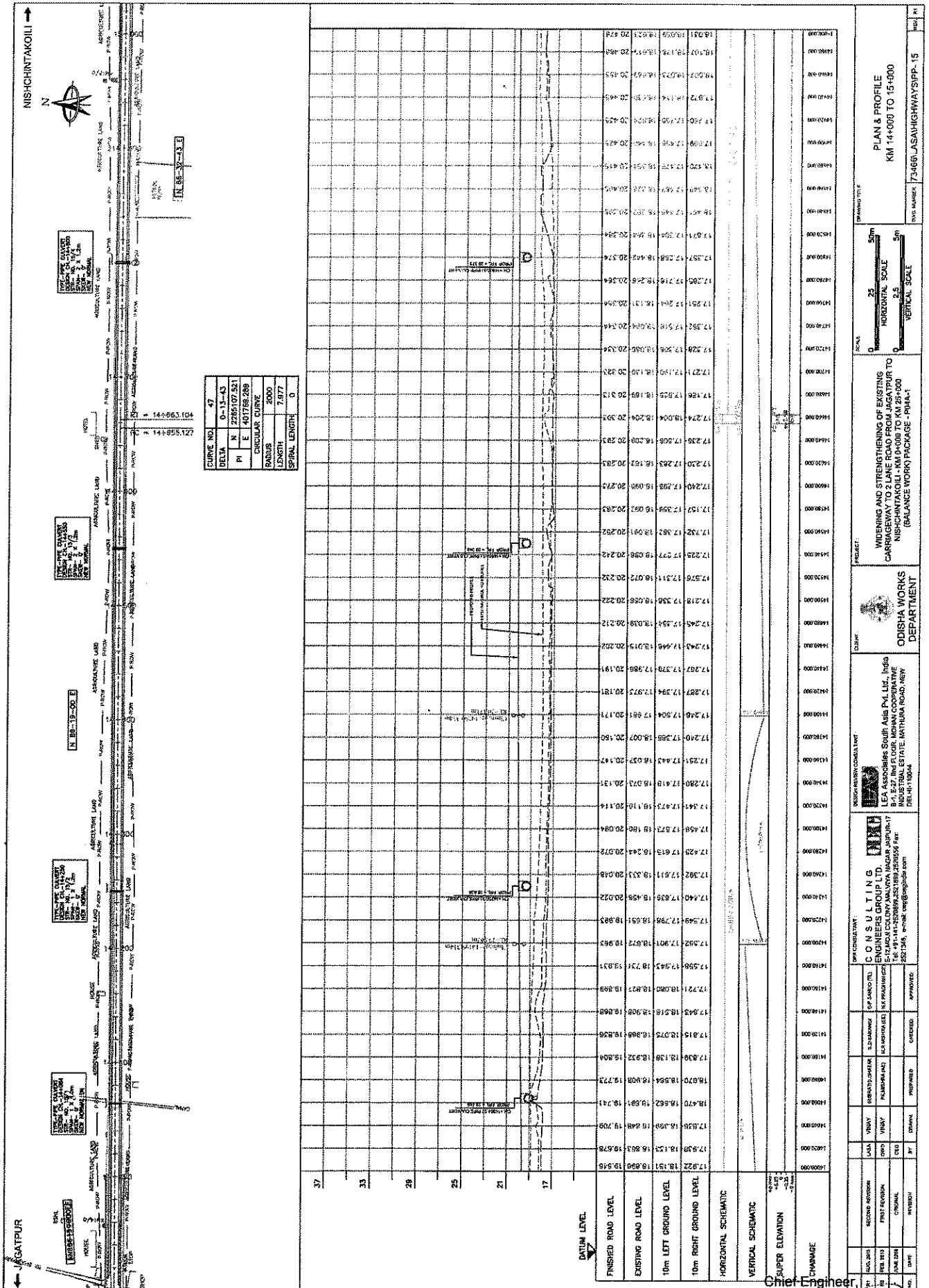
WIDENING AND STRENGTHENING OF EXISTING
 CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO
 NISHCHINTAKOLI - KM 0+000 TO KM 25+000
 (BALANCE WORKS PACKAGE - P04A-1)

ODISHA WORKS
 DEPARTMENT

CONSULTANT:
 CONSULTING ENGINEERS GROUP LTD.
 24, RAJOURI COLONY, WARD NO. 10, JAGATPUR-75
 BELURHILL, BBSR-751004

REVISIONS:

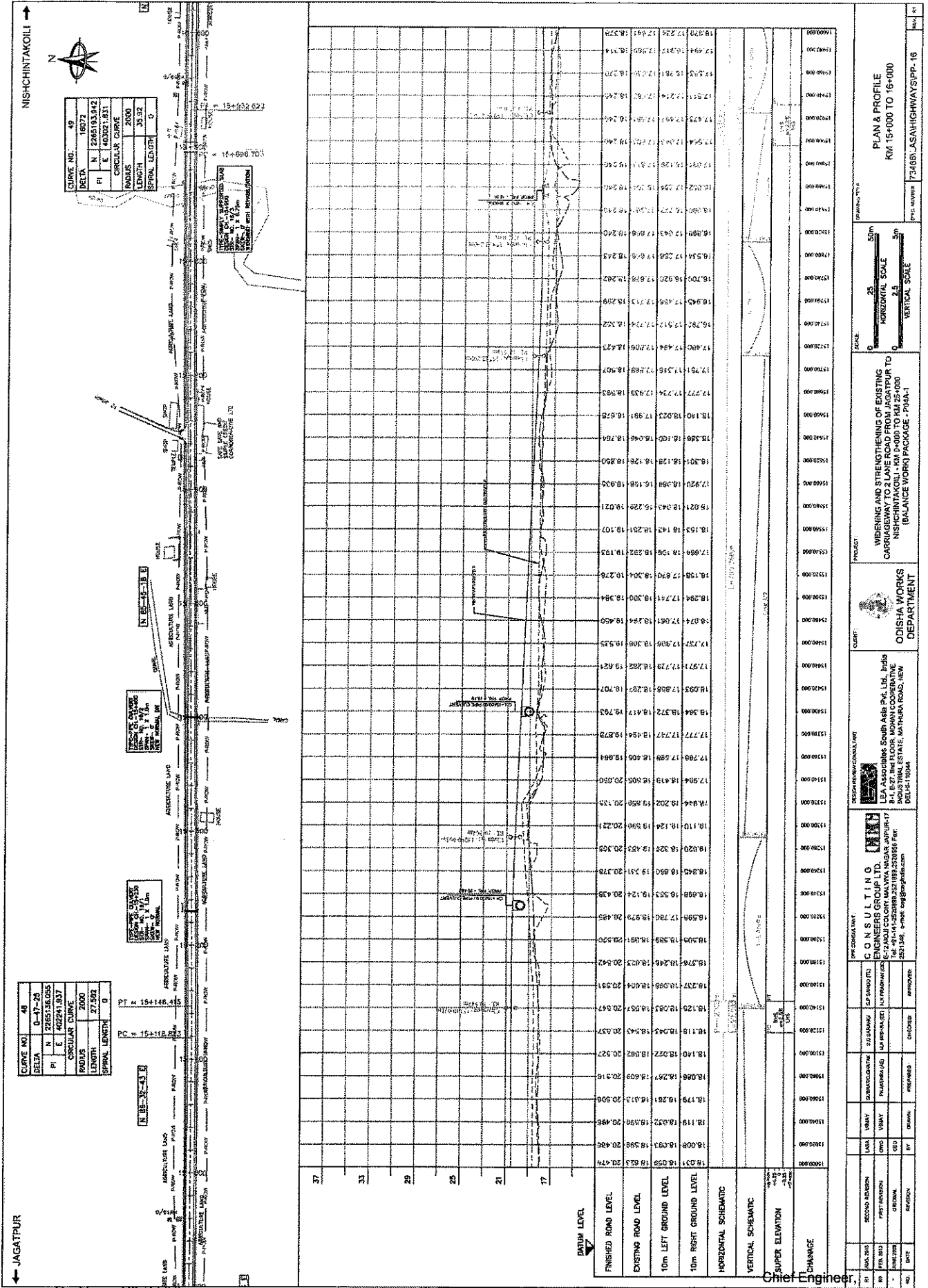
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10				



Backbone-Utkal (JV)
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)
World Bank
O/o the E.I.C.(C), Cuttack, 753005

Signature
Authorized Signatory



CURVE NO.	4B
DELTA	0-47-28
PI	2285158.005
E	402241.837
CIRCULAR CURVE	
RADIUS	7000
LENGTH	27.692
SPIRAL LENGTH	0

PC	15+146.415
PT	15+174.107
PI	15+160.261

Backbone-Utkal (JV)
 For Backbone-Utkal JV
 Shihank P. Acharya
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

PLAN & PROFILE
 KM 15+000 TO 16+000

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2-LANE ROAD FROM JAGATPUR TO NISHCHINTAKOIL-KM 15+000 TO KM 25+000 (SOURCE WORK) PACKAGE - P04A-1

ODISHA WORKS DEPARTMENT

DESIGN CONSULTANT
 LEA ASSOCIATES SOUTH ASIA Pk. Ltd.
 B-1, B-27, 2nd FLOOR, MOHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATRUHA ROAD, NEW DELHI-110044

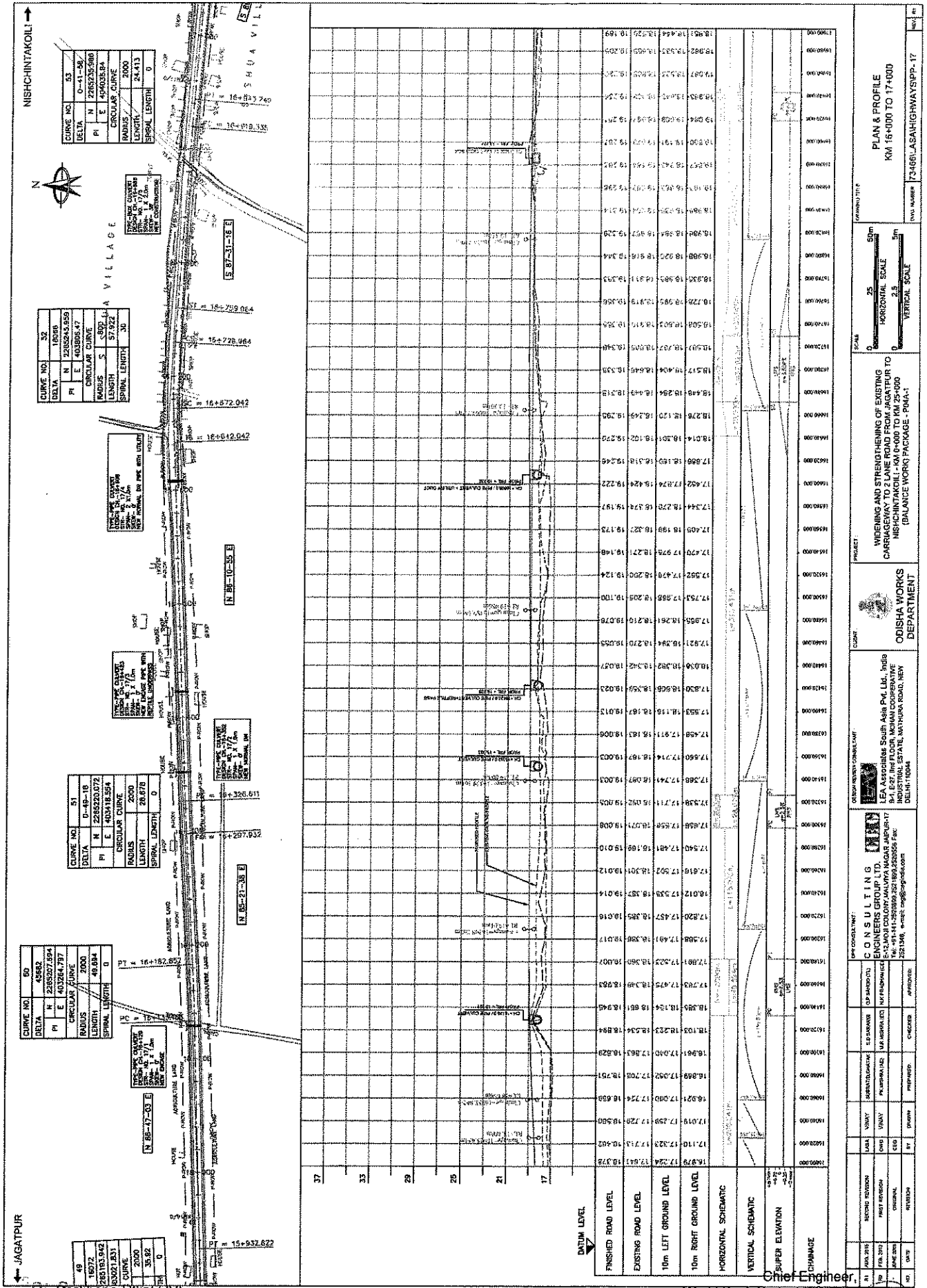
PROJECT CONSULTANT
 CONSULTING ENGINEERS GROUP LTD.
 14/1/1, GROUND FLOOR, MALAYA NAGAR, JALPAIGURI-751 005, WEST BENGAL, INDIA
 TEL: 0353 2511346, e-mail: eng@cegroup.com

NO.	DIST.	REGION	OFFICE	PREPARED	CHECKED	APPROVED
1						
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27						

SCALE:
 HORIZONTAL SCALE: 1:500
 VERTICAL SCALE: 1:10

DRAWING TITLE: PLAN & PROFILE

DWG NUMBER: 7346(B)-LASH-HIGHWAY-9(PP)-16



Backbone Ukai (JV)
(Contractor) - Ukai JV
Shakti Ratan Singh
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.C, Odisha, BBSR

PLAN & PROFILE
KM 16+000 TO 17+000

WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM AGATPUR TO NISHCHINTAKOLI - KM 16+000 TO KM 25+000 (BALANCE WORK) PACKAGE - P04A-1

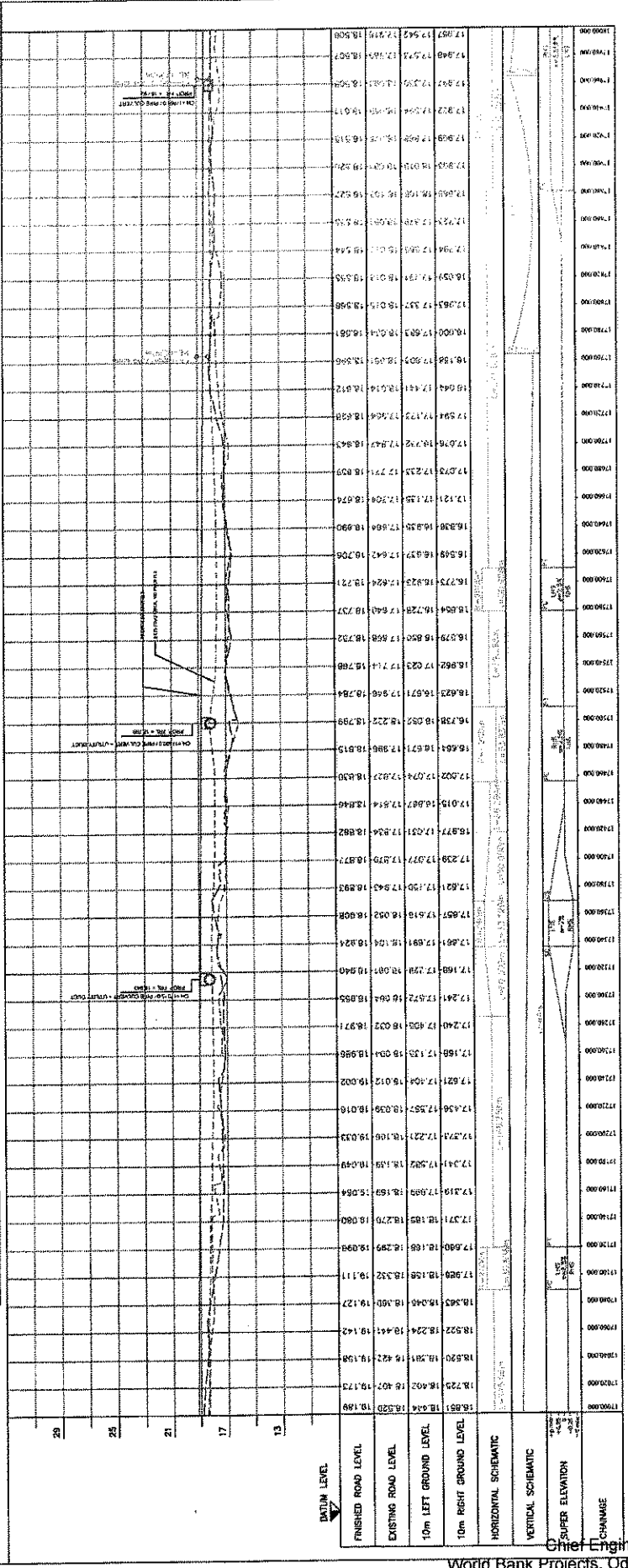
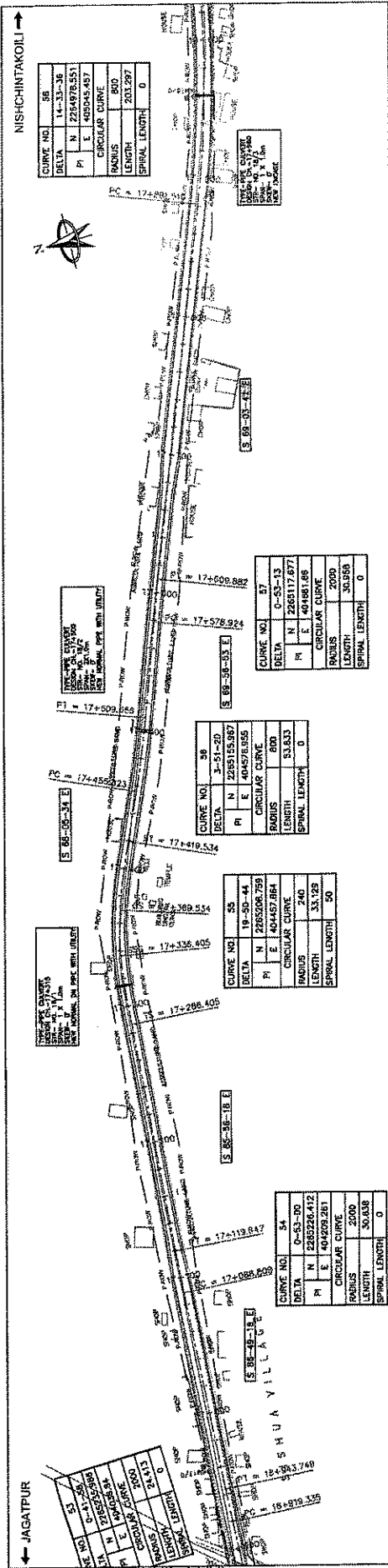
ODISHA WORKS DEPARTMENT

CONSULTING ENGINEERS GROUP LTD.
E-2, MOOL COLONY, MALVIYA MARG, JAIPUR-302015, INDIA
Email: ceg@cegroup.com

ODISHA ENGINEERING CONSULTANTS
SEA, Ashoka Sagar Ash Park, Uda, India
B-1, E-27, 1st FLOOR, MAHARAJA COOPERATIVE INDUSTRIAL ESTATE, WARDHARA ROAD, NEW DELHI-110044

SCALE:
HORIZONTAL SCALE: 1:5000
VERTICAL SCALE: 1:1000

NO.	DATE	REVISION	BY	CHKD	APPD
01	16/08/2017	ISSUED FOR TENDER			
02	16/08/2017	FOR APPROVAL			
03	16/08/2017	FOR APPROVAL			



STATION	FINISHED ROAD LEVEL	EXISTING ROAD LEVEL	10m LEFT GROUND LEVEL	10m RIGHT GROUND LEVEL	HORIZONTAL SCHEMATIC	VERTICAL SCHEMATIC	SUPER ELEVATION	CHANNEL
17+000.000	18.081	18.044	18.020	18.109				
17+005.000	18.729	18.402	18.407	18.173				
17+010.000	18.500	18.281	18.422	18.158				
17+015.000	18.500	18.281	18.422	18.158				
17+020.000	17.999	18.108	18.352	18.111				
17+025.000	17.999	18.108	18.352	18.111				
17+030.000	17.999	18.108	18.352	18.111				
17+035.000	17.999	18.108	18.352	18.111				
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17+045.000	17.999	18.108	18.352	18.111				
17+050.000	17.999	18.108	18.352	18.111				
17+055.000	17.999	18.108	18.352	18.111				
17+060.000	17.999	18.108	18.352	18.111				
17+065.000	17.999	18.108	18.352	18.111				
17+070.000	17.999	18.108	18.352	18.111				
17+075.000	17.999	18.108	18.352	18.111				
17+080.000	17.999	18.108	18.352	18.111				
17+085.000	17.999	18.108	18.352	18.111				
17+090.000	17.999	18.108	18.352	18.111				
17+095.000	17.999	18.108	18.352	18.111				
18+000.000	17.999	18.108	18.352	18.111				

Backbone-Utkal (JV)
(Contractor) DONG-Utkal JV
Satish Patra
Authorized Signatory

World Bank Projects, Odisha
Chief Engineer,
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.C, Cuttack, BPSR

PLAN & PROFILE
KM 17+000 TO 18+000

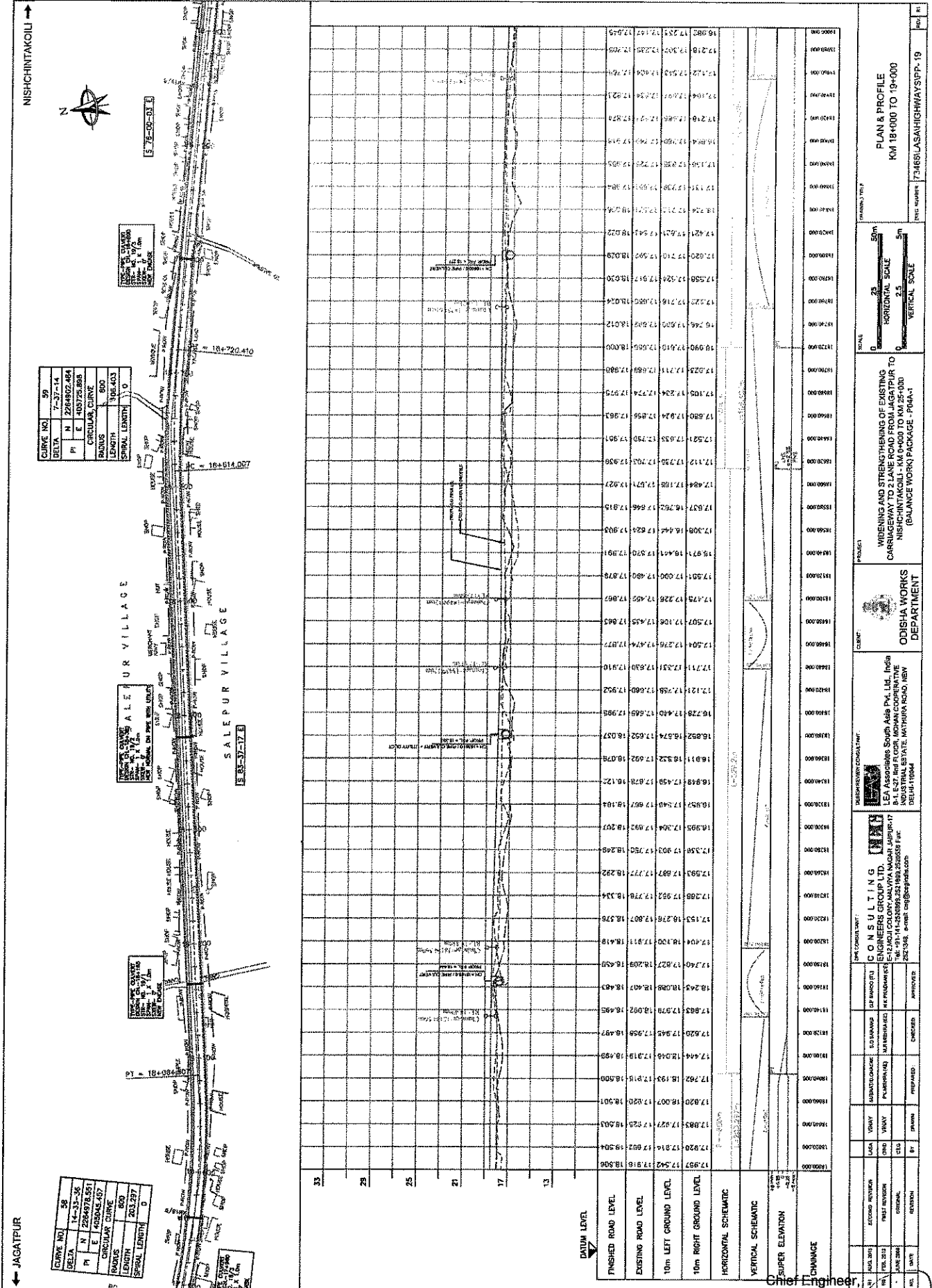
WIDENING AND STRENGTHENING OF EXISTING
CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO
NISHCHINTAKOILI (BALANCE WORK) PACKAGE - P04A-1

ODISHA WORKS
DEPARTMENT

LEA ASSOCIATES South Mid Pal Ltd. India
INDUSTRIAL ESTATE, MATHURA ROAD, NEW
DELHI-110004

CON SULTING
ENGINEERS GROUP LTD.
E-11/603 COLONY, MALVIYA NAGAR, JAIPUR-30
Tel: +91-141-2520995, 2520996, 2520997 Fax:
2521046, 2521047, 2521048

APPROVED



Backbone-Utkal (JV)
 (Contractor)
Shibansu Patanjali
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
World Bank Project
 O/o the E.I.C.A.C., Odisha, ODSR

PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOLI VIA ROAD FROM KM 18+00 TO NISHCHINTAKOLI (SCALE FOR KY PACKAGE - P04A1)

CLIENT: ODISHA WORKS DEPARTMENT

DESIGNER/CONSULTANT: LEA ASSOCIATES SOUTH ASIA PVT. LTD., B-1, E-27, 2nd FLOOR, KOKAN CO-OPERATIVE INDUSTRIAL ESTATE, MATURA ROAD, NEW DELHI-110044

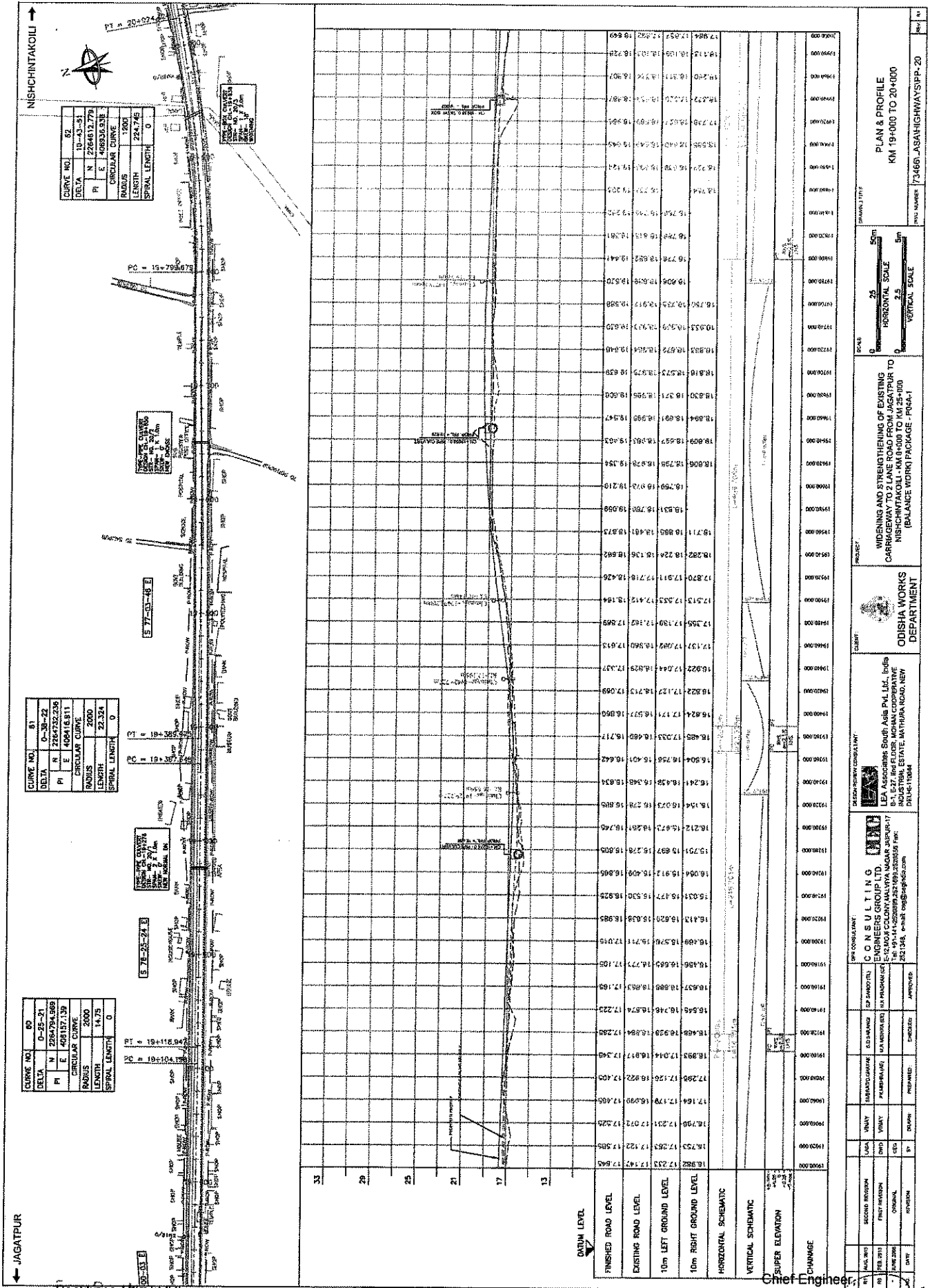
DATE: 2013/04/25

SCALE: HORIZONTAL SCALE 1:2500, VERTICAL SCALE 1:500

PLAN & PROFILE KM 18+000 TO 19+000

PROJECT NUMBER: 73ARSLASAHIGHWAY/SPP-19

REV. NO. / DATE / BY / CHECKED / APPROVED



Backbones, Utkal Infra-Lines Pvt Ltd (Contractor)

Authorized Signature

Chief Engineer, World Bank Projects, Odisha

(Employed Engineer)

World Bank Project
O/o the E.I.C., Odisha, BSR

PLAN & PROFILE
KM 19+000 TO 20+000

DRAWN: J.P.T.

SCALE: 25/50m
HORIZONTAL SCALE: 1cm = 25m
VERTICAL SCALE: 1cm = 5m

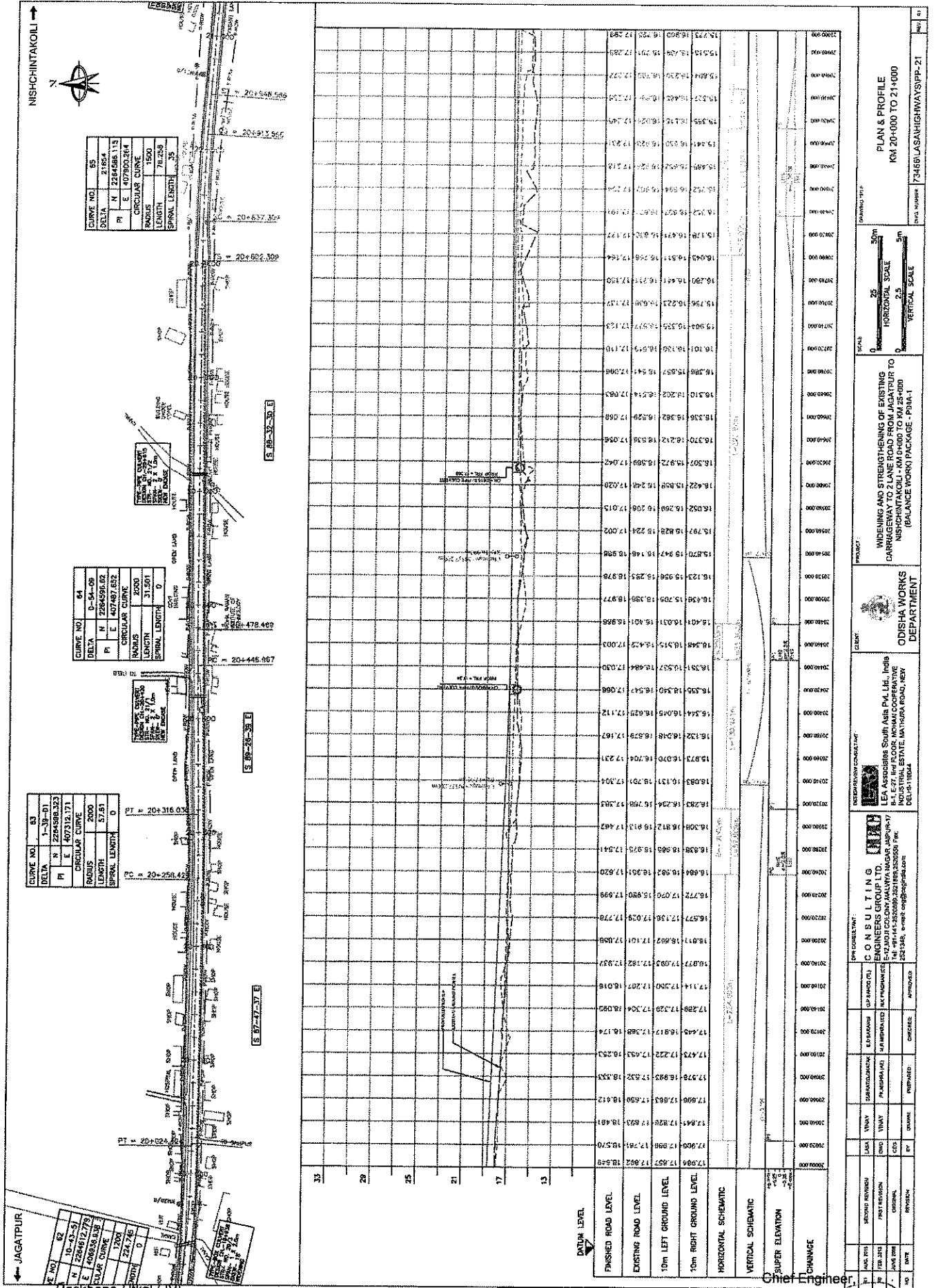
WIDENING AND STRENGTHENING OF EXISTING
CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO
NISHCHINTAKOLI - KM 19+000 TO KM 25+000
(BALANCE WORK PACKAGE - P04A1)

ODISHA WORKS
DEPARTMENT

CLIENT:
LEA Associates South Asia P. L. Ltd., 6/6/5,
B-1, E-7, 5th FLOOR, MOHAN COOPERATIVE
INDUSTRIAL ESTATE, MATTHURA ROAD, NEW
DELHI-110044

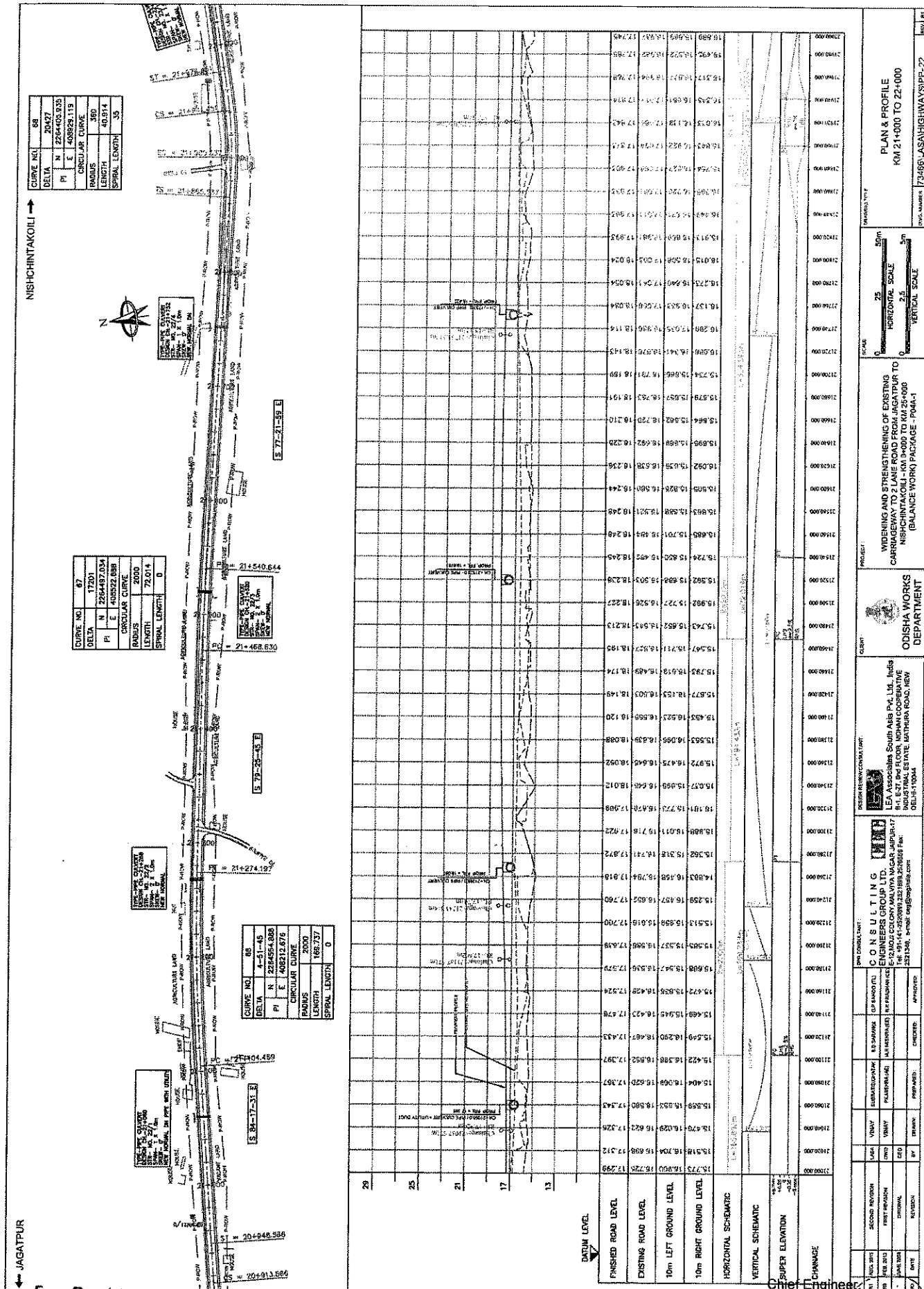
CONCONSULTANT:
CONSULTING
ENGINEERS GROUP LTD. (INCORPORATED)
19/141-1520080, 2424/2500/26100,
25/13/48, 4th floor, C-32, Sector-15
Gurgaon

Sl. No.	Name	Designation	Signature	Date
1	APPROVED BY	APPROVED		
2	CHECKED BY	CHECKED		
3	DESIGNED BY	DESIGNED		
4	VERIFIED BY	VERIFIED		



Backbone-Utkal (JV)
(Contractor)
Shubhash Pattnayak
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Projects
Civil (E.I.C.), Odisha, BBSR



For Bidding Jtka JV;
(Contractor)

World Bank Projects, Odisha
(Employer)

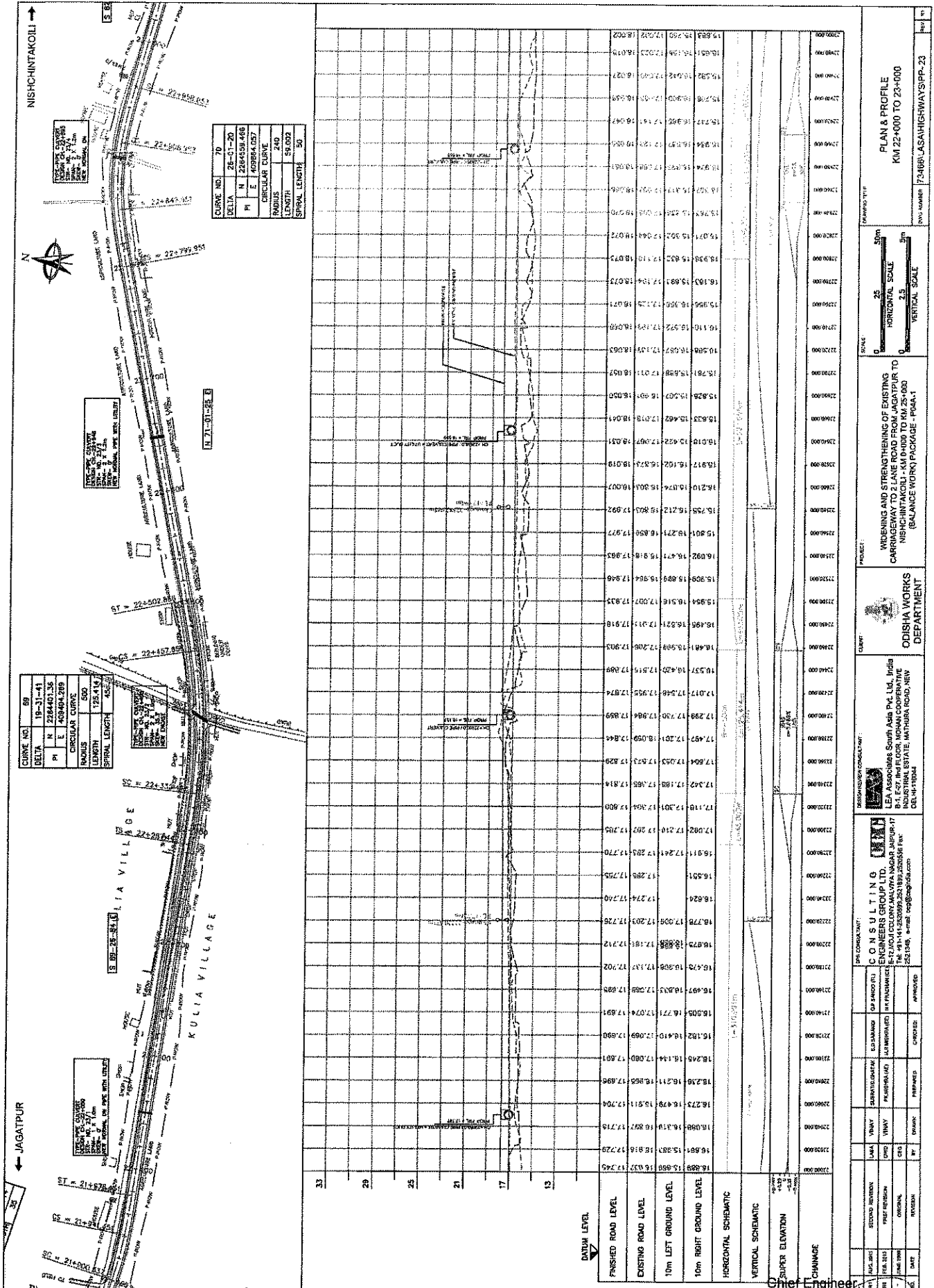
[Handwritten Signature]
Authorized Signatory

[Handwritten Signature]
Chief Engineer
World Bank Projects, Odisha
C/O the E.I.C.(C) Odisha

Chief Engineer,
World Bank Projects, Odisha

(Employer)

[Handwritten Signature]
Chief Engineer
World Bank Projects, Odisha
C/O the E.I.C.(C) Odisha

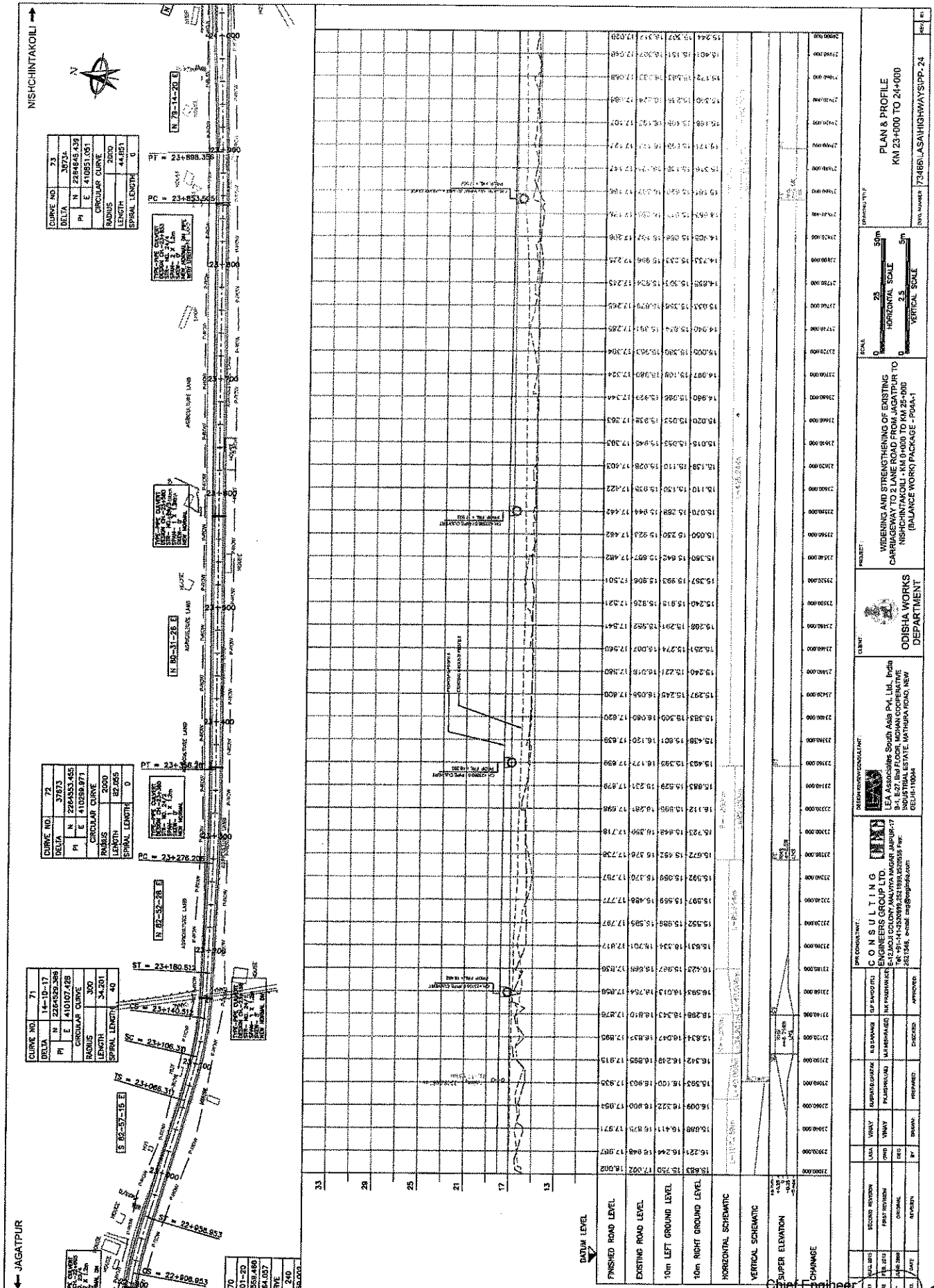


For Bidding Purposes Only (Contractor)

World Bank Projects, Odisha (Employer)

Sahinized Skanjan

Chief Engineer, Odisha
 World Bank Project
 Odisha, EDSR



PLAN & PROFILE
 KM 23+000 TO 24+000
 WIDENING AND STRENGTHENING OF EXISTING
 CARRIAGEWAY TO FLANE ROAD FROM AGATPUR TO
 NISHCHINTAKOLI - KM 19+000 TO KM 25+000
 (PACKAGE WORKY PACKAGE - P04A-1)

ODISHA WORKS DEPARTMENT

DESIGN CONSULTANT:
 CONSULTECH ENGINEERS GROUP LTD. (INDIA)
 B-1, 8-27, 1st FLOOR, MOHAN COOPERATIVE
 INDUSTRIAL ESTATE, MATIHA ROAD, NEW
 DELHI-110044

CLIENT:
 LEA ASSOCIATES SOUTH ASIA PVT. LTD. India
 B-1, 8-27, 1st FLOOR, MOHAN COOPERATIVE
 INDUSTRIAL ESTATE, MATIHA ROAD, NEW
 DELHI-110044

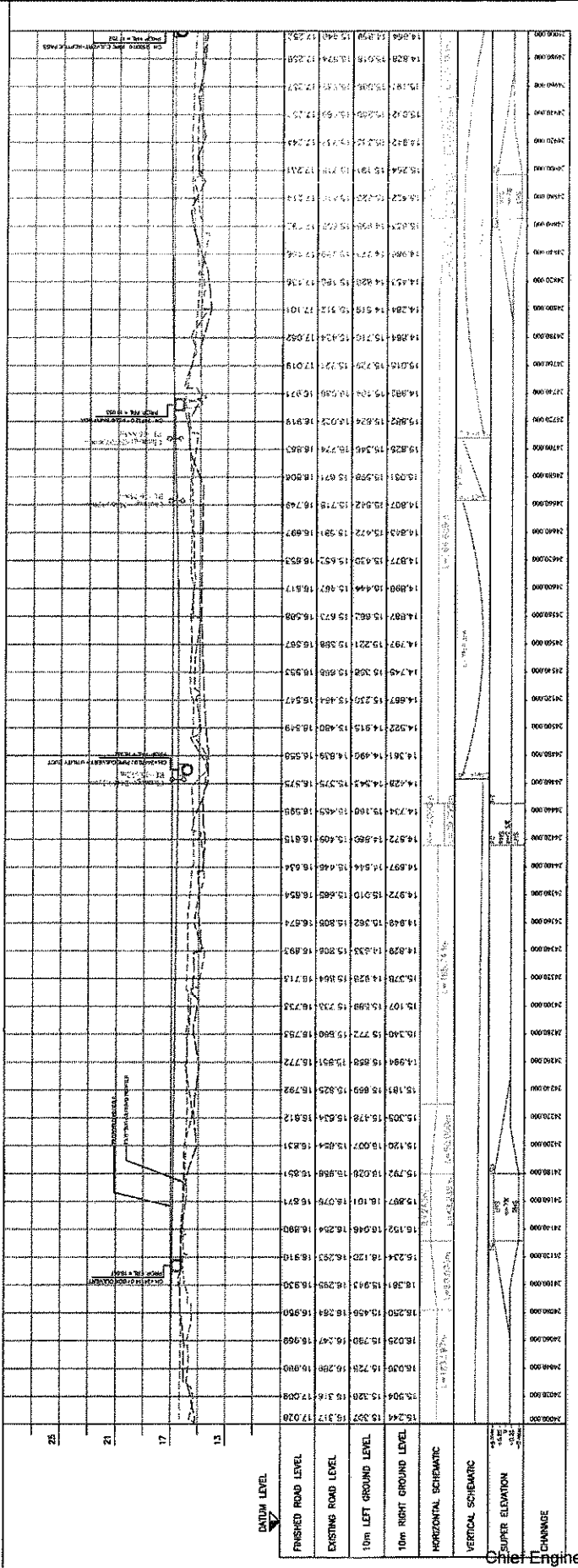
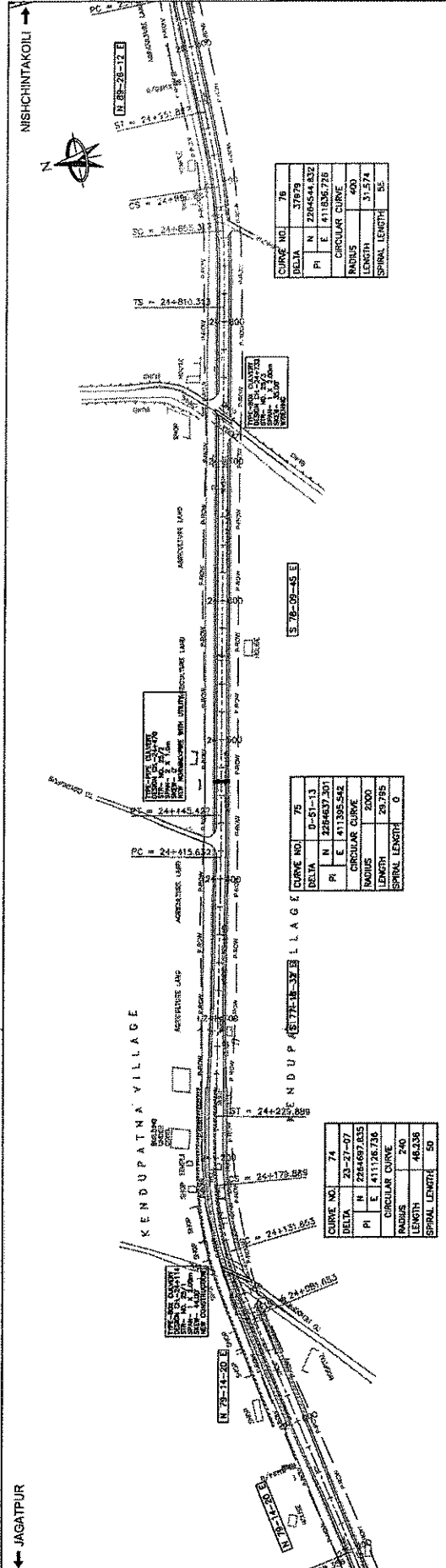
SCALE:
 HORIZONTAL SCALE: 1:5000
 VERTICAL SCALE: 1:500

NO.	DATE	BY	CHKD.	APPROVED

Backbone-Utkal (JV) (Contractor)
 Sh. Hari P. Pattanayak
 Authorized Signatory

Page 63 of 95

World Bank Projects, Odisha
 Chief Engineer (Employer)
 Chief Engineer
 World Bank Project
 On the E.I.C.C, Odisha, IBSR



<p>PLAN & PROFILE</p> <p>KM 24+000 TO 25+000</p> <p>DATE: 07/2019</p>	
<p>WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOILI (BALANCE WORK) PACKAGE - P04A1</p>	
<p>ODISHA WORKS DEPARTMENT</p>	
<p>CONSULTANT: DESHPANDEY CONSULTANTS</p> <p>LEA ASSOCIATES SOUR AGS P4, Ltd. India B-4, 1ST, 2ND FLOOR, MISHAN CO-OPERATIVE INDUSTRIAL ESTATE, MATURPA ROAD, NEW DELHI-110048</p>	
<p>DATE: 07/2019</p> <p>BY: [Signature]</p> <p>CHECKED: [Signature]</p> <p>APPROVED: [Signature]</p>	

Backbone-Utkal (JV)
(Contractor Backbone-Utkal (JV))
Shobhan K. Patra
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
Odisha, BSR

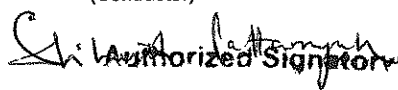
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SL. No	Drawing Name	Dwg. No.	No. Of Sheets	Page No.
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3	GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE OVER SURHABHADRA RIVER AT Km 10+545	73466LASASAGADMBR-02	01	04
4	GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE OVER KHALAJURAN POLO AT Km 15+500	73466LASASAGADMBR-03	01	05
5	GENERAL ARRANGEMENT DRAWING OF NORMAL SINGLE CELL BOX CULVERT UNDER NEW CONSTRUCTION	73466LASASAGADBOX-01	01	06
6	GENERAL ARRANGEMENT DRAWING OF NORMAL SINGLE CELL BOX CULVERT UNDER WIDENING	73466LASASAGADBOX-02	01	07
7	GENERAL ARRANGEMENT DRAWING OF SKEW SINGLE CELL BOX CULVERT UNDER NEW CONSTRUCTION	73466LASASAGADBOX-03	01	08
8	GENERAL ARRANGEMENT DRAWING OF SKEW SINGLE CELL BOX CULVERT UNDER WIDENING	73466LASASAGADBOX-04	01	09
9	GENERAL ARRANGEMENT DRAWING OF NORMAL SINGLE CELL PIPE CULVERT (TYPE-1, 2 & 3)	73466LASASAGADPIPE-01	03	10,11,12
10	GENERAL ARRANGEMENT DRAWING OF NORMAL DOUBLE CELL PIPE CULVERT (TYPE-1, 2 & 3)	73466LASASAGADPIPE-02	03	13,14,15
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13	SCHEDULE OF PIPE CULVERT WITH UTILITY	73466LASASASCHPIPE-03	01	18
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16	MISCELLANEOUS DRAWING DETAILS OF RCC RAILING & POST, RCC DRAIN, FLOOR PROTECTION & CURTAIN WALL	73466LASASAMISC-02	01	21
17	MISCELLANEOUS DRAWING DETAILS OF RETAINING WALL	73466LASASAMISC-03	01	22
18	MISCELLANEOUS DRAWING DETAILS OF RETAINING WALL	73466LASASAMISC-04	01	23
ENVIRONMENTAL DRAWINGS				
1	TYPICAL GENERAL ARRANGEMENT DRAWING FOR REPTILE UNDERPASS	73466LASASENV-01	01	24
2	TYPICAL GENERAL ARRANGEMENT DRAWING FOR UTILITY DUCT	73466LASASENV-02	01	25
3	TYPICAL DRAWING FOR SILT FENCE SEDIMENT ARRESTOR	73466LASASENV-03	01	26
4	TYPICAL DRAWING FOR OIL & GREASE TRAP	73466LASASENV-04	01	27

NO.	REVISED	DATE	BY	REASON	DATE	BY	REASON	DATE	BY	REASON	DATE	BY	REASON
01													

PROJECT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO LANE ROAD FROM JAGATPUR TO NISCHINTAKACILI - Km 0+00 TO Km 25+00 BALANCE WORK (PACKAGE - P04A-1)
DEPARTMENT	ODISHA WORKS DEPARTMENT
CONSULTANT	LEA Associates South Asia Pvt. Ltd., India 12, 12/2 COLONY, MALAYATI NAGAR, JAIPUR-302015 Tel: +91-141-2521899, 2521898, 2521895 Fax: +91-141-2521897, 2521896, 2521894 E-mail: lea@leaindia.com
SCALE	AS SHOWN
DRAWING FILE	TABLE OF CONTENT

For Backbone Utka (JV)
 Backbone Utka (JV)
 (Contractor)

 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, EBSR

Water.
Water to be used in concreting, grouting and curing shall conform to clause 302.4 of IRC:21-2000.

Reinforcement
All reinforcement shall be of grade Fe 500 conforming to IS:1786.

Notation of reinforcement bar shall be as follows: -
Example: - $\frac{\phi}{B} @ 200 \text{ C/C}$
Dia of bar ϕ Bar spacing B Centre to centre type of bar as mentioned above

ϕ represent Grade - S : 415 Grade Bar
 ϕ represent Grade - S : 240 Grade Bar

spacing given for all reinforcement is perpendicular to bars unless otherwise shown on drawings.

Steel spacer bars shall be provided between adjacent layers of parallel reinforcement and spaced at not more than 60 x smaller bar dia. The diameter of the spacer bar shall be at least 25mm but not less than the maximum dia of the parallel reinforcements.

Laps in reinforcement bars shall be avoided as far as possible. Laps may be provided if unavoidable. However, in such cases:
(a) minimum lap length of reinforcement shall conform to table 12 & clause 304.6.6 of IRC : 21-2000
(b) not more than 50% of reinforcement bars shall be lapped at any one section.
(c) for closely spaced bars lapping may be avoided by providing suitable type of mechanical splicing.

Welding of reinforcement bars shall not be permitted.

Expansion joints
The expansion joints must be robust, durable, water tight and replaceable. It must be provided over the full width of superstructure including kerb and footpath following the profile of the same (where relevant). Expansion joints shall be obtained only from approved manufacturers and should be of proven type. Details of the expansion joint shall be approved by the site engineer before commencement of construction. Site fabricated expansion joints shall be prohibited.
Fabricated steel parts shall be positioned accurately before concreting the portion of deck slab.
Presence of manufacturer's representative at the time of positioning of embedded parts and installation of expansion joints is mandatory.

For the RCC type structures, asphalt plug type expansion joint shall be provided in accordance with M.O.R.T & H specification and shall be procured from the manufacturers as approved by NHAI.

The design of bridges & culverts are in accordance with the IRC codes, specifications, other relevant IS codes & standards of M.O.R.T & H.

All dimensions are in mm, levels are in metre & chainages are in kilometer.

Only written dimensions shall be followed. No dimensions shall be scaled.

The following loads have been considered in the design: -
a. One lane of IRC class 70R or one lane of IRC class A, or two lanes of IRC class A, on carriageway, whichever is critical.
b. Footpath load of 5kN/sqm for superstructure having footpaths has been considered in design.
c. Wearing coat load of 2.0kN/m², has been considered in design.
IV. The designs are applicable for "severe" conditions of exposure.
V. Wearing coat shall be 65mm thick comprising of 2 layers of 20mm each thick asphaltic concrete and one layer of 25mm thick mastic asphalt.

(B) MATERIALS SPECIFICATIONS

Concrete
Concrete shall be design mix and have a minimum 28 days characteristic strength as given below on 150mm cubes.

STRUCTURAL ELEMENT GRADE OF CONCRETE

a. RCC Foundation - M20
b. RCC Substructure - M20
c. RCC Pier / Abutment Cap - M25
d. RCC Dirt Wall - M25
e. RCC Approach Slab - M30
f. RCC Superstructure - M30
g. RCC Crash Barrier - M40
h. RCC Return Wall - M20
i. PCC Leveling Course - M15
j. RCC Parapet - M15
k. RCC Box - M20

Portland Slag Cement conforming to IS:455 and having more than 50% slag shall be used all concrete work up to grade M35
Ordinary Portland Cement: 53 Grade conforming to IS:12269 shall be used for High Performance concrete work, for grade M40 and M60

To improve workability of concrete and cement grout, admixtures conforming to IS:6925 and IS:9103 may be permitted subject to satisfactory proven use. Admixtures generating hydrogen, nitrogen, chlorides etc. should not be used.

Minimum cement content & maximum water cement ratio in concrete shall be as per table 5 of IRC:21-2000 for "severe conditions of Exposure".

Nominal maximum size of aggregate to be used in RCC and PSC work shall be as per Technical specification.

Clear cover to main reinforcement shall be as follows: -
a) Superstructure - 50mm
b) Box type structures - 75mm
c) Piers / Abutment structure - 75mm
d) Abutment caps, Pier cap - 50mm
e) Foundation - 75mm
f) Retaining walls (earth face) - 75mm
g) Rolling & Crash Barrier - 40mm

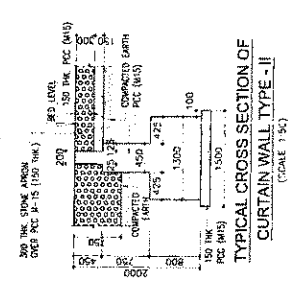
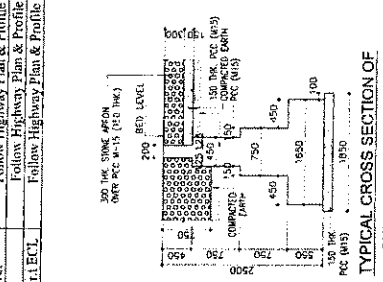
Suitable surface coating for concrete shall be used in the splash zone for protection against corrosion.

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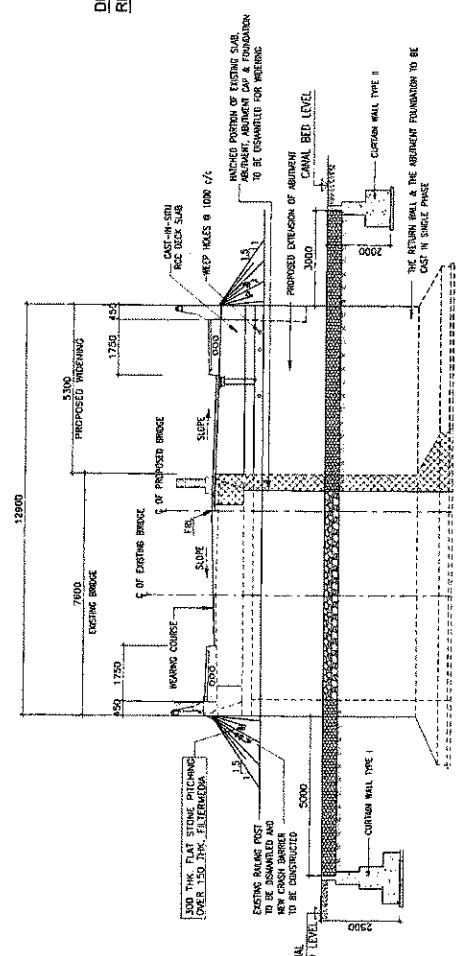
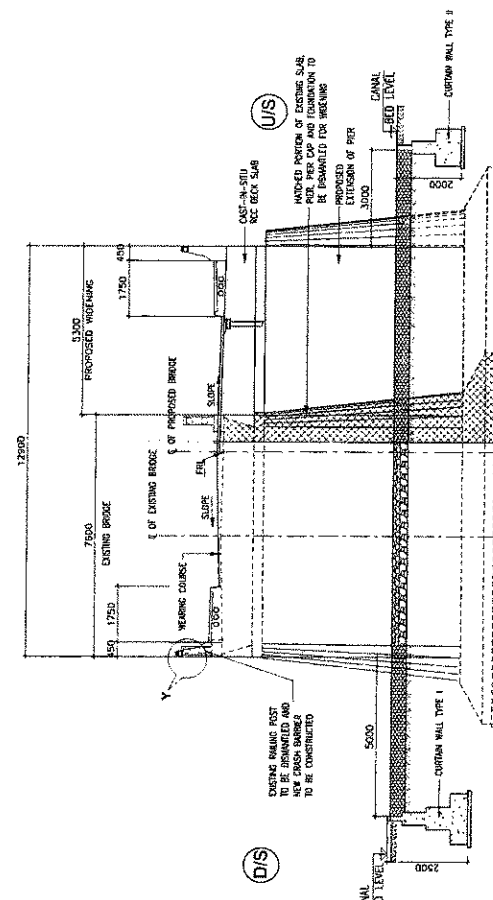
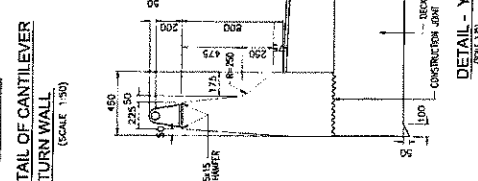
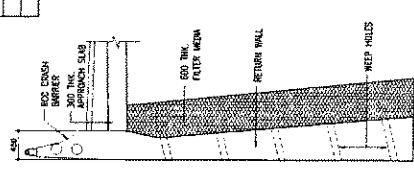
Backbone-Utkal (JV)
(Contractor)
Shobhit Pattanayak
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, 653K

1	Existing Chainage	2145
2	Proposed Chainage	2162
3	Name of the Railway	Kharis Bridge
4	Year of Construction	
5	Type of bridge	High level bridge
6	Existing span arrangement	5 x 8.8 m
7	Existing carriage way width	7.6 m
8	Thickness of superstructure	0.8 m
9	Type of foundation	Open foundation
10	Type of substructure	RCC wall type
11	Type of superstructure	RCC solid slab
12	Final Formation Level	Follow Highway Plan & Profile
13	Final Formation Level	Follow Highway Plan & Profile
14	Bed Level	Follow Highway Plan & Profile
15	Distance of F.C.L. w.r.t. E.C.L.	Follow Highway Plan & Profile



NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETRES. LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT OF DRAWING SHEET 1 OF 2 OF THIS DRAWING.



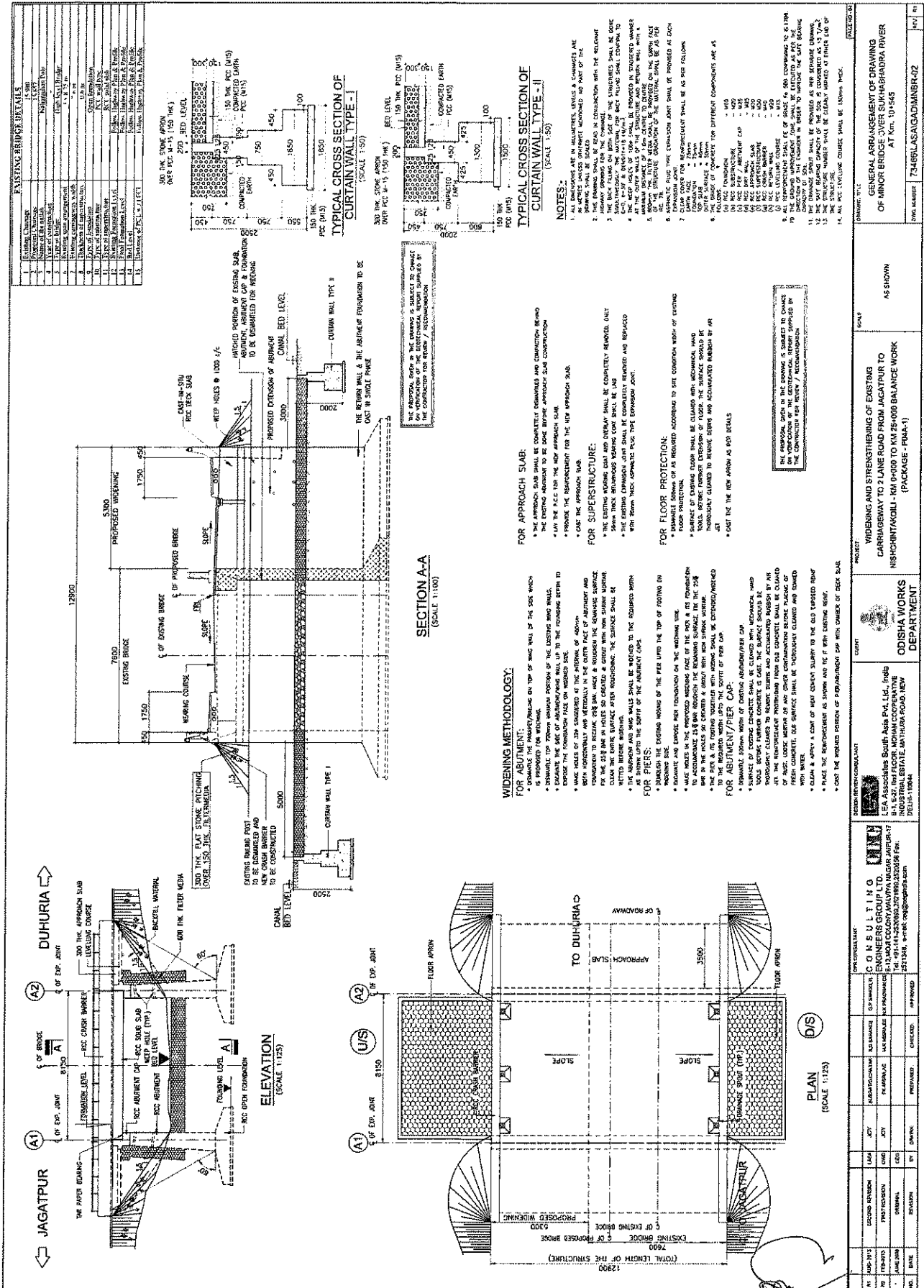
THE PROPOSED DATA IN THE DRAWING IS SUBJECT TO CHANGE ON THE VARIATION OF THE ELECTRICAL WORK SUPPLIED BY THE SUPPLIER.

For Backbone-Utkal (VV)
 Signature: [Handwritten Signature]
 Backbone-Utkal (VV)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Signature: [Handwritten Signature]
 Chief Engineer
 World Bank
 Os, the E.I.C.O., World Bank

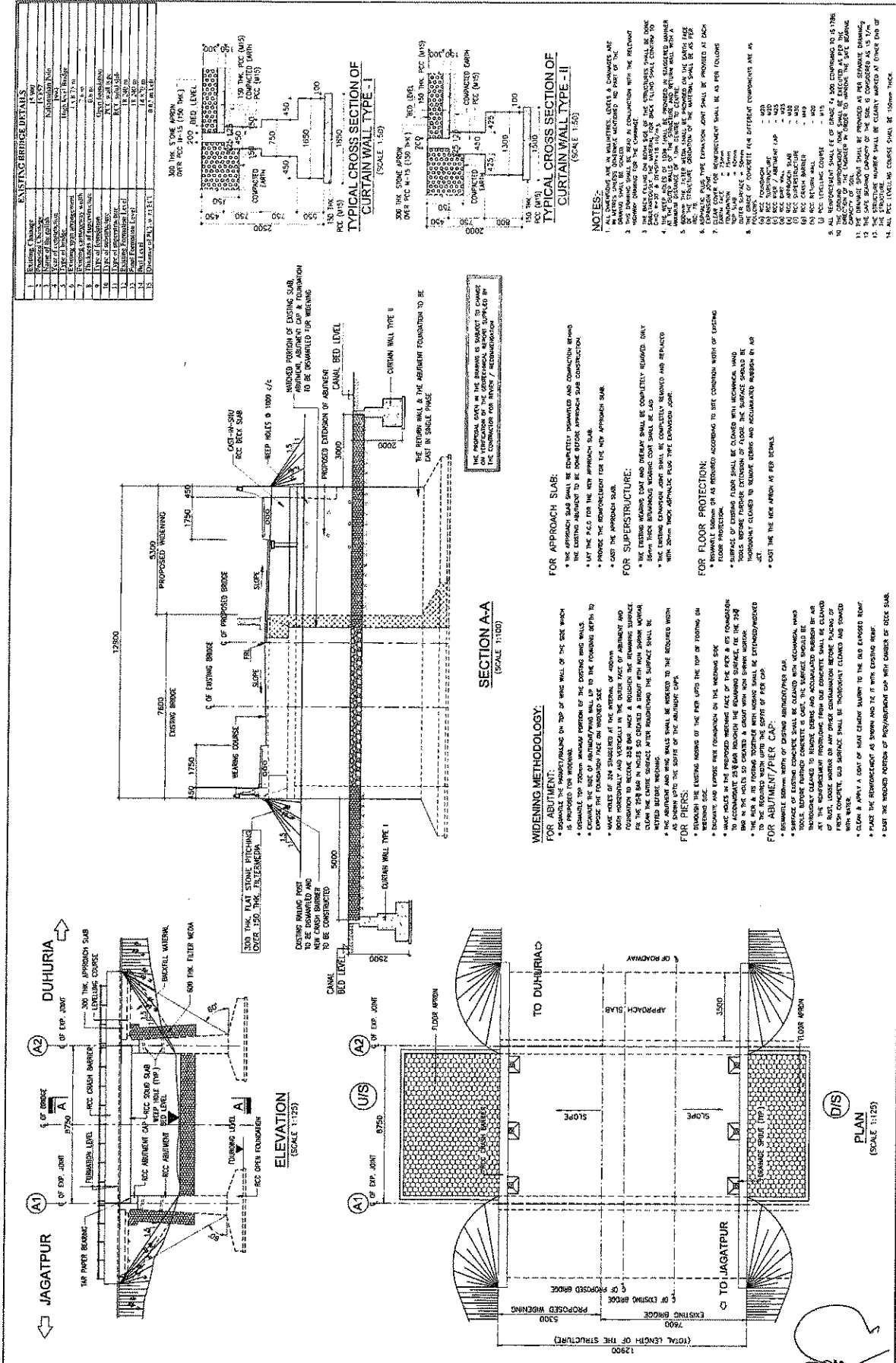
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PROJECT TITLE	GENERAL ARRANGEMENT OF DRAWING OF MINOR BRIDGE OVER KHARISA CANAL AT Km. 2.062
SCALE	AS SHOWN
PACAGE - PM/4-1	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGTIPUR TO NISHCHINTAKOIL - KM 0-100 TO KM 20-100 BALANCE WORK (PACKAGE - PM/4-1)
DEPARTMENT	ODISHA WORKS DEPARTMENT
CONSULTANT	CONSULTANTS CON S U I L T I N G ENGINEERS GROUP LTD. India LEA Associates South Asia Pvt Ltd, India INDUSTRIAL SERVICE AND INFRASTRUCTURE OPE-104-110/04
DESIGNER	[Handwritten Name]
CHECKER	[Handwritten Name]
APPROVER	[Handwritten Name]
DATE	[Handwritten Date]
BY	[Handwritten Name]
DATE	[Handwritten Date]



Backbone-Utkal (JV)
 (Contractor)
 for Backbone-Utkal (JV)
 Subirank Pattanayak
 Authorized Signatory

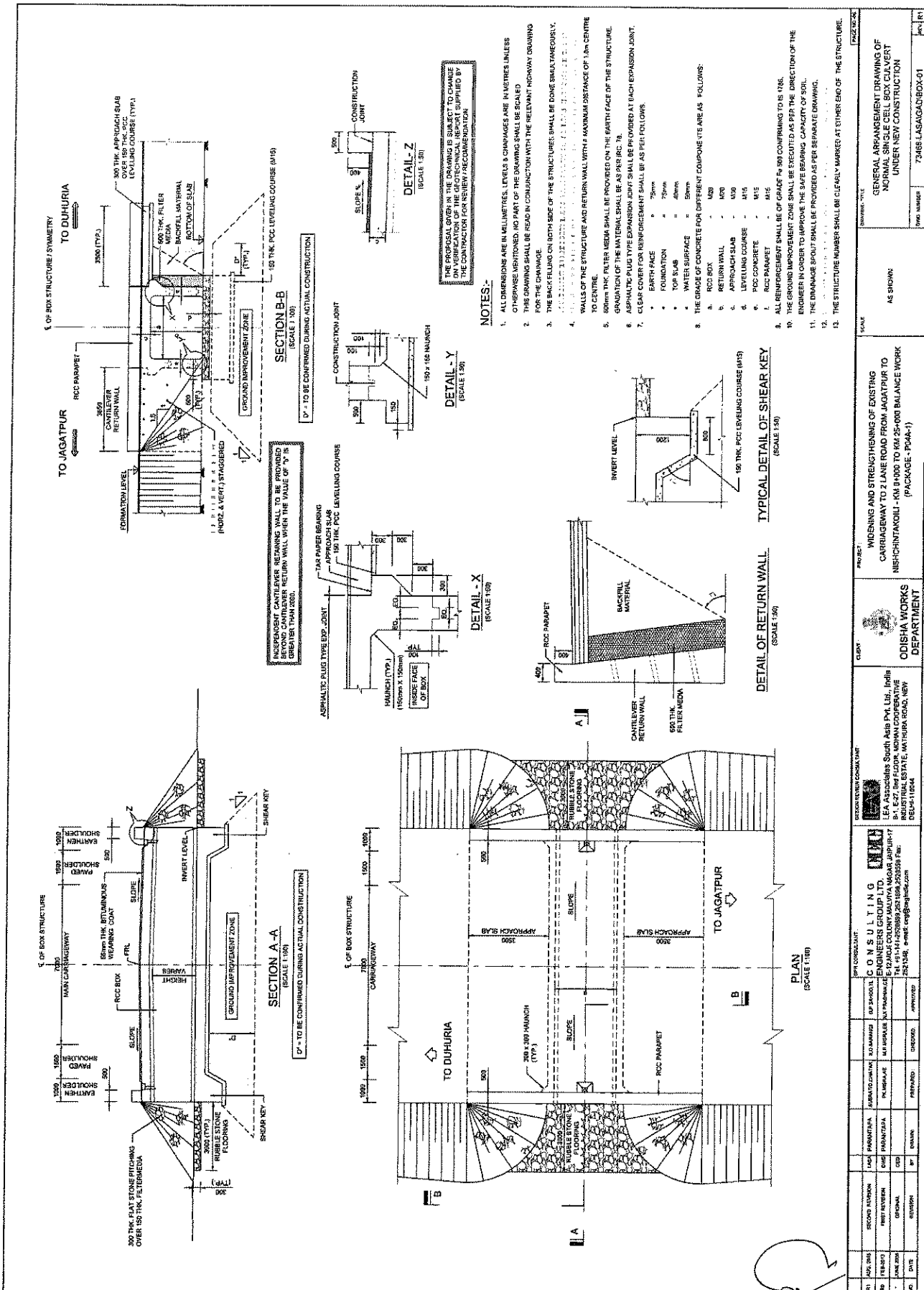
Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 On the E.I.C.C, Odisha, EBSR



EXISTING BRIDGE DETAILS 1. Existing Structure: 15 Year 2. Name of the Bridge: Mahabharata Bridge 3. Year of Construction: 1970 4. Span Length: 150 m 5. Deck Width: 12.0 m 6. Existing Superstructure: RCC 7. Existing Substructure: RCC 8. Type of Foundation: Pile 9. Type of Approach: RCC 10. Type of Abutment: RCC 11. Type of Pier: RCC 12. Type of Deck: RCC 13. Type of Pavement: Bit 14. Type of Drainage: Bit 15. Type of Lighting: Bit		GENERAL ARRANGEMENT OF DRAWING OF BRIDGE COVER BALACHAN POLIG AT Km. 19.80
NOTES: 1. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. THE ARCH SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 2. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 3. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 4. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 5. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 6. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 7. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 8. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 9. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 10. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 11. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 12. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 13. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB. 14. THE BRIDGE SHALL BE RECONSTRUCTED WITH THE EXISTING ARCH AND APPROACH SLAB.		
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Backbone-Utkal (JV)
 (Contractor)
Shanish Pattanayak
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 Odisha E.I.C.C., Odisha, EBSR



Shri B. S. Mishra (Utkal JV)
(Contractor)
[Signature]
Authorized Signatory

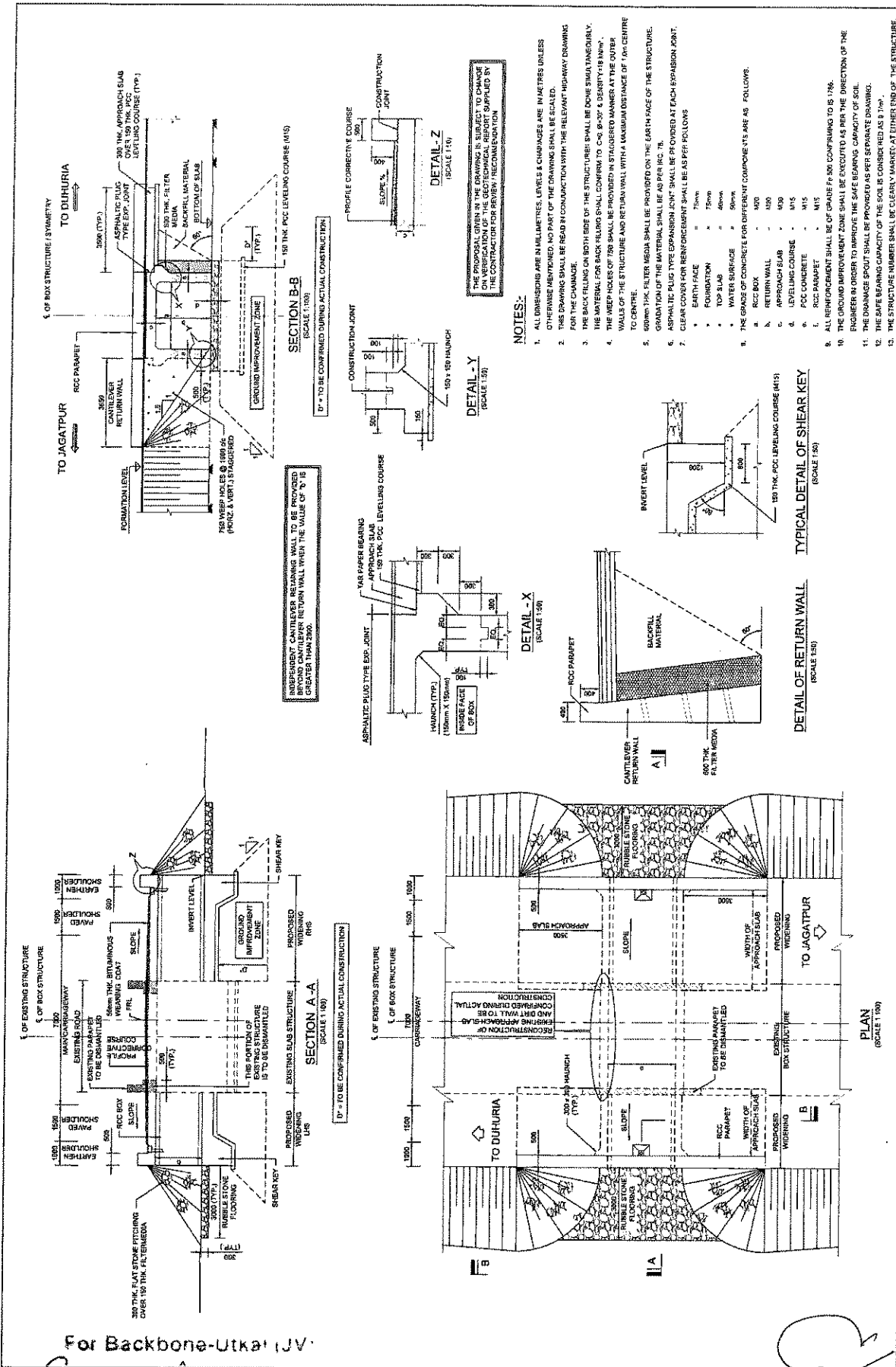
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
C/o the F.I.C.C., Cuttack, 753001

NO	DATE	REVISION	BY	CHKD	APP'D	DESCR
01	14.02.2014					
02	17.07.2014					
03	14.06.2014					
04	14.06.2014					

DESIGNED	APPROVED	DATE	BY

DR	SR	CH	IN	AP	SR	CH	IN	AP

PROJECT	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAPUR - KM 4+000 TO KM 25+000 BALANCE WORK (PACKAGE - PG04-1)
CLIENT	ODISHA WORKS DEPARTMENT
DESIGNER	LEA Associates South Asia Pvt. Ltd., India 100/1, 100/2, 100/3, 100/4, 100/5, 100/6, 100/7, 100/8, 100/9, 100/10, 100/11, 100/12, 100/13, 100/14, 100/15, 100/16, 100/17, 100/18, 100/19, 100/20, 100/21, 100/22, 100/23, 100/24, 100/25, 100/26, 100/27, 100/28, 100/29, 100/30, 100/31, 100/32, 100/33, 100/34, 100/35, 100/36, 100/37, 100/38, 100/39, 100/40, 100/41, 100/42, 100/43, 100/44, 100/45, 100/46, 100/47, 100/48, 100/49, 100/50, 100/51, 100/52, 100/53, 100/54, 100/55, 100/56, 100/57, 100/58, 100/59, 100/60, 100/61, 100/62, 100/63, 100/64, 100/65, 100/66, 100/67, 100/68, 100/69, 100/70, 100/71, 100/72, 100/73, 100/74, 100/75, 100/76, 100/77, 100/78, 100/79, 100/80, 100/81, 100/82, 100/83, 100/84, 100/85, 100/86, 100/87, 100/88, 100/89, 100/90, 100/91, 100/92, 100/93, 100/94, 100/95, 100/96, 100/97, 100/98, 100/99, 100/100

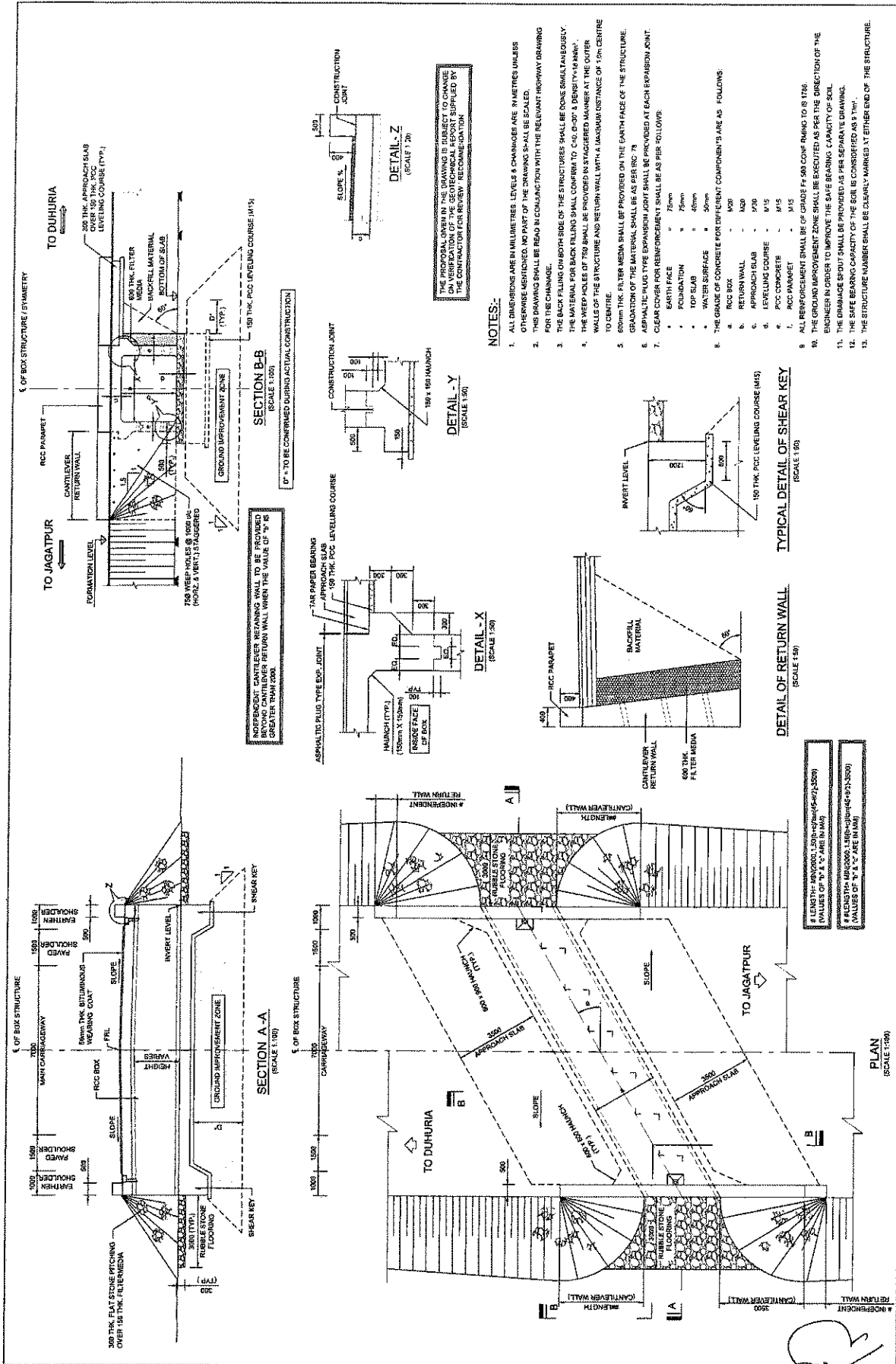


For Backbone-Utkal JV
 Subhash Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o Ins. E.I.C.(C), Cuttack, ODSR

PROJECT TITLE		GENERAL ARRANGEMENT DRAWING OF NORMAL SINGLE CELL BOX CULVERT UNDER WIDENING	
AS SHOWN		754816ASALC/AD/BOX-02	
PROJECT		WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKULI - KM 0+00 TO KM 25+000 BALANCE WORK (PACKAGE - PKWA-1)	
COUNTY		ODISHA WORKS DEPARTMENT	
DESIGNER'S CONSULTANT		LEA Associates South Asia P.M. Ltd., India B-1, 6/7, 1st FLOOR, WOMAN CORPORATIVE BUILDING, STATE, JAGATPUR ROAD, NEW DELHI-110044	
DRAWING NO.		25	
DATE		15/08/2016	
APPROVED BY		[Signature]	
DESIGNED BY		[Signature]	
CHECKED BY		[Signature]	
DATE		15/08/2016	



NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES LEVELS & CHANGES ARE IN METRES UNLESS OTHERWISE MENTIONED. NO PART OF THE DRAWING SHALL BE SCALED.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT HIGHWAY DRAWING FOR THE CHANINEE.
3. THE BACK FILLING ON BOTH SIDE OF THE STRUCTURES SHALL BE DONE SIMULTANEOUSLY. THE MATERIAL FOR BACK FILLING SHALL CONFORM TO C-40-D-30'S DENSITY 18 MINN.
4. THE WEAP HOLES OF 750 SHALL BE PROVIDED IN STAGGERED MANNER AT THE OUTER WALLS OF THE STRUCTURE AND RETURN WALL WITH A MAXIMUM DISTANCE OF 1.0m CENTRE TO CENTRE.
5. 60mm THK. FILTER MEDIA SHALL BE PROVIDED ON THE EARTH FACE OF THE STRUCTURE. GRADATION OF THE MATERIAL SHALL BE AS PER IRC 78
6. ASPHALTIC PLUG TYPE EXPANSION JOINT SHALL BE PROVIDED AT EACH EXPANSION JOINT. CLEAR COVER FOR REINFORCEMENT SHALL BE AS PER FOLLOWS:
 - a. EARTH FACE = 75mm
 - b. FOUNDATION = 75mm
 - c. TOP SLAB = 40mm
 - d. WATER SURFACE = 50mm
7. THE GRADE OF CONCRETE FOR DIFFERENT COMPONENTS ARE AS FOLLOWS:
 - a. RCC BOX = M20
 - b. RETURN WALL = M20
 - c. APPROACH SLAB = M20
 - d. LEVELLING COURSE = M15
 - e. PCC CONCRETE = M15
 - f. RCC PARAPET = M15
8. ALL REINFORCEMENT SHALL BE OF GRADE Fe 500 CONFORMING TO IS 1786.
9. THE GROUND IMPROVEMENT ZONE SHALL BE EXECUTED AS PER THE DIRECTION OF THE ENGINEER IN ORDER TO IMPROVE THE SAFE BEARING CAPACITY OF SOIL.
10. THE DRAINAGE SLOPE SHALL BE PROVIDED AS PER SEPARATE DRAWING.
11. THE SAFE BEARING CAPACITY OF THE SOIL IS CONSIDERED AS 9 T/m².
12. THE STRUCTURE NUMBER SHALL BE CLEARLY MARKED AT EITHER END OF THE STRUCTURE.

IF THE PROPOSED STRUCTURE IS TO BE CONSTRUCTED IN THE EXISTING ROAD, THE VALUES OF 'V' & 'C' ARE IN MM.

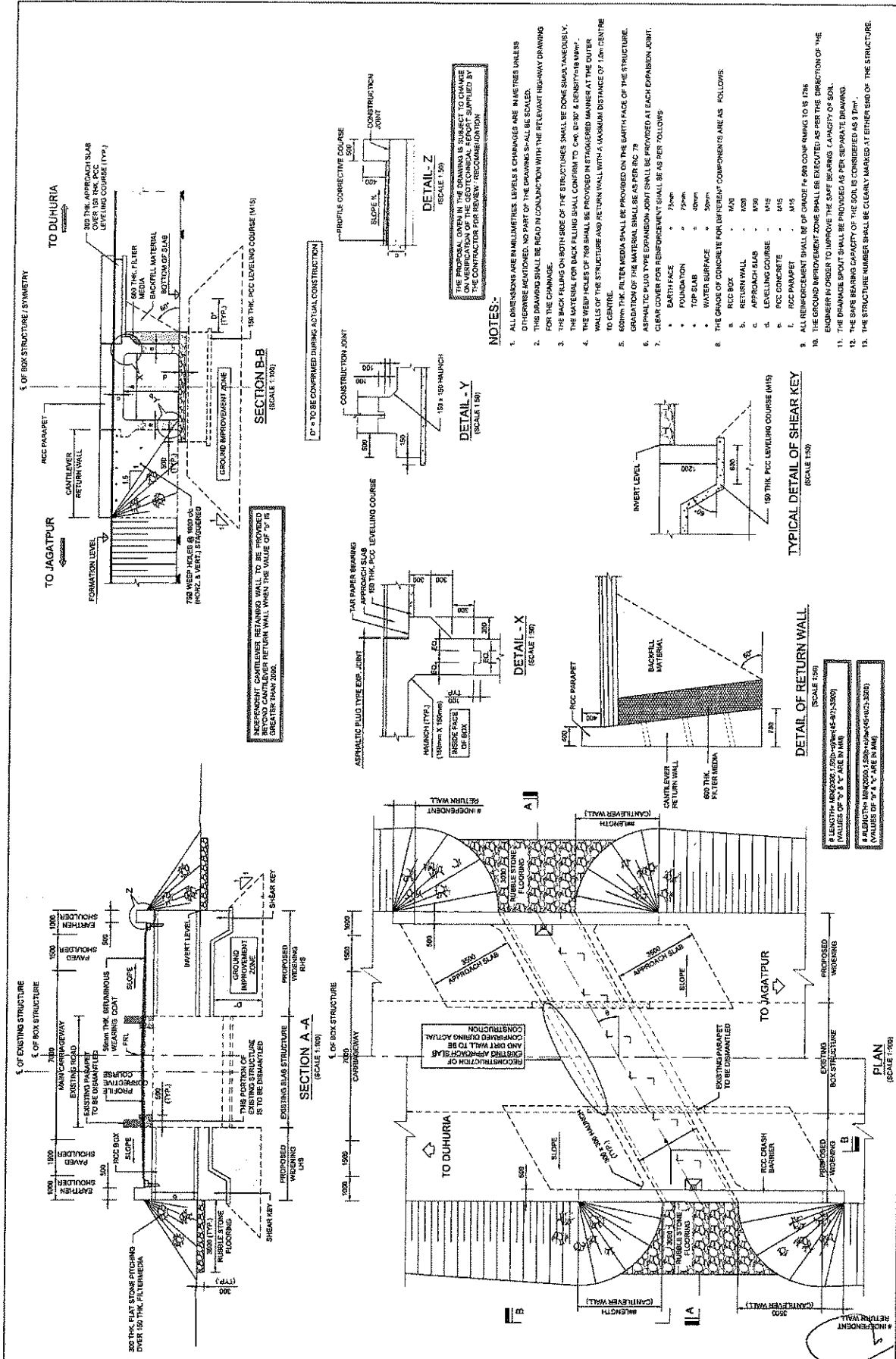
SENSITIVE MICROSOFT EXCEL SHEET (40x15) (VALUES OF 'V' & 'C' ARE IN MM)

NO.	DATE	REVISION	BY	APPROVED	DATE
01	24.06.2015	ISSUED FOR TENDER	DR	DR	
02	24.06.2015	FOR PRELIMINARY APPROVAL	DR	DR	
03	24.06.2015	FOR PRELIMINARY APPROVAL	DR	DR	
04	24.06.2015	FOR PRELIMINARY APPROVAL	DR	DR	
05	24.06.2015	FOR PRELIMINARY APPROVAL	DR	DR	

PROJECT CONSULTANT	ODISHA WORKS DEPARTMENT	COUNTY	ODISHA WORKS DEPARTMENT
DESIGNER	ODISHA WORKS DEPARTMENT	SCALE	AS SHOWN
DRAWN	ODISHA WORKS DEPARTMENT	DRAWING TITLE	GENERAL ARRANGEMENT DRAWING OF SKEW SINGLE CELL BOX CULVERT UNDER NEW CONSTRUCTION
CHECKED	ODISHA WORKS DEPARTMENT	DATE	24.06.2015
APPROVED	ODISHA WORKS DEPARTMENT	DRAWING NO.	734818183AGAD1004-03

Backbone-Utkal (JV)
(Contractor) of Backbone-Utkal (JV)
Shihard Pattanayak
Authorized Signatory

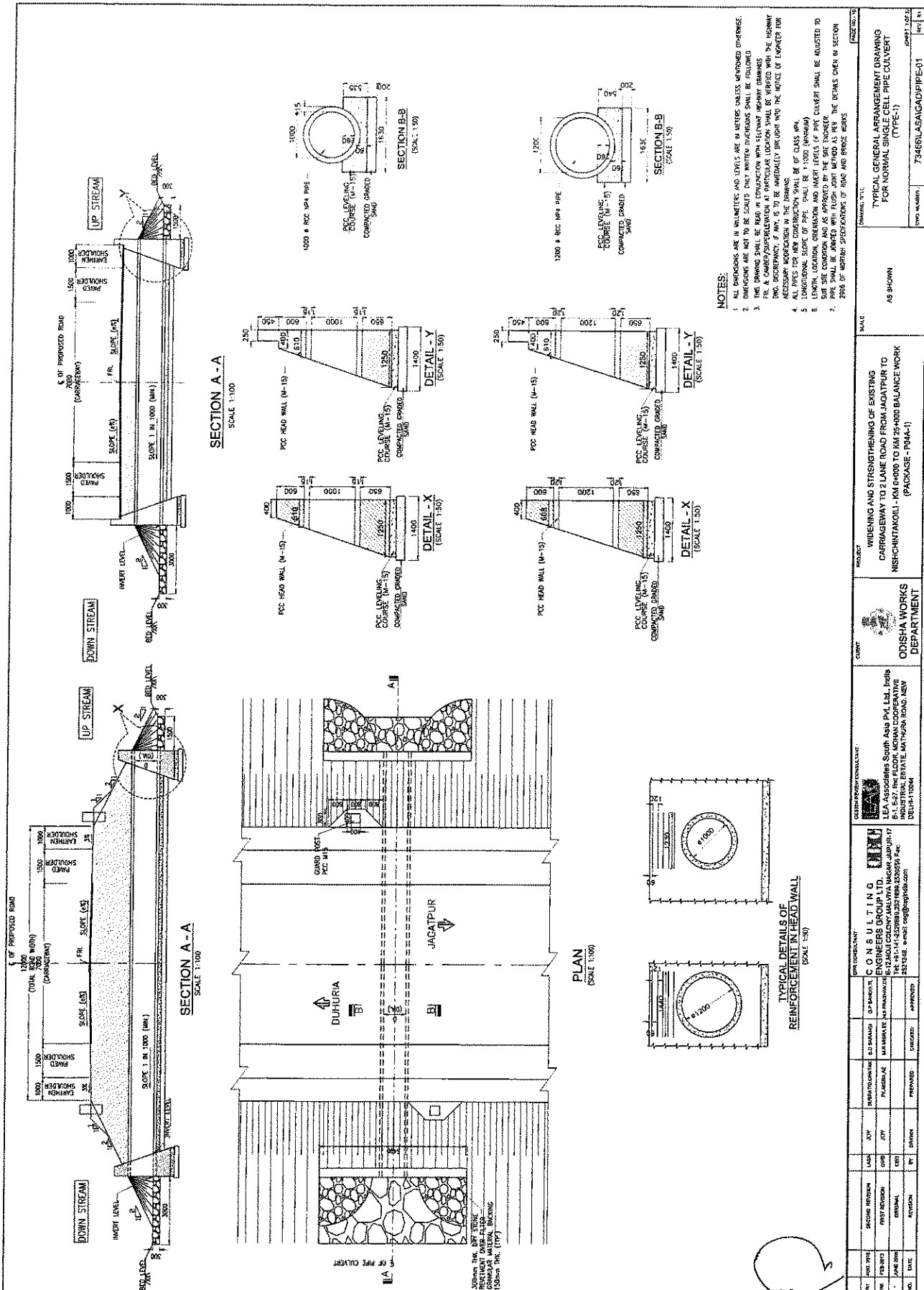
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, EBSR



PROJECT		GENERAL ARRANGEMENT DRAWING OF SKEW SINGLE CELL BOX CULVERT UNDER WIDENING	
DRAWING NO.		734681AS/AS/AD/BOX-14	
SCALE		AS SHOWN	
PROJECT LOCATION		WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO CLANE ROAD FROM JAGATPUR TO NISHCHINTAKOIL - KM 0+00 TO KM 25+00 BALANCE WORK (PACKAGE - 090A-1)	
CLIENT		ODISHA WORKS DEPARTMENT	
DESIGNER		LEA ASSOCIATES SOUTH ASIA PVT. LTD., INDIA MO: 98260 22000, 98260 22001 INDUSTRIAL ESTATE, BILUPADA ROAD, Bhubaneswar OR-751 004	
DATE		15/08/2017	
DRAWN BY		SANKU	
CHECKED BY		SANKU	
APPROVED BY		SANKU	
SCALE		SCALE 1:100	

Backbone-Utkal (JV)
 Backbone-Utkal (JV)
 Shantik Pattnayak
 Authorized Signatory

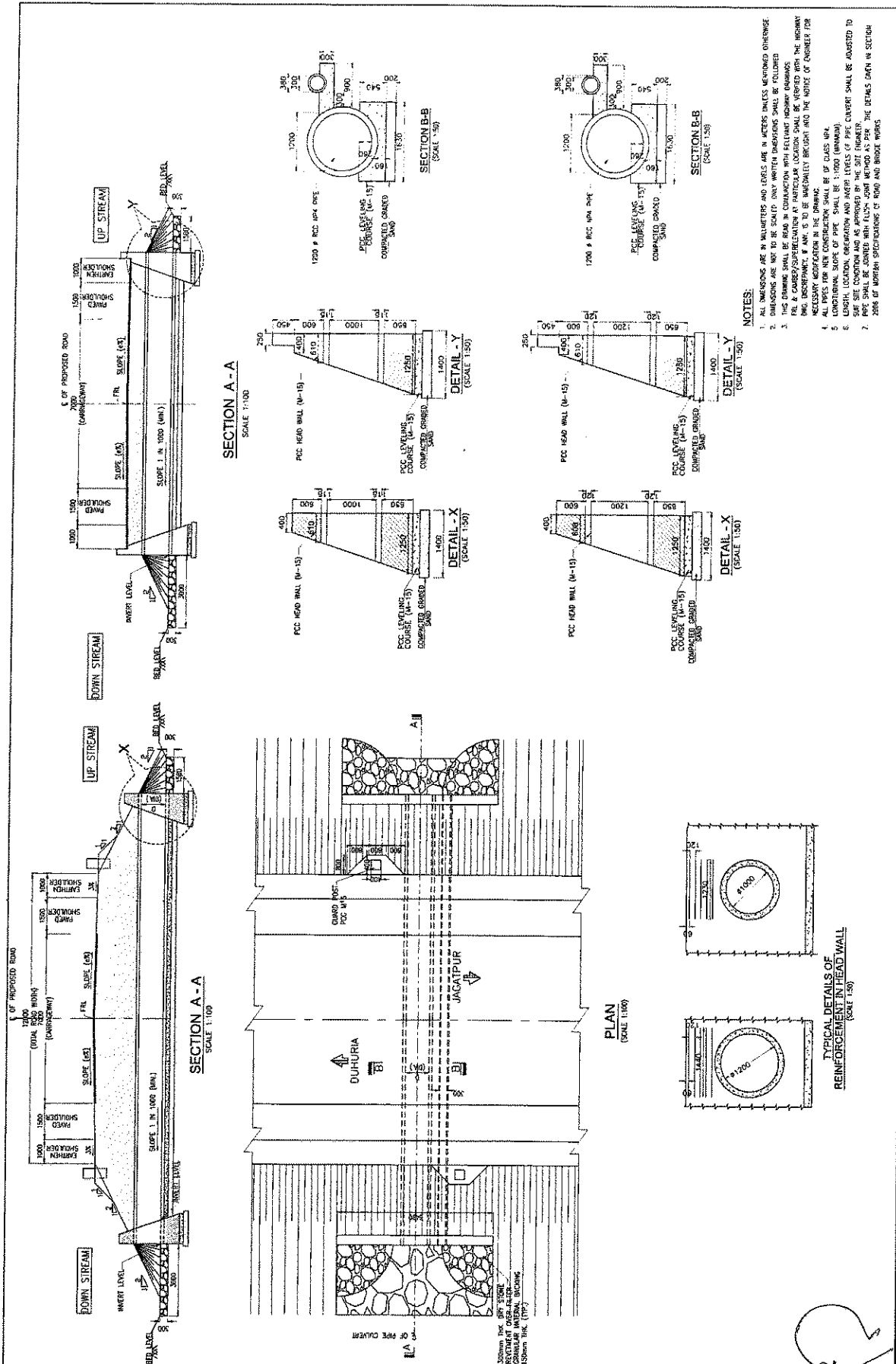
Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, EBSR



NO.	DATE	BY	CHKD.	APPD.	REVISION
1	15/01/2017	SK	SK	SK	
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3	15/01/2017	SK	SK	SK	
4	15/01/2017	SK	SK	SK	
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7	15/01/2017	SK	SK	SK	
8	15/01/2017	SK	SK	SK	
9	15/01/2017	SK	SK	SK	
10	15/01/2017	SK	SK	SK	

Backbone-Utkal (JV)
(Contractor)
Shivani Pattanayak
Authorized Signatory

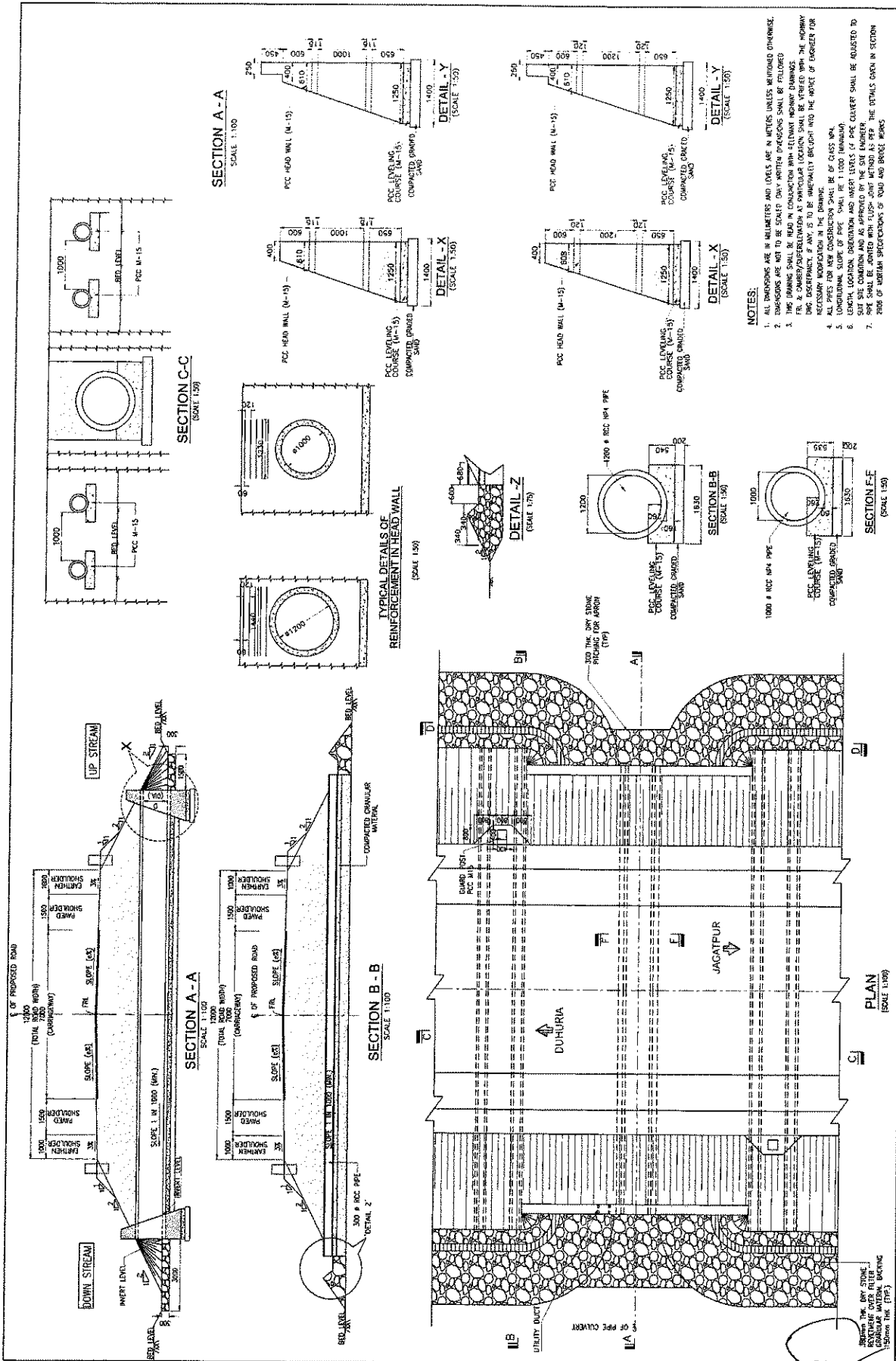
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
O/o the E.I.C.O, Odisha, BBSR



PROJECT TITLE		DRAWING TITLE		SCALE		PROJECT		CLIENT		DESIGN REVIEW COORDINATOR		DATE		
TYPICAL GENERAL ARRANGEMENT DRAWING FOR INDIVIDUAL SINGLE CELL PIPE CULVERT (TYPE-C)		FOR INDIVIDUAL SINGLE CELL PIPE CULVERT (TYPE-C)		AS SHOWN		INDISING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOLI - KM 0+00 TO KM 29+000 BALANCE WORK (PACKAGE - P04A-1)		ODISHA WORKS DEPARTMENT		LEA Associates South Asia P. Ltd., India 107/11/11/2009/3287889/2009/17 INDIA 751 001, INDIAN COOPERATIVE ROADWAYS PVT. LTD. WASHINGTON, DC, USA DELHI-110044		01/01/2010		
NO.	DATE	BY	CHKD.	APPD.	REVISED	DATE	BY	CHKD.	APPD.	REVISION	DATE	BY	CHKD.	APPD.
01	01/01/2010													
02	01/01/2010													

Backbone-Utkal (JV)
(Contractor)
Sushant Pattanayak
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o In-charge, Odisha, BBSR



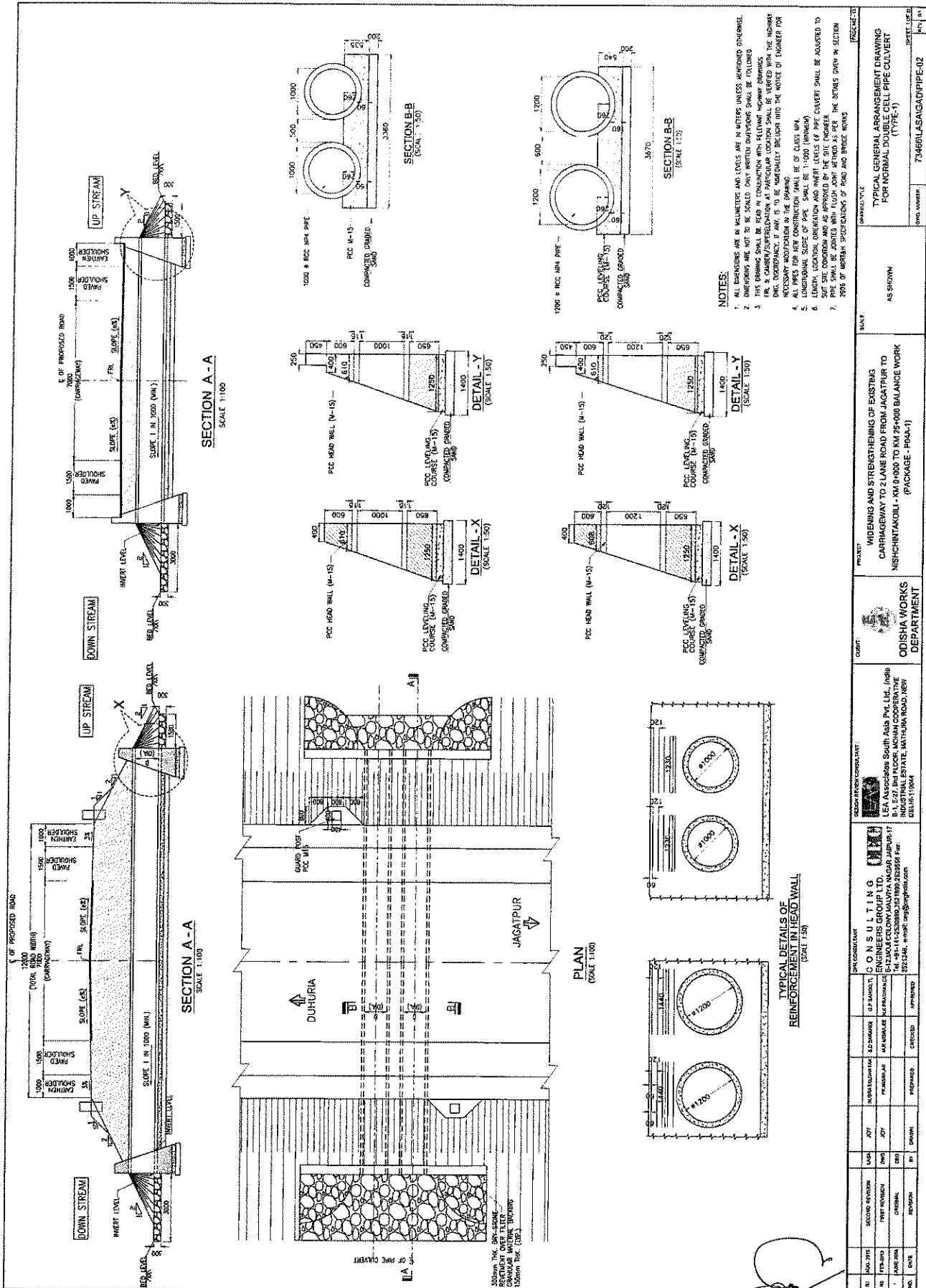
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO BE SCALE'D UNLESS OTHERWISE SPECIFIED.
 3. THE DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT DRAWINGS.
 4. ANY DISCREPANCY, IF ANY, IS TO BE IMMEDIATELY BRING TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
 5. ALL PIPES FOR NEW CONSTRUCTION SHALL BE OF CLASS NPA.
 6. LONGITUDINAL SLOPE, ORIENTATION AND WATER LEVELS OF PIPE CULVERT SHALL BE ADJUSTED TO MATCH WITH THE EXISTING ROAD PROFILE AND THE DETAILS GIVEN IN SECTION.
 7. PIPE SHALL BE JOINED WITH GASKET AND THE JOINT SHALL BE MADE AS PER THE DETAILS GIVEN IN SECTION.
 8. 200G OF WEIRBAR SPECIFICATIONS AS VOID AND BRIDGE WORKS.

PROJECT TITLE		SCALE	
TYPICAL GENERAL ARRANGEMENT DRAWING FOR NORMAL SINGLE CELL PIPE CULVERT (TYPE-5)		AS SHOWN	
DRAWING NO.		73486(LASAGAD)PIPE-01	
PROJECT NO.		OSRP-CW-ICB-P04A1	
PROJECT LOCATION		MIDDING AND STRENGTHENING OF EXISTING CARBONWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOLI - KM 0+00 TO KM 25+00 BALANCE WORK (PACKAGE - P04A-1)	
CLIENT		ODISHA WORKS DEPARTMENT	
CONSULTANT NAME		LEA Associates South Asia Pvt. Ltd., India LOCAL MOBILE COORDINATOR INDUSTRIAL PARK-12, MIDC ROAD, NEW DELHI-110044	
CONSULTANT ADDRESS		E-12 ADOL COLONY, MAULANA NAGAR, JALPAIGURI, WEST BENGAL-741005, INDIA Tel: 091-11-26089323, 9891-235056 Fm. Fax: 091-11-26089323, 9891-235056 Fm. Email: info@leaassociates.com	
NO.	DATE	BY	CHKD.
01	15.08.2015	DR	DR
02	15.08.2015	DR	DR
03	15.08.2015	DR	DR
04	15.08.2015	DR	DR
05	15.08.2015	DR	DR
06	15.08.2015	DR	DR
07	15.08.2015	DR	DR
08	15.08.2015	DR	DR
09	15.08.2015	DR	DR
10	15.08.2015	DR	DR
11	15.08.2015	DR	DR
12	15.08.2015	DR	DR
13	15.08.2015	DR	DR
14	15.08.2015	DR	DR
15	15.08.2015	DR	DR
16	15.08.2015	DR	DR
17	15.08.2015	DR	DR
18	15.08.2015	DR	DR
19	15.08.2015	DR	DR
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21	15.08.2015	DR	DR
22	15.08.2015	DR	DR
23	15.08.2015	DR	DR
24	15.08.2015	DR	DR
25	15.08.2015	DR	DR
26	15.08.2015	DR	DR
27	15.08.2015	DR	DR
28	15.08.2015	DR	DR
29	15.08.2015	DR	DR
30	15.08.2015	DR	DR
31	15.08.2015	DR	DR
32	15.08.2015	DR	DR
33	15.08.2015	DR	DR
34	15.08.2015	DR	DR
35	15.08.2015	DR	DR
36	15.08.2015	DR	DR
37	15.08.2015	DR	DR
38	15.08.2015	DR	DR
39	15.08.2015	DR	DR
40	15.08.2015	DR	DR
41	15.08.2015	DR	DR
42	15.08.2015	DR	DR
43	15.08.2015	DR	DR
44	15.08.2015	DR	DR
45	15.08.2015	DR	DR
46	15.08.2015	DR	DR
47	15.08.2015	DR	DR
48	15.08.2015	DR	DR
49	15.08.2015	DR	DR
50	15.08.2015	DR	DR

Backbone-Utkal (JV)
(Contractor)
Shivani Pattnayak
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
Of the E.I.C.(C), Odisha, BSR



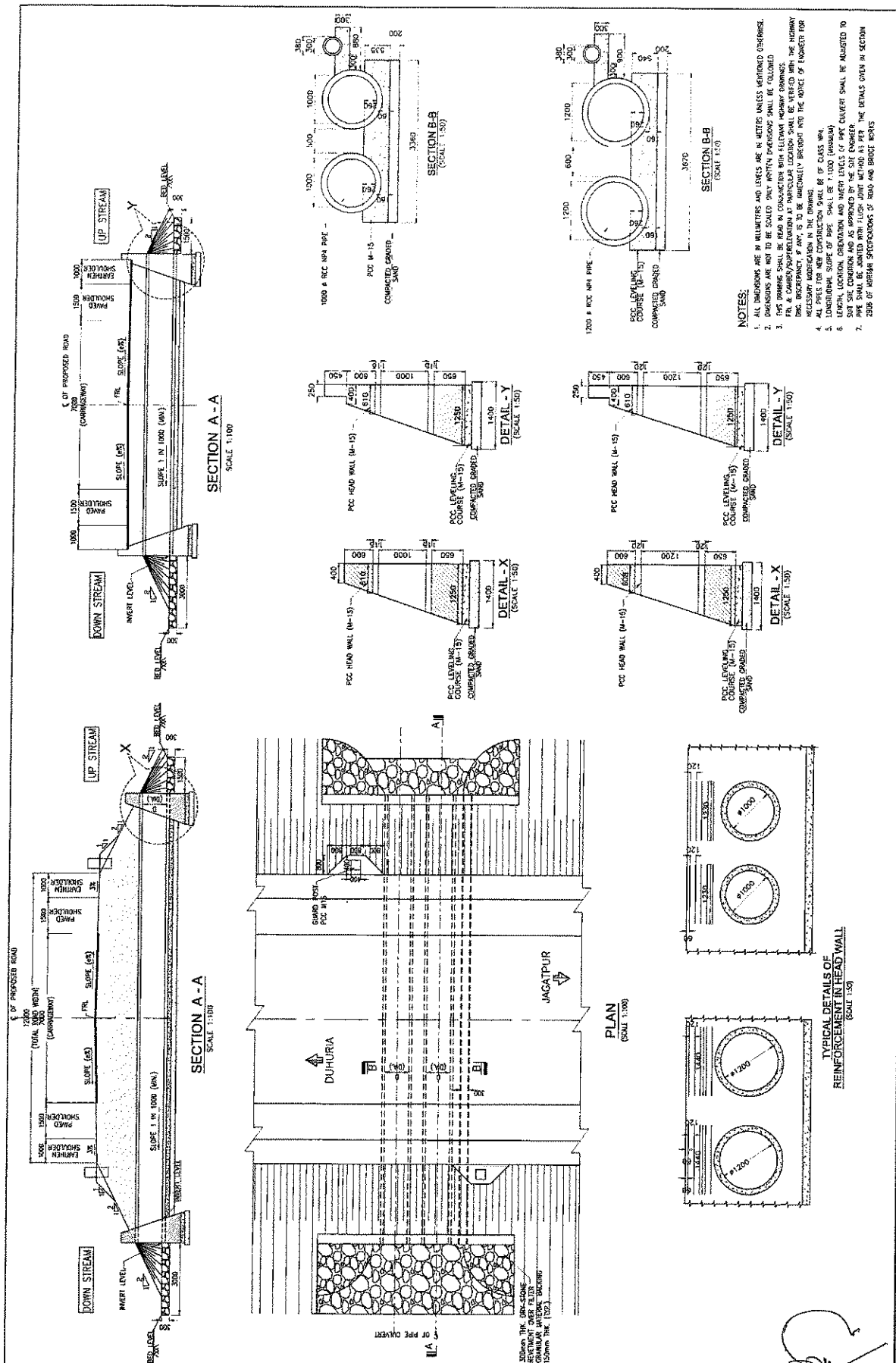
PROJECT		WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO CLANE ROAD FROM JAGATPUR TO NISHCHINTAKOLI - KM 0+00 TO KM 25+00 BALANCE WORK (PACKAGE - PMAA-1)	
DEPARTMENT		ODISHA WORKS DEPARTMENT	
CONSULTANT		<p>LEA Associates South Asia Pvt. Ltd., India 11th Floor, Acharya Jagadish Chandra Bose Industrial Estate, Jagatpur Road, Bhubaneswar Distt. Bhubaneswar - 751004</p> <p>C.N.S.U.I.T.I.N.G. ENGINEERS GROUP LTD. 5/2, KOLICOLONY, MALAYA NAGAR, JALPAIGURI-75 Distt. Jalpaiguri, West Bengal, India Tel: 91-91-328899, 328899, 328899 Fax: 91-91-328899, 328899, 328899 E-mail: cnsgroup@gmail.com</p>	
NO.	DATE	BY	APPROVED
1	10.08.2014	CHANDRA	CHIEF ENGINEER
2	10.08.2014	CHANDRA	CHIEF ENGINEER
3	10.08.2014	CHANDRA	CHIEF ENGINEER
4	10.08.2014	CHANDRA	CHIEF ENGINEER
5	10.08.2014	CHANDRA	CHIEF ENGINEER
6	10.08.2014	CHANDRA	CHIEF ENGINEER
7	10.08.2014	CHANDRA	CHIEF ENGINEER
8	10.08.2014	CHANDRA	CHIEF ENGINEER
9	10.08.2014	CHANDRA	CHIEF ENGINEER
10	10.08.2014	CHANDRA	CHIEF ENGINEER
11	10.08.2014	CHANDRA	CHIEF ENGINEER
12	10.08.2014	CHANDRA	CHIEF ENGINEER
13	10.08.2014	CHANDRA	CHIEF ENGINEER
14	10.08.2014	CHANDRA	CHIEF ENGINEER
15	10.08.2014	CHANDRA	CHIEF ENGINEER
16	10.08.2014	CHANDRA	CHIEF ENGINEER
17	10.08.2014	CHANDRA	CHIEF ENGINEER
18	10.08.2014	CHANDRA	CHIEF ENGINEER
19	10.08.2014	CHANDRA	CHIEF ENGINEER
20	10.08.2014	CHANDRA	CHIEF ENGINEER
21	10.08.2014	CHANDRA	CHIEF ENGINEER
22	10.08.2014	CHANDRA	CHIEF ENGINEER
23	10.08.2014	CHANDRA	CHIEF ENGINEER
24	10.08.2014	CHANDRA	CHIEF ENGINEER
25	10.08.2014	CHANDRA	CHIEF ENGINEER
26	10.08.2014	CHANDRA	CHIEF ENGINEER
27	10.08.2014	CHANDRA	CHIEF ENGINEER
28	10.08.2014	CHANDRA	CHIEF ENGINEER
29	10.08.2014	CHANDRA	CHIEF ENGINEER
30	10.08.2014	CHANDRA	CHIEF ENGINEER

Backbone - Utkal JV:
(Contractor)

Shwain Kumar
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer,
World Bank Projects
O/o the E.I.C.(O), Odisha, BSK

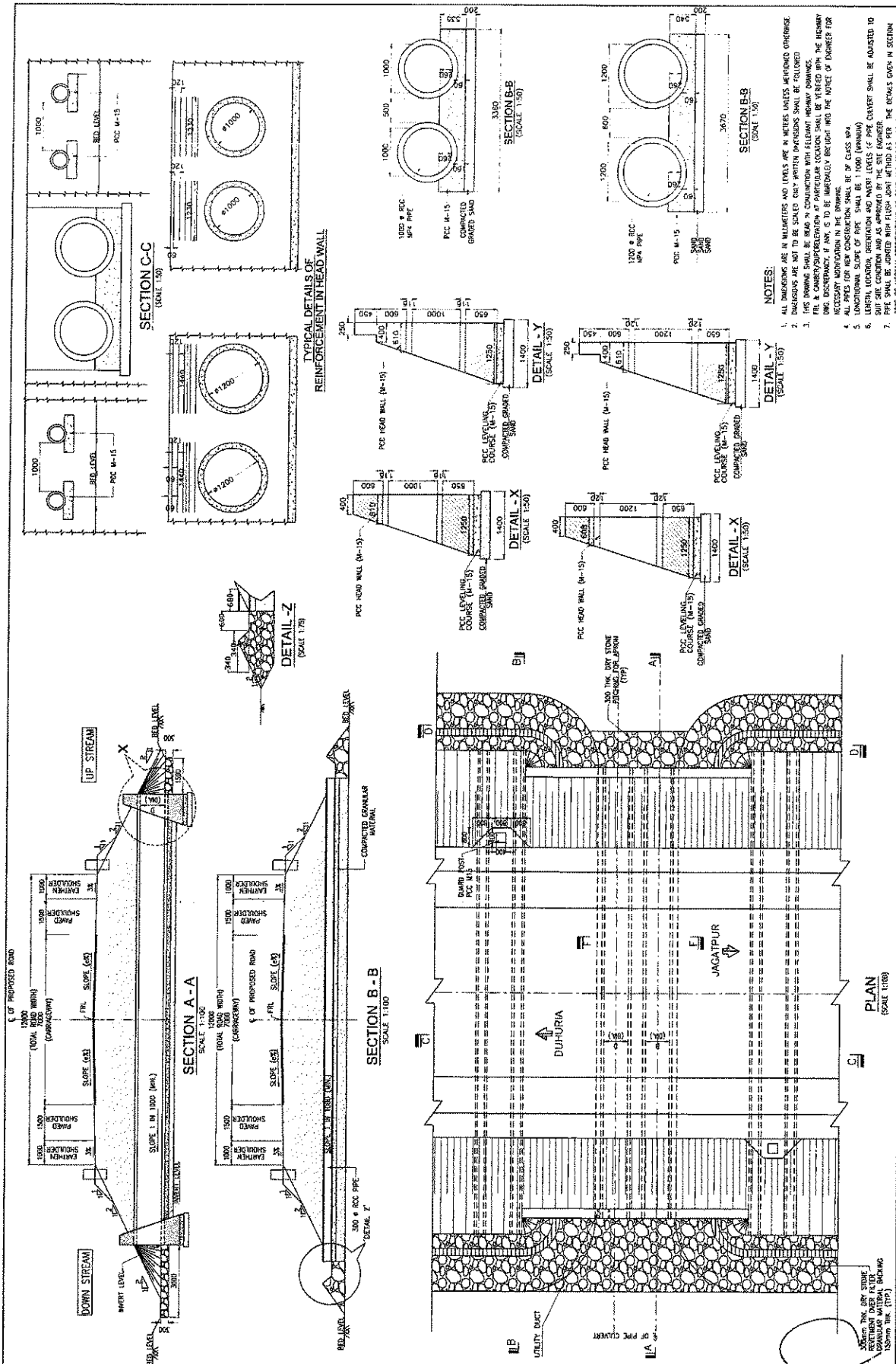


- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS MENTIONED OTHERWISE.
 2. DIMENSIONS ARE NOT TO BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. THE DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROPRIATE DRAWINGS.
 4. ANY VARIATION OR MODIFICATION AT PARTICULAR LOCATION SHALL BE PERMITTED WITH THE HIGHWAY DEPARTMENT'S APPROVAL.
 5. NECESSARY MODIFICATIONS IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT INTO THE NOTICE OF ENGINEER FOR THE PROJECT.
 6. ALL PIPES FOR NEW CONSTRUCTION SHALL BE OF CLASS NPA.
 7. LENGTH, LOCATION, ORIENTATION AND INVERT LEVELS OF PIPE CHAMBER SHALL BE ADJUSTED TO SUIT THE CONDITION AND AS APPROVED BY THE SITE ENGINEER.
 8. THE DETAILS OF THE PIPE CHAMBER SHALL BE AS SHOWN IN SECTION B-B.
 9. THE DETAILS OF THE HEAD WALL SHALL BE AS SHOWN IN SECTION A-A.

<p>PROJECT: HIDING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO PLANE ROAD FROM JAGATPUR TO NISHCHINTANKOLI - KM 0+000 TO KM 25+000 BALANCE WORK (PACKAGE - P04A-1)</p>		<p>SCALE: AS SHOWN</p>	<p>DATE: 14/08/2014</p>
<p>DESIGNER: P.T.</p>		<p>73466LASAGADPIPE-02</p>	<p>14/08/2014</p>
<p>DEPARTMENT: ODISHA WORKS DEPARTMENT</p>		<p>73466LASAGADPIPE-02</p>	<p>14/08/2014</p>
<p>CONTRACTOR: Backbone-Utkal (JV) (Contractor)</p>		<p>73466LASAGADPIPE-02</p>	<p>14/08/2014</p>
<p>CONSULTANT: C. O. S. U. L. I. N. G. ENGINEERS GROUP LTD. 8-2, MOH CHANDRY, MALVIYA NAGAR, JAIPUR-302015, INDIA. TEL: 91-141-2328999, 232-092, 2320355. FAX: 91-141-2328999, 232-092, 2320355. E-MAIL: chief_engr@cosulnig.com</p>		<p>73466LASAGADPIPE-02</p>	<p>14/08/2014</p>
<p>NO.</p>	<p>DATE</p>	<p>REVISION</p>	<p>BY</p>
<p>01</p>	<p>14/08/2014</p>	<p>ISSUED FOR TENDER</p>	<p>BY</p>
<p>02</p>	<p>14/08/2014</p>	<p>FOR APPROVAL</p>	<p>BY</p>
<p>03</p>	<p>14/08/2014</p>	<p>FOR APPROVAL</p>	<p>BY</p>
<p>04</p>	<p>14/08/2014</p>	<p>FOR APPROVAL</p>	<p>BY</p>

For Backbone-Utkal (JV)
 Backbone-Utkal (JV)
 (Contractor)
Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 Chief (Employer),
 World Bank Project
 O/o the E.I.C.(C), Odisha, OSSR



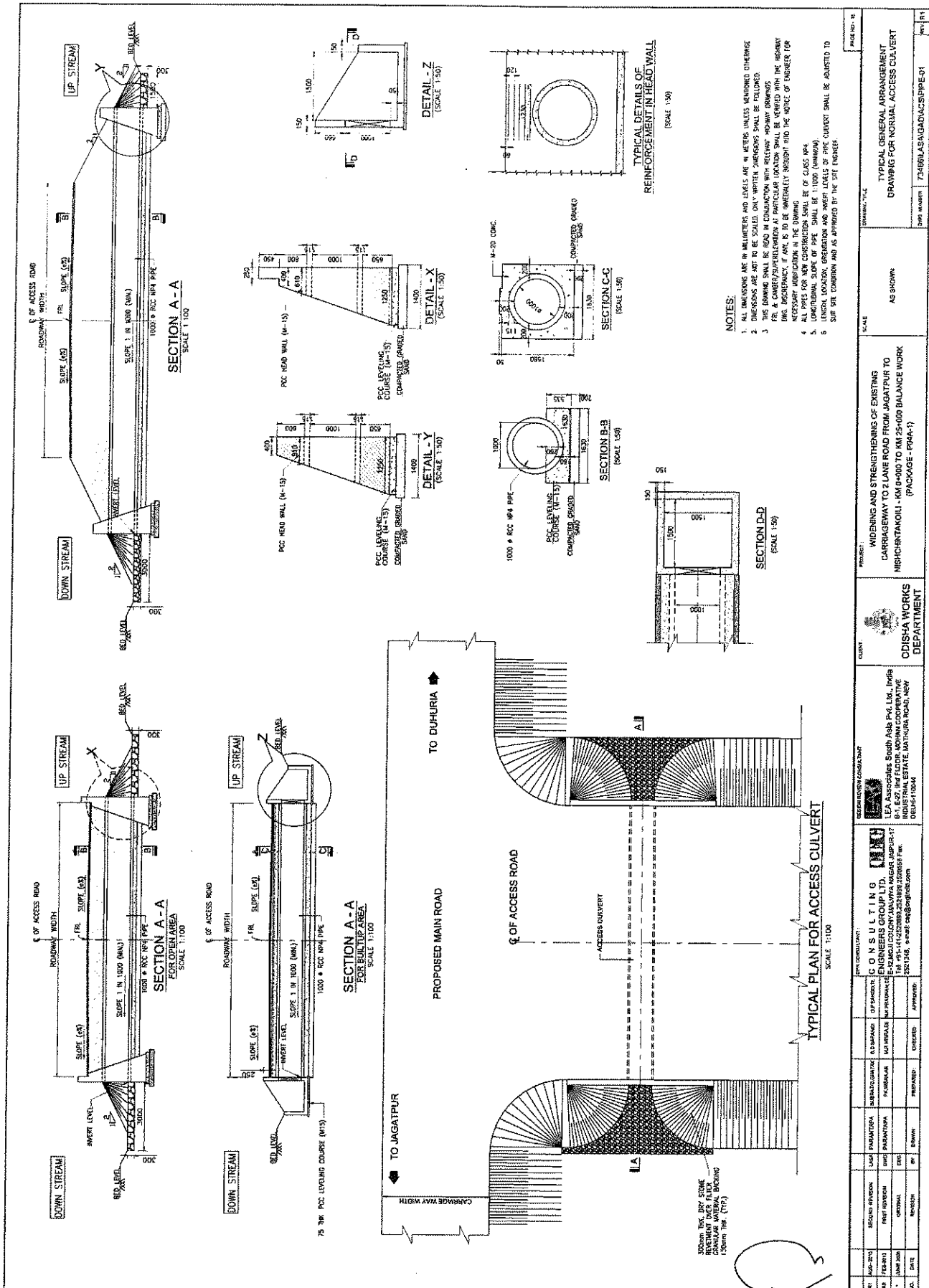
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALE. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS. PARTICULAR LOCATION SHALL BE REFERRED TO BY THE DRAWING NO. DISCREPANCY, IF ANY, IS TO BE IMMEDIATELY BROUGHT INTO THE NOTICE OF ENGINEER FOR ASSISTANT SUPERVISOR IN THE DRAWING.
 4. LONGITUDINAL SLOPE OF PIPE SHALL BE 1:100 (MINIMUM).
 5. LENGTH, LOCATION, ORIENTATION AND INVERT LEVELS OF PIPE CULVERT SHALL BE ADJUSTED TO SUIT SITE CONDITION AND AS APPROVED BY THE SITE ENGINEER.
 6. PIPE SHALL BE JOINTED WITH FLUSH JOINT METHOD AS PER THE DETAILS GIVEN IN SECTION.
 7. ZONE OF UTILITY INTERFERENCES OF ROAD AND BRIDGE WORKS.

DRAWING TITLE TYPICAL GENERAL ARRANGEMENT DRAWING FOR NORMAL DRAINAGE BELL PIPE CULVERT		PROJECT WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHIKHANTAKOLI - KM 0+000 TO KM 25+000 BALANCE WORK (PACKAGE - P/04A-1)	
SCALE AS SHOWN		CLIENT ODISHA WORKS DEPARTMENT	
DRAWING NO. 734081LAGADN/PP/02		DESIGNER LEA Associates South Asia Pvt. Ltd., India 15-12, MOLE COLONY, ANAYIA NAGAR, JAGPUR-751001, ODISHA INDIA. TEL: 0674-2529999, 2521898, 2808066 (Fax) WWW.LEAINDIA.COM, WWW.LEAINDIA.CO.UK E-MAIL: info@leaindia.com	
NO.	REVISED	DATE	BY
1	ISSUED FOR BIDDING	08/07/2014	DR
2	FOR PRELIMINARY	08/07/2014	DR
3	FOR APPROVAL	08/07/2014	DR
4	FOR CONTRACT	08/07/2014	DR
5	FOR CONSTRUCTION	08/07/2014	DR
6	FOR AS-BUILT	08/07/2014	DR
7	FOR RECORD	08/07/2014	DR
8	FOR ARCHIVE	08/07/2014	DR
9	FOR CLOSURE	08/07/2014	DR
10	FOR DELETION	08/07/2014	DR

Backbone-Utkal (JV) - Utkal JV
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)
W.B. Project
O/o the E.I.C.C., Cuttack, EBSR

Signature



Backbone-Utkal (JV)
(Contractor)
Sukhvir Bhatnagar

Chief Engineer,
World Bank Projects, Odisha
(Employer)
World Bank Project
O/o the E.I.C.C., Odisha, EBSR

MAIN ROAD PIPE CULVERT DETAIL

Sl. No.	CD Change	Type Dia. & Spacing	Pipe Dia. & Spacing	Outer Dia. & Spacing	Nos. of Rows	Slope angle	Type of Culvert	Pipe Length
1	0-300/000	1.00	0.115	1.23	1	0	Encase	15
2	0-500/000	1.00	0.115	1.23	1	0	Encase	17.5
3	1-000/000	1.00	0.115	1.23	1	0	Encase	17.5
4	1-500/000	1.00	0.115	1.23	1	0	Encase	17.5
5	1-800/000	1.00	0.115	1.23	1	0	Encase	17.5
6	2-300/000	1.00	0.115	1.23	1	0	Encase	17.5
7	3-300/000	1.00	0.115	1.23	1	0	Normal DM	20
8	3-500/000	1.00	0.115	1.23	1	0	Normal DM	20
9	5-415/000	1.00	0.115	1.23	1	0	Encase	20
10	5-875/000	1.00	0.115	1.23	1	0	Normal DM	17.5
11	6-415/000	1.00	0.115	1.23	1	0	Normal DM	17.5
12	6-500/000	1.00	0.115	1.23	1	0	Encase	17.5
13	6-800/000	1.00	0.115	1.23	1	0	Normal DM	17.5
14	7-800/000	1.00	0.115	1.23	1	28.85	Encase	20
15	8-367/000	1.00	0.115	1.23	1	0	Normal DM	10
16	8-660/000	1.00	0.115	1.23	1	0	Normal DM	12.5
17	8-640/000	1.00	0.115	1.23	1	0	Normal DM	12.5
18	9-660/000	1.00	0.115	1.23	1	0	Normal DM	12.5
19	11-500/000	1.20	0.12	1.41	1	0	Normal DM	27.5
20	11-500/000	1.20	0.12	1.41	1	0	Normal DM	27.5
21	11-815/000	1.20	0.12	1.41	1	0	Normal DM	30
22	12-010/000	1.20	0.12	1.41	1	0	Normal DM	62.5
23	12-010/000	1.20	0.12	1.41	1	0	Normal DM	62.5
24	12-010/000	1.20	0.12	1.41	1	0	Normal DM	62.5
25	12-010/000	1.20	0.12	1.41	1	0	Normal DM	62.5
26	12-010/000	1.20	0.12	1.41	1	0	Normal DM	62.5
27	12-345/000	1.20	0.12	1.41	1	0	Normal DM	27.5
28	14-000/000	1.00	0.115	1.23	1	0	Normal DM	25
29	14-000/000	1.00	0.115	1.23	1	0	Normal DM	25
30	14-270/000	1.20	0.12	1.41	1	0	Normal DM	25
31	14-400/000	1.20	0.12	1.41	1	0	Normal DM	25
32	15-000/000	1.00	0.115	1.23	1	0	Normal DM	27.5
33	15-000/000	1.00	0.115	1.23	1	0	Normal DM	27.5
34	16-150/000	1.00	0.115	1.23	1	0	Normal DM	17.5
35	16-330/000	1.00	0.115	1.23	1	0	Normal DM	17.5
36	17-000/000	1.00	0.115	1.23	1	0	Normal DM	20
37	18-210/000	1.00	0.115	1.23	1	0	Encase	17.5
38	18-300/000	1.00	0.115	1.23	1	0	Encase	17.5
39	18-370/000	1.00	0.115	1.23	1	0	Normal DM	17.5
40	19-500/000	1.00	0.115	1.23	1	0	Encase	17.5
41	20-470/000	1.00	0.115	1.23	1	0	Encase	32.5
42	20-415/000	1.00	0.115	1.23	1	0	Encase	32.5
43	21-265/000	1.00	0.115	1.23	1	0	Normal DM	12.5
44	21-270/000	1.00	0.115	1.23	1	0	Normal DM	12.5
45	21-570/000	1.00	0.115	1.23	1	0	Normal DM	55
46	22-400/000	1.00	0.115	1.23	1	0	Encase	40
47	22-675/000	1.20	0.12	1.41	1	0	Normal DM	50
48	23-120/000	1.20	0.12	1.41	1	0	Normal DM	22.5
49	23-150/000	1.20	0.12	1.41	1	0	Normal DM	25
50	23-400/000	1.20	0.12	1.41	1	0	Normal DM	25
51	24-270/000	1.20	0.12	1.41	1	0	Normal DM	22.5

DATE	SCALE	PROJECT	DRWING TITLE	PAGE NO. OF
AS SHOWN	AS SHOWN	WIDENING AND STRENGTHENING OF EXISTING CARROGGWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAROLI - KM 0+00 TO KM 29+000 BALANCE WORK (PACKAGE - PM4A-1)	SCHEDULE OF PIPE CULVERT NEW CONSTRUCTION	7346BLASASCHPIPE-01
 ODISHA WORKS DEPARTMENT		DESIGNER COMPANY NAME CONSULTING ENGINEERS GROUP LTD. 16-12/301 COLONY MALWA NAGAR JALPAIGURI WEST BENGAL INDIA TEL: 033-25889520/25889506 FAX: 033-25889521 E-MAIL: engg@cegroup.com		
APPROVED	CHECKED	PREPARED	DRAWN	DATE
APPROVED	CHECKED	PREPARED	DRAWN	DATE

Backbone-Utkal (JV)
(Contractor)
Shoban Pradhan

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.(C), Cuttack, Odisha

MAIN ROAD PIPE CULVERT DETAIL									
Sl. No.	CD Challenge	Pipe Dia. d	Pipe thickness, t	Outer dia, D	No. of rows	Slew angle	Type of Culvert	Pipe Length	1.0m dia
REPTILE UNDERPASS									
1	9+030.000	1.00	0.115	1.23	1	0	Normal	25	
2	12+326.000	1.20	0.12	1.44	2	0	Normal	70	
3	16+423.000	1.80	0.115	1.23	1	0	Normal	65	
4	15+000.000	1.20	0.12	1.44	1	0	Normal	25	

MAIN ROAD PIPE CULVERT DETAIL (WIDENING)									
Sl. No.	CD Challenge	Pipe Dia. d	Pipe thickness, t	Outer dia, D	No. of rows	Slew angle	Width-Less	Width-Right	Pipe Length
REPTILE UNDERPASS									
1	9+032.405	0.30	0.05	0.4	1	0	6	6	17.5
2	9+034.405	0.30	0.05	0.4	1	0	6	6	17.5
3	9+035.595	0.30	0.05	0.4	1	0	6	6	17.5
4	9+036.595	0.30	0.05	0.4	1	0	6	6	17.5
5	12+419.405	0.30	0.05	0.4	1	0	6	6	25
6	12+420.405	0.30	0.05	0.4	1	0	6	6	25
7	12+431.595	0.30	0.05	0.4	1	0	6	6	25.5
8	12+432.595	0.30	0.05	0.4	1	0	6	6	25.5
9	16+416.405	0.30	0.05	0.4	1	0	6	6	15
10	16+417.405	0.30	0.05	0.4	1	0	6	6	15
11	16+428.595	0.30	0.05	0.4	1	0	6	6	15
12	16+429.595	0.30	0.05	0.4	1	0	6	6	15
13	24+953.405	0.30	0.05	0.4	1	0	6	6	20
14	24+954.405	0.30	0.05	0.4	1	0	6	6	20

Backbone-Utkal (JV)
 (Contractor)
 Backbone-Utkal JV
Shishir Pattanayak
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, ESOP

PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISCHINTAKOILI - KM 0+00 TO KM 25+000 BALANCE WORK (PACKAGE - P04A-1)		SCALE: AS SHOWN	
DRAWING TITLE: SCHEDULE OF PIPE CULVERT FOR REPTILE UNDERPASS		SHEET NO: 73481ASASCHPIPE-02	
DESIGNER CONSULTANT: LEA Associates South Asia Pvt. Ltd., India MOH. COOPERATIVE INDUSTRIAL ESTATE, PATINA INDUSTRIAL DEL-9-11004		DEPARTMENT: ODISHA WORKS DEPARTMENT	
PROJECT CONSULTANT: CONSULTANTS ENGINEERS GROUP LTD. 5-12, MOO COLONY, MALAYA NAGAR, JALPAIGURI TEL: 91-91-1328889, 2518994, 2325505 FAX: 91-91-1328891, 2518994		PREPARED BY: DATE:	
CHECKED BY: DATE:		APPROVED BY: DATE:	

MAIN ROAD PIPE CULVERT DETAIL (WIDENING)

Sl. No.	Chg	Pipe Dia. d	Pipe Thickness, t	Cutter dia. D	No. of rows	Slope angle	Widen-Left	Widen-Right	Pipe Length
1	0-190.000	0.30	0.05	0.4	1	0	7.5	7.5	18
2	1-221.000	0.30	0.05	0.4	1	0	30	10	29
3	2-480.000	0.30	0.05	0.4	1	0	7.5	18	29
4	2-480.000	0.30	0.05	0.4	1	0	6.75	6.75	18
5	3-485.000	0.30	0.05	0.4	1	0	7.5	7.5	18
6	4-300.000	0.30	0.05	0.4	1	0	7.5	7.75	17
7	5-430.000	0.30	0.05	0.4	1	0	7.5	7.5	18
8	6-430.000	0.30	0.05	0.4	1	0	7.5	7.75	17
9	7-473.000	0.30	0.05	0.4	1	0	7.5	10	23
10	8-230.000	0.30	0.05	0.4	1	0	30	10	29
11	9-235.000	0.30	0.05	0.4	1	0	7.5	7.5	18
12	10-190.000	0.30	0.05	0.4	1	0	7.5	7.5	18
13	13-428.000	0.30	0.05	0.4	1	0	7.5	18	29
14	16-488.000	0.30	0.05	0.4	1	0	7.5	10	22
15	17-415.000	0.30	0.05	0.4	1	0	7.5	10	22
16	17-415.000	0.30	0.05	0.4	1	0	7.5	10	22
17	18-481.000	0.30	0.05	0.4	1	0	6.75	6.75	18
18	21-464.000	0.30	0.05	0.4	1	0	6.75	6.75	18
19	24-450.000	0.30	0.05	0.4	1	0	7.5	7.5	18
20	27-448.000	0.30	0.05	0.4	1	0	30	10	29
21	28-453.000	0.30	0.05	0.4	1	0	30	10	29
22	29-470.000	0.30	0.05	0.4	1	0	10	10	10
27									

MAIN ROAD PIPE CULVERT DETAIL

Sl. No.	Chg	Pipe Dia. d	Pipe Thickness, t	Cutter dia. D	No. of rows	Slope angle	Type of Culvert	Pipe Length
1	0-190.000	0.30	0.115	0.23	1	0	Structural	18
2	1-221.000	0.30	0.115	0.23	2	0	Structural	29
3	2-480.000	0.30	0.115	0.23	1	0	Structural	29
4	2-480.000	0.30	0.115	0.23	1	0	Structural	18
5	3-485.000	0.30	0.115	0.23	1	0	Structural	18
6	4-300.000	0.30	0.115	0.23	1	0	Structural	18
7	5-430.000	0.30	0.115	0.23	1	0	Structural	18
8	6-430.000	0.30	0.115	0.23	1	0	Structural	18
9	7-473.000	0.30	0.115	0.23	1	0	Structural	23
10	8-230.000	0.30	0.115	0.23	1	0	Structural	29
11	9-235.000	0.30	0.115	0.23	1	0	Structural	18
12	10-190.000	0.30	0.115	0.23	1	0	Structural	18
13	13-428.000	0.30	0.115	0.23	2	0	Structural	29
14	16-488.000	0.30	0.115	0.23	2	0	Structural	22
15	17-415.000	0.30	0.115	0.23	2	0	Structural	22
16	17-415.000	0.30	0.115	0.23	2	0	Structural	22
17	18-481.000	0.30	0.115	0.23	1	0	Structural	18
18	21-464.000	0.30	0.115	0.23	1	0	Structural	18
19	24-450.000	0.30	0.115	0.23	1	0	Structural	18
20	27-448.000	0.30	0.115	0.23	2	0	Structural	29
21	28-453.000	0.30	0.115	0.23	2	0	Structural	29
22	29-470.000	0.30	0.115	0.23	2	0	Structural	10

Backbone Utkal JV
(Contractor)
Sahin Pathany
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Project
On the E.I.(C), Odisha, BBSR

NO.	DATE	REVISION
1	JAN 2010	ISSUED FOR TENDER
2	JAN 2010	FOR PRELIMINARY DESIGN
3	JAN 2010	FOR FINAL DESIGN

APPROVED: _____

DESIGNED: _____

CHECKED: _____

DRAWN: _____

SCALE: AS SHOWN

PROJECT: WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO FLARE ROAD FROM JAGATPUR TO NISCHINTAKORI - RM 0-400 TO RM 28+100 BALANCE WORK (PACKAGE - PMA-1)

CLIENT: ODISHA WORKS DEPARTMENT

DESIGNER: LEA Associates South Asia Pvt. Ltd., India
12/20/12 COLONY, MALVIYA NAGAR, JALPAIGURI-731146, WEST BENGAL, INDIA
TEL: 91-9432098265-884-292556 FAX: 91-9432098265-884-292556
WWW.LEAINDIA.COM

DRAWING TITLE: SCHEDULE OF PIPE CULVERT WITH UTILITY

DATE: 17.08.2010

MAIN ROAD PIPE CULVERT DETAIL

Sl. No.	CD Challenge	Pipe Dia. d		Pipe thickness, t	Culvert dia. D	No. of spans	Span angle	Type of Culvert	Pipe Length
		mm	mm						
1	1.00	1000	1000	10	1.00	1	0°	0°	15
2	1.00	1000	1000	10	1.00	1	0°	0°	15
3	1.00	1000	1000	10	1.00	1	0°	0°	15
4	1.00	1000	1000	10	1.00	1	0°	0°	15
5	1.00	1000	1000	10	1.00	1	0°	0°	15
6	1.00	1000	1000	10	1.00	1	0°	0°	15
7	1.00	1000	1000	10	1.00	1	0°	0°	15
8	1.00	1000	1000	10	1.00	1	0°	0°	15
9	1.00	1000	1000	10	1.00	1	0°	0°	15
10	1.00	1000	1000	10	1.00	1	0°	0°	15
11	1.00	1000	1000	10	1.00	1	0°	0°	15
12	1.00	1000	1000	10	1.00	1	0°	0°	15
13	1.00	1000	1000	10	1.00	1	0°	0°	15
14	1.00	1000	1000	10	1.00	1	0°	0°	15
15	1.00	1000	1000	10	1.00	1	0°	0°	15
16	1.00	1000	1000	10	1.00	1	0°	0°	15
17	1.00	1000	1000	10	1.00	1	0°	0°	15
18	1.00	1000	1000	10	1.00	1	0°	0°	15
19	1.00	1000	1000	10	1.00	1	0°	0°	15
20	1.00	1000	1000	10	1.00	1	0°	0°	15
21	1.00	1000	1000	10	1.00	1	0°	0°	15
22	1.00	1000	1000	10	1.00	1	0°	0°	15
23	1.00	1000	1000	10	1.00	1	0°	0°	15
24	1.00	1000	1000	10	1.00	1	0°	0°	15
25	1.00	1000	1000	10	1.00	1	0°	0°	15
26	1.00	1000	1000	10	1.00	1	0°	0°	15
27	1.00	1000	1000	10	1.00	1	0°	0°	15
28	1.00	1000	1000	10	1.00	1	0°	0°	15
29	1.00	1000	1000	10	1.00	1	0°	0°	15
30	1.00	1000	1000	10	1.00	1	0°	0°	15
31	1.00	1000	1000	10	1.00	1	0°	0°	15
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34	1.00	1000	1000	10	1.00	1	0°	0°	15
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44	1.00	1000	1000	10	1.00	1	0°	0°	15
45	1.00	1000	1000	10	1.00	1	0°	0°	15
46	1.00	1000	1000	10	1.00	1	0°	0°	15
47	1.00	1000	1000	10	1.00	1	0°	0°	15
48	1.00	1000	1000	10	1.00	1	0°	0°	15
49	1.00	1000	1000	10	1.00	1	0°	0°	15
50	1.00	1000	1000	10	1.00	1	0°	0°	15
51	1.00	1000	1000	10	1.00	1	0°	0°	15
52	1.00	1000	1000	10	1.00	1	0°	0°	15
53	1.00	1000	1000	10	1.00	1	0°	0°	15
54	1.00	1000	1000	10	1.00	1	0°	0°	15
55	1.00	1000	1000	10	1.00	1	0°	0°	15
56	1.00	1000	1000	10	1.00	1	0°	0°	15
57	1.00	1000	1000	10	1.00	1	0°	0°	15
58	1.00	1000	1000	10	1.00	1	0°	0°	15
59	1.00	1000	1000	10	1.00	1	0°	0°	15
60	1.00	1000	1000	10	1.00	1	0°	0°	15

PROJECT: HIDING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO PLANE ROAD FROM JAGATUR TO NISHINTAKOLI - KM 0+00 TO KM 29+00 BALANCE WORK (PACKAGE - P14A-1)

DEPARTMENT: ODISHA WORKS DEPARTMENT

DESIGNER: EEA Associates South Asia Pvt. Ltd. India
INDUSTRIAL ESTATE, MATUNGA ROAD, NEW DELHI 110044

DATE: 22.08.2010

SCALE: AS SHOWN

DRAWING FILE: SCHEDULE OF ACCESS PIPE CULVERT

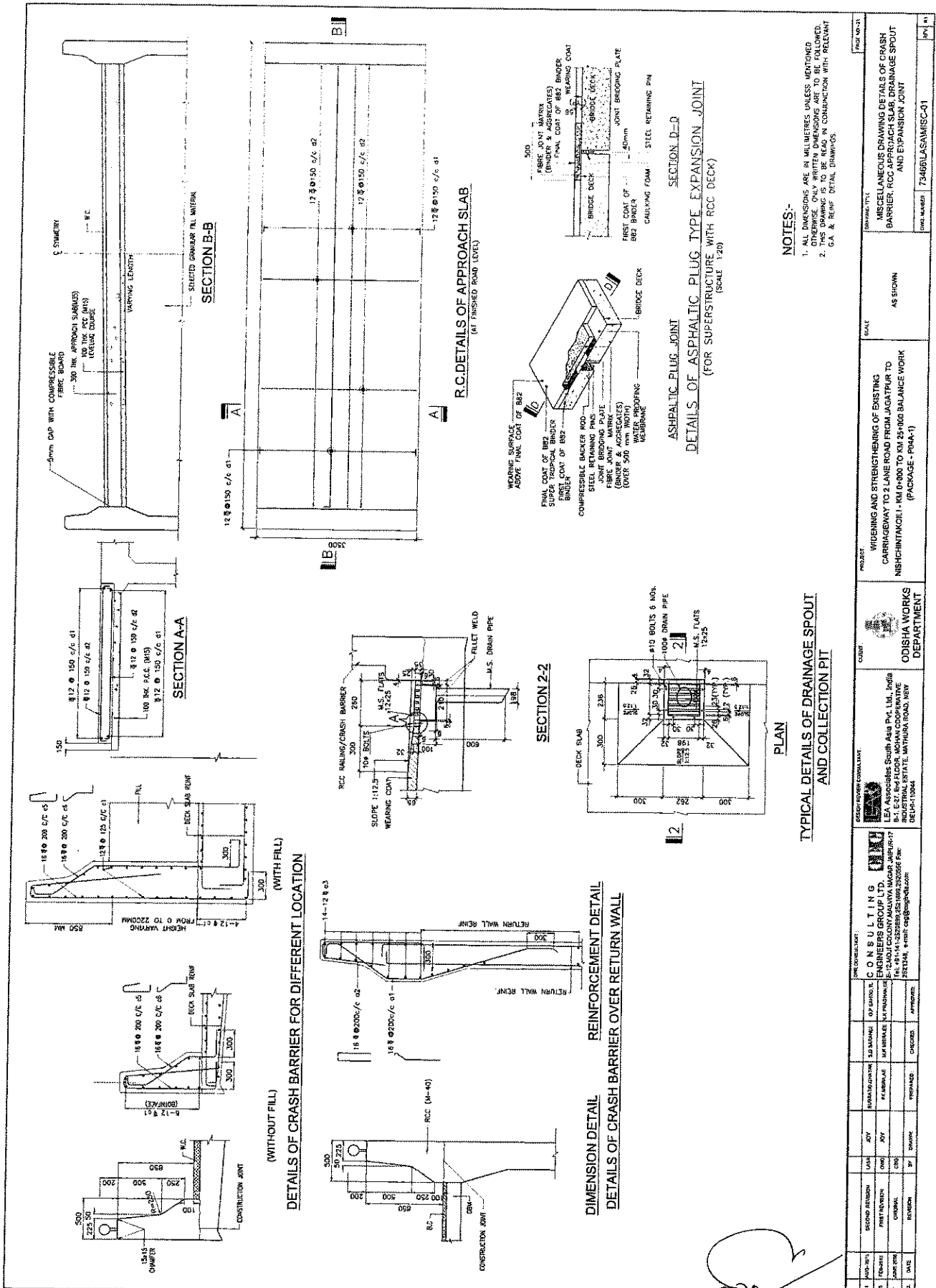
DATE: 20.08.2010

Backbone-Utkal (JV)
(Contractor)

Shikhar Pottam
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)

[Handwritten Signature]



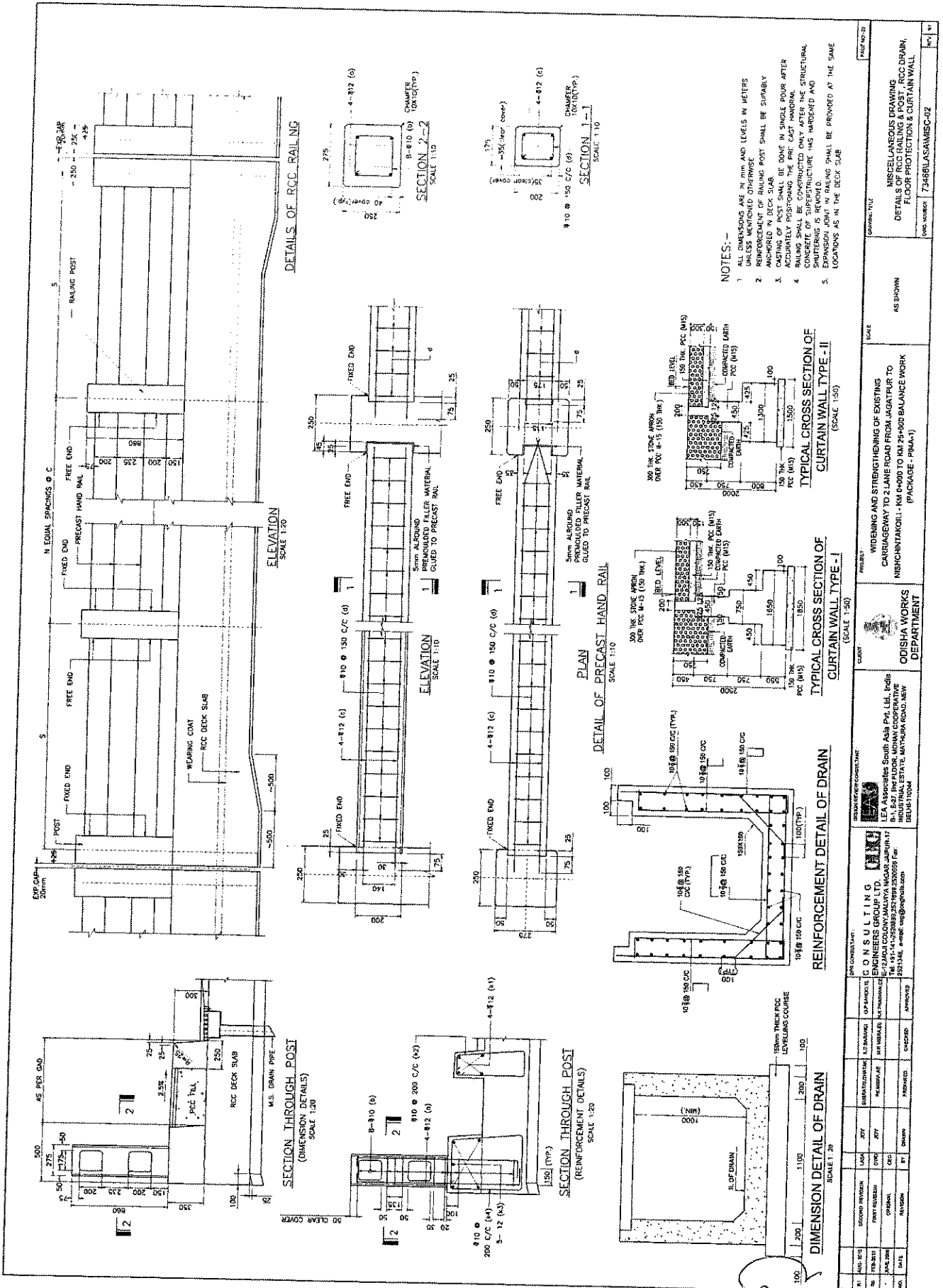
Backbone-Utkal (JV)
(Contractor)

Schankit Pattayak
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)

Schankit Pattayak
Chief Engineer
World Bank Projects
Odisha, India

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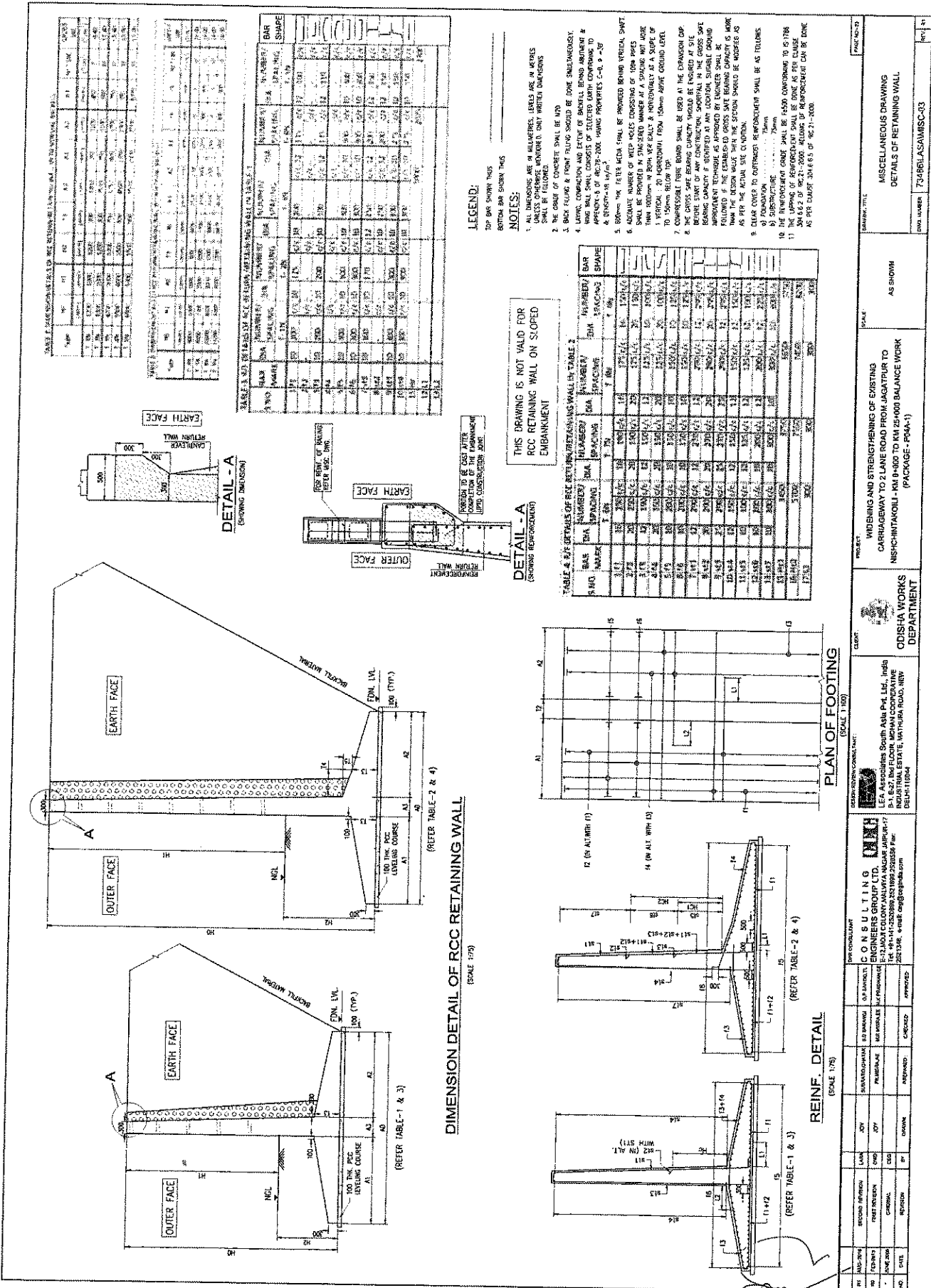
- NOTES:-**
1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS UNLESS MENTIONED OTHERWISE
 2. REINFORCEMENT OF RAILING POST SHALL BE SUPPLIED ACCORDING TO DECK SLAB
 3. ACCURATELY POSITIONING THE RAILING POSTS IN SINGLE POLE AFTER CONSTRUCTION OF THE DECK SLAB
 4. RAILING SHALL BE CONSTRUCTED ONLY AFTER THE STRUCTURAL CONCRETE OF SUPERSTRUCTURE HAS HARDENED AND SHUTTERING IS REMOVED
 5. EXPANSION JOINT IN RAILING SHALL BE PROVIDED AT THE SAME LOCATIONS AS IN THE DECK SLAB

NO.	REV.	DATE	BY	CHKD.	APPROVED	REVISION
1						
2						
3						
4						
5						

DRP CONSULTANT:	DRP CONTRACTOR:	SCALE	PROJECT
C O N S U L T I N G ENGINEERS GROUP LTD. C-1/3 JAWA COLONY, MALUYA NAGAR, JAIPUR-302005 2021346, e-mail: engg@congroup.com	ODISHA WORKS DEPARTMENT	AS SHOWN	WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM AGARTPUR TO NIBICHINTANGOLI - KM 0+000 TO KM 2+000 BALANCE WORK (PACKAGE - PMA-1)
DESIGNER/CHKD:	DATE:	SCALE:	PROJECT:
LEA Associates South Asia Pvt. Ltd., India INDUSTRIAL ESTATE, BANGALORE ROAD, NEVY DELHI-110044			
DESIGNER/CHKD:	DATE:	SCALE:	PROJECT:
MISCELLANEOUS DRAWING DETAILS OF RCC RAILING & POST, RCC DRAIN, FLOOR PROTECTION & CURTAIN WALL			
DRP NO. 22	DATE: 11/12	SCALE:	PROJECT:

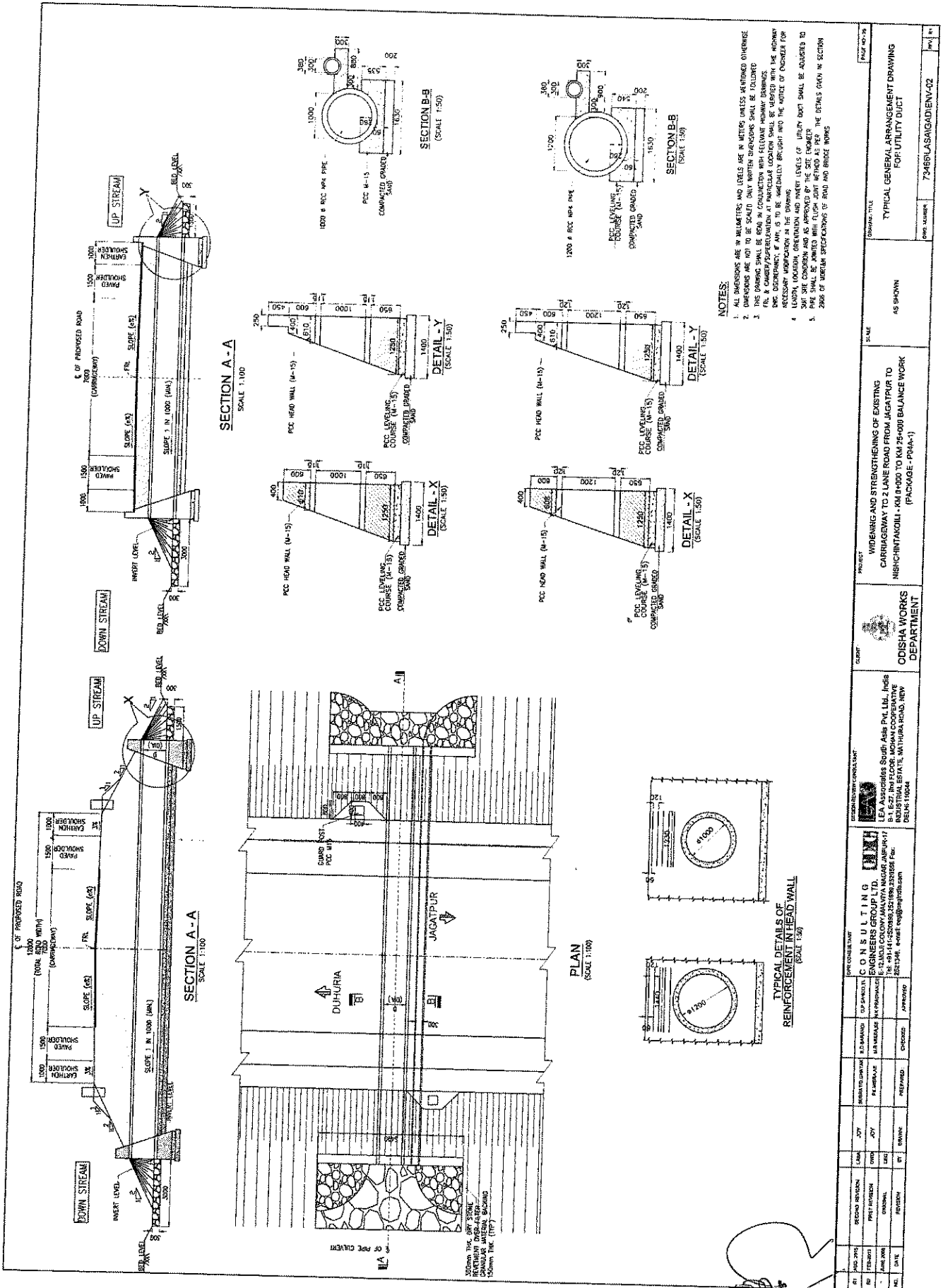
Backbone-Utkal (JV)
 (Contractor)
Shibank Pattanayak

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
*Chief Engineer
 World Bank Project
 On the E.I.C.O. Odisha, India*



Backbone-Utkal (JV)
(Contractor)
Sri Shankar Pattanayak
Authorized Signatory

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer,
World Bank Projects,
O/o the E.I.C.(C), Cuttack, B&SR

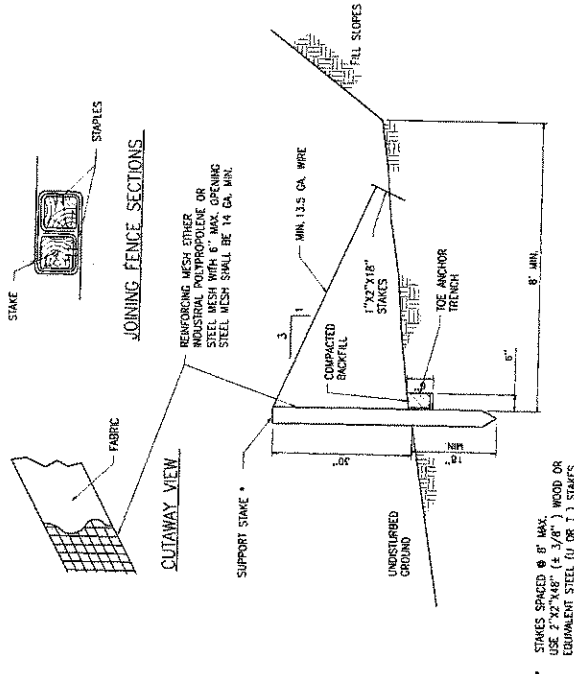
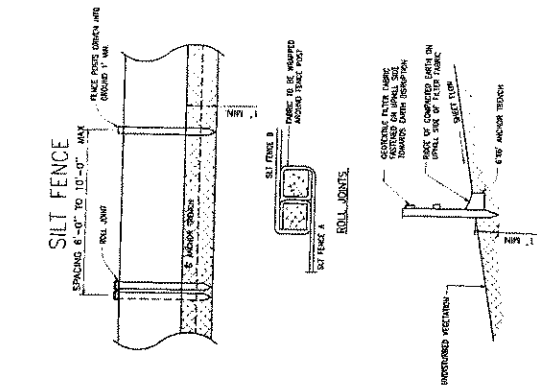


- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS MENTIONED OTHERWISE.
 2. THE DRAWINGS ARE NOT TO BE SKEWED UNLESS SPECIFICALLY NOTED OTHERWISE.
 3. THIS DRAWING IS TO BE SKEWED ONLY WITHIN THE DIMENSIONS SHOWN IN THE DRAWING.
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMISSIONS FROM THE CONCERNED AGENCIES AND THE OWNER FOR THE NECESSARY WORKS IN THE DRAWING.
 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMISSIONS FROM THE CONCERNED AGENCIES AND THE OWNER FOR THE NECESSARY WORKS IN THE DRAWING.
 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMISSIONS FROM THE CONCERNED AGENCIES AND THE OWNER FOR THE NECESSARY WORKS IN THE DRAWING.

DRAWING TITLE		PROJECT		CLIENT		DESIGNER		DRAWN BY		CHECKED BY		DATE		SCALE		AS SHOWN		DRAWN BY		DATE	
TYPICAL GENERAL ARRANGEMENT DRAWING FOR UTILITY DUCT		WIDENING AND STRENGTHENING OF EXISTING CARRIAGEWAY TO 2 LANE ROAD FROM JAGATPUR TO NISHCHINTAKOIL - KM 0+00 TO KM 25+000 BALANCE WORK (PACKAGE - P04A-1)		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT		ODISHA WORKS DEPARTMENT	
734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02		734861ASAGADINVENY-02	

Backbone-Utkal (JV)
 (Contractor)
 Shrikant Pattnayak
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)



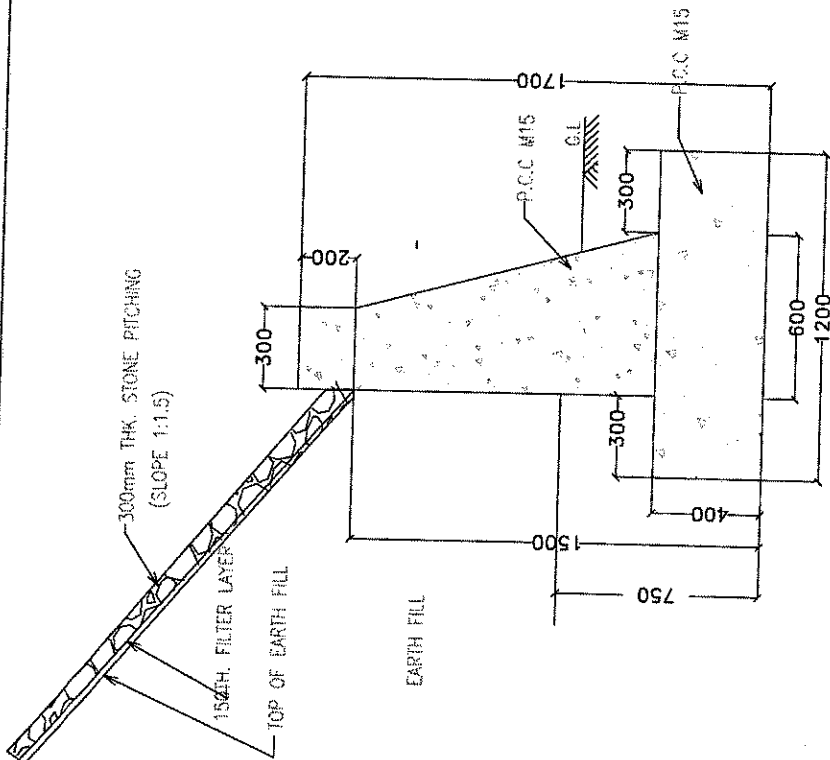
* STAKES SPACED @ 8' MAX. USE 2"x2"x48" (4 3/8") WOOD OR EQUIVALENT STEEL (U OR T) STAKES

DRAWING NO. 73466(LASAGAD)EN/4/3		PAGE NO. 91	
PROJECT TITLE: TYPICAL DRAWING FOR SILT FENCE SEDIMENT ARRESTOR		SCALE: AS SHOWN	
PROJECT: WEIDING AND STRENGTHENING OF EXISTING CARHURWAY TO 2 LANE ROAD FROM JAGATPUR TO NISCHINTAKOILI - KM 0+00 TO KM 20+000 BALANCE WORK (PACKAGE - P04A-1)		DEPARTMENT: ODISHA WORKS DEPARTMENT	
DESIGNER: SUDAN KUMAR SINGH		DATE: 11/11/14	
CHECKER: SUDAN KUMAR SINGH		APPROVED: [Signature]	
CONSULTANT: SUDAN KUMAR SINGH & ASSOCIATES SOUTH ASIA PVT. LTD., INDIA 12, 2ND FLOOR, MALVIYA NAGAR, JALPAIGURI-721146, WEST BENGAL, INDIA 2821346, e-mail: sudan@skgsa.com		EMPLOYER: WORLD BANK PROJECTS, ODISHA	
DATE	REVISION	BY	REASON
11/11/14	1	SKS	ISSUED FOR TENDER
11/11/14	2	SKS	REVISED PER COMMENTS
11/11/14	3	SKS	REVISED PER COMMENTS
11/11/14	4	SKS	REVISED PER COMMENTS
11/11/14	5	SKS	REVISED PER COMMENTS

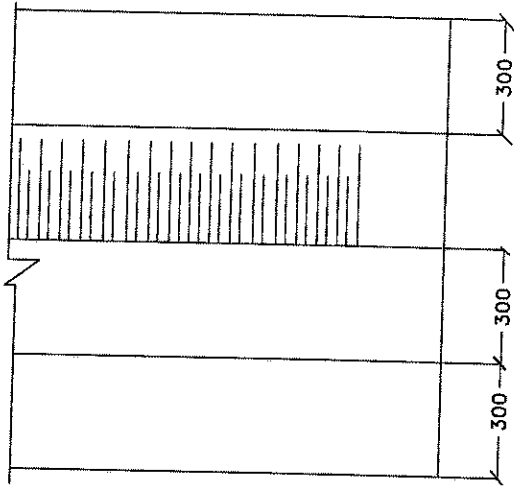
Backbone-Utkal (JV)
(Contractor)
Sudhan K. Pattanayak
Authorized Signatory

[Signature]
Chief Engineer,
World Bank Projects, Odisha
World Bank (Employer)
Office: F.I. Circle, Cuttack, Odisha

Sl. No.	Points	Distance in km	Location (left/right)	Curve	Length of the wall in Meter
1	Point 4.17	0.00	R	15	0.00
2	Point 5.05	0.88	R	15	0.88
3	Point 7.41	2.33	R	15	2.33
4	Point 7.49	2.41	R	15	2.41
5	Point 11.95	6.87	R	15	6.87
6	Point 34.43	21.56	L	25	21.56
7	Point 38.56	25.69	L	30	25.69
8	Point 49.28	36.41	R	20	36.41



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 ERCTED SUCH THAT IT PREVENTS ACCIDENTAL FALL INTO THE DEPRESSION AND WASHING OF VEHICLES/BATHING/ WASHING ON THE ROAD SIDE

TYPICAL PCC TOE WALL WITH STONE PITCHING FOR WATER BODIES AS ENVIRONMENTAL MITIGATION.

DRG NO.	OSRP/CEG/JD-49KM/ENV/03	DESIGNED BY	DRWN BY	REV	REV	APPROVED
SH. NO.		DATE	DEC.12	REV	R-1	
SCALE		NTS		CEG	CEG	EE(PMU) CE-WBP

PROJECT:-

ODISHA STATE ROAD PROJECT
UNDER WORLD BANK ASSISTANCE

CONSULTING ENGINEERS GROUP LTD.
E-12, Moj Colony, Malviya Nagar Jaipur-17
Tel: +91-141-2520899, 2521899, 2520556
Fax: 2521348, e-mail: ceg@cegindia.com

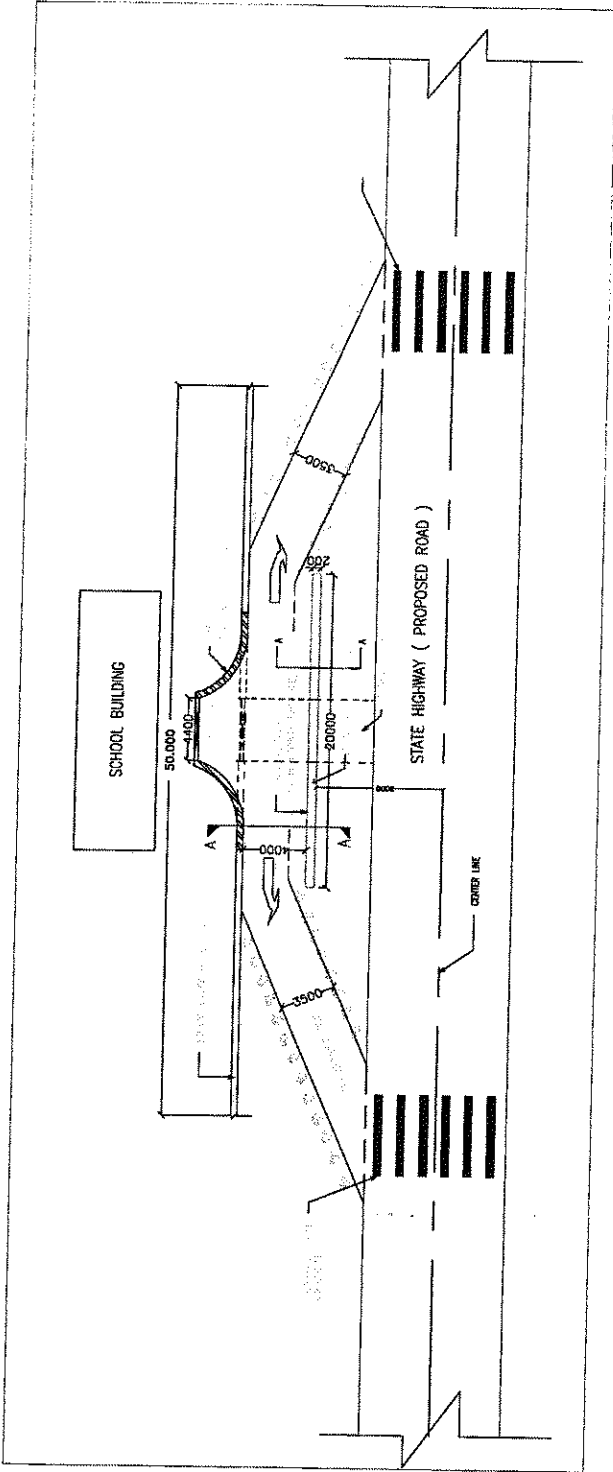
Chief Engineer
World Bank Projects,
Chief Engineer
Employer
World Bank
O/o the E.I.C.C. Coimbatore

Backbone-Utkal (JV)

Authorized Sign: *Saibhanu Pittagaru*

Sl No	Item	Chainage	Location L/R	Affected Length in mtrs
1	School	4.33	Left	40
2	Gujapur School	5.382	Left	58
3	School	5.7	Left	34
4	School	10.275	Right	20
5	School	19.565	Left	41
6	School	50.36	Right	10
7	Hospital	2.3	Left	78
8	Hospital	26.695	Left	78
9	Temple	6.120	Left	15

Sahanshi Pattnayak
Authorized Signatory



- 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 SHIFTED 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 ERRECTED 4m AWAY FROM THE ENTRY POINT INFRONT OF THE GATE

PROJECT:-

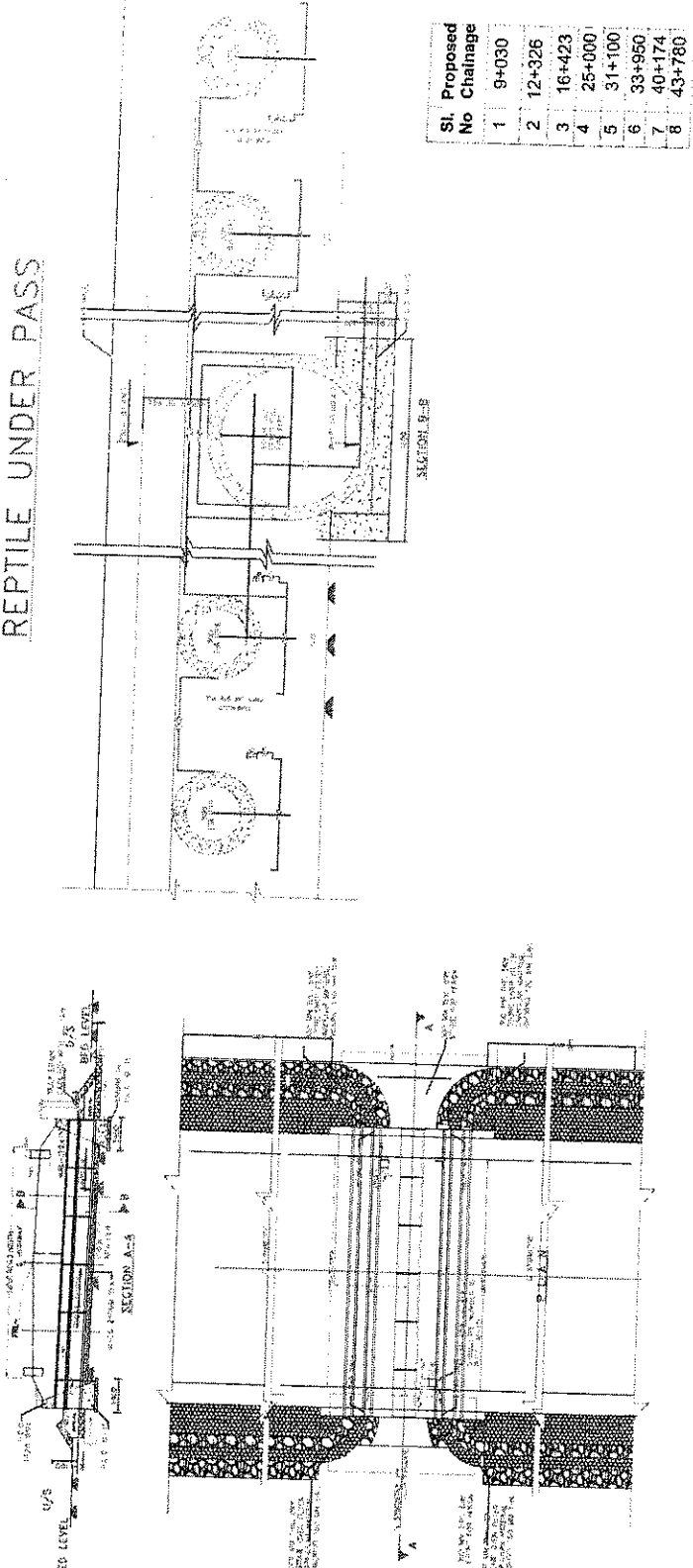
ODISHA STATE ROAD PROJECT
UNDER WORLD BANK ASSISTANCE

CONSULTING ENGINEERS GROUP LTD.
E-12, Moji Colony, Malviya Nagar Jaipur-17
Tel: +91-141-2520889, 2521899, 2520556
Fax: 2521348, e-mail: ceg@cegroupindia.com

Chief Engineer
World Bank Projects, (Employer)
World Bank Project
O/o Ins E.I.C.(C), Calcutta, EDSR

INTERCEPTIVE BARRICADES FOR EDUCATIONAL AND MEDICAL INSTITUTIONAL APPROACHES AS ENVIRONMENTAL MITIGATION PLAN, (JAGATPUR - DUHURIA)			
DRG. NO.	OSRP/CEG/JD-49KM/ENV/05	DESIGNED BY	REV. BY
SH. NO.	DATE	DEC.12	REV. R-1
SCALE	NTS		CEG
			EE(PMU)
			CE, WBP

REPTILE UNDER PASS



For Backbone-Utkal JV
 Sh. Binay Pattanayak
 Backbone-Utkal (JV)
 Authorized Signatory

Chief Engineer,
 World Bank Project, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 Odisha E.I.C.(C), Cuttack, Orissa

ORISSA STATE ROADS PROJECT Works Department, Govt. of Orissa		REPTILE UNDERPASS-PIPE CULVERT (GEN.)	
Rev. No.:	DATE: 12/12/12	DRG. NO.:	OSRP/ENV-14
PREPARED BY:	CHECKED BY:	ISSUED BY:	APPROVED:
			REVISION 1
		CEG	CEG
			DE/PAK
			CE/MBP

AGREEMENT No. 04 of 2015-16



GOVERNMENT OF ODISHA
WORKS DEPARTMENT

CIVIL WORKS CONTRACT

PACKAGE No. OSRP-CW-ICB-P04A1

For

Construction for Widening & Strengthening of existing carriageway to 2-lane
road from Jagatpur to Nischintakoili (Km. 0/00 to Km. 25/00 of MDR)
(Balance Works)

under

Odisha State Roads Project

between

Chief Engineer, World Bank Projects, Odisha
on behalf of
Odisha Works Department, Government of Odisha

and

M/s Backbone-Utkal JV,
IMFA Building, Bomikhal, Rasulgarh, Bhubaneswar-751010, Odisha
Tel : +91-674-2580100/3051000, Fax : +91-674-2580021
E-mail: info@umsl.in

[VOLUME-V: Schedules]

Agreement Value: Rs. 107,38,63,577

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

December 23, 2015

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	3-33

Grand Summary of Price Schedule

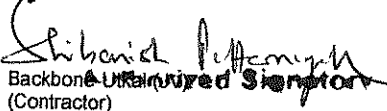
Contract Name: Construction for Widening & Strengthening of existing carriageway to 2-lane form Jagatpur to Nischintakoili - Km 0/0 to Km 25/0 of MDR (Balance Work)
(Package No-ICB-CW- PP04A-1)


Contract No.: Agreement No. 04 of 2015-16

<i>General Summary</i>	<i>Page</i>	<i>Amount</i>
BILL NO.1 : SITE CLEARANCE	3 to 4	4,197,560.00
BILL NO.2 : EARTH WORKS	4 to 5	173,508,397.00
BILL NO.3 : SUB-BASE AND BASE COURSES	6	207,519,702.00
BILL NO.4 : BITUMINOUS COURSES	6 to 7	387,555,949.00
BILL NO.5 : CULVERTS AND UNDERPASSES	8 to 12	59,913,776.00
BILL NO.6 : BRIDGES	12 to 16	34,407,761.00
BILL NO.7 : RETAINING WALL, DRAINAGE AND PROTECTIVE WORKS	17 to 18	131,295,491.00
BILL NO.8 : ROAD SAFETY AND AMENITIES	18 to 23	50,423,800.00
BILL NO.9 : MAINTENANCE, REPAIR AND REHABILITATION	23 to 24	12,238,535.00
BILL NO.10 : ENVIRONMENTAL MITIGATION MEASURES	25 to 28	12,276,481.00
Subtotal of Bills	(A)	1,073,337,452.00
Total for Daywork (Provisional Sum)	(B)	526,125.00
Final Bid Price (A + B)	(C)	1,073,863,577.00
	Say,	1,073,863,577.00

Rupees One Hundred Seven Crores Thirty Eight Lakhs Sixty Three Thousand Five Hundred Seventy Seven only

For Backbone-Utkal (JV)


Shibanik Pattanayak
Backbone-Utkal JV Authorized Signatory
(Contractor)

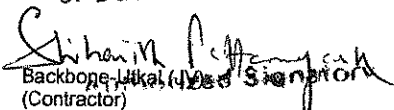

Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Odisha, BBSR


Daywork Summary

Contract Name: Construction for Widening & Strengthening of existing carriageway to 2-lane form Jagatpur to Nischintakoili - Km 0/0 to Km 25/0 of MDR (Balance Work) (Package No-ICB-CW- PP04A-1)
Contract No.: Agreement No. 04 of 2015-16

	<i>Amount (Rs.)</i>	<i>% Foreign</i>
1. Total for Daywork: Labour	84,525.00	NIL
2. Total for Daywork: Materials	265,822.50	NIL
3. Total for Daywork: Contractor's Equipment	175,777.50	NIL
Total for Daywork (Provisional Sum)	526,125.00	

(carried forward to Bid Summary, p.1)

For Backbone-UTRAI JV

 Backbone-UTRAI JV
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

Contract Name: Construction for Widening & Strengthening of existing carriageway to 2-lane form Jagatpur to Nischintakoilli - Km 0/0 to Km 25/0 of MDR (Balance Work) (Package No-ICB-CW- PP04A-1)

PRICE SCHEDULE (Works Items & Dayworks)

Item No.	Description	Unit	Quantity	Rate	Amount
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 the Engineer.	Ha	17.00	30000 Rupees Thirty Thousand only	510,000.00
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 the Engineer.				
	a) Brick/ Stone Structures of dry or in lime/cement mortar	Cum	484.00	442 Rupees Four Hundred Forty Two only	213,928.00
	b) Concrete/ Reinforced concrete/ Prestressed 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	176.00	628 Rupees Six Hundred Twenty Eight only	110,528.00
	ii)R.C.C.	Cum	397.00	628 Rupees Six Hundred Twenty Eight only	249,316.00
	c) Dismantling of Pavement course	Cum	10,552.00	184 Rupees One Hundred Eighty Four only	1,941,568.00
	d) Hume pipe	Lm	323.00	200 Rupees Two Hundred only	64,600.00
	e) CC Kerb	Lm	23.00	10 Rupees Ten only	230.00
	f) Dry stone pitching	Cum	7.00	140 Rupees One Hundred Forty only	980.00
	g) Expansion joint	Rm	78.00	75 Rupees Seventy Five only	5,850.00

For Backbone-UMK 1/14

Shahin Jahan
Backbone-UMK 1/14
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
On the F.I.C.C., Odisha, BBSR

Item No.	Description	Unit	Quantity	Rate	Amount
	h) Bituminous Concrete Wearing Coarse	Sqm	426.00	60 Rupees Sixty only	25,560.00
1.03	Removing stumps and roots of trees having girth above 300 mm, transporting and disposing same clear off the work site and back filling the pit with sand to required compaction complete as per Technical Specifications Clause 305, as directed by the Engineer, for girth size:				
	a) Above 300 mm to 600 mm	No.	300.00	250 Rupees Two Hundred Fifty only	75,000.00
	b) Above 600 mm to 900 mm	No.	250.00	500 Rupees Five Hundred only	125,000.00
	c) Above 900 mm to 1800 mm	No.	250.00	1500 Rupees One Thousand Five Hundred only	375,000.00
	d) Above 1800 mm	No.	200.00	2500 Rupees Two Thousand Five Hundred only	500,000.00
SUB TOTAL					4,197,560.00
BILL NO.2 : EARTH WORKS					
2.01	Roadway excavation in all kinds of soil necessary for construction of roadway complete as per Technical Specification Clause 301 and as per the direction of Engineer.	Cum	46,986.00	38 Rupees Thirty Eight only	1,785,468.00
2.02	Construction of embankment with approved material obtained from approved borrow areas with all leads and lifts Complete as per Drawing and technical Specification Clause 305 and as per the direction of the Engineer.	Cum	15,393.00	204 Rupees Two Hundred Four only	3,140,172.00
2.03	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 the Engineer.	Cum	94,262.00	352 Rupees Three Hundred Fifty Two only	33,180,224.00

for Backbone-Utkal (W)

S. K. Mishra
Backbone-Utkal (W) & Stationery
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)

Chief Engineer
World Bank Project
O/o the E.I.C.,(C), Odisha, BBSR

Item No.	Description	Unit	Quantity	Rate	Amount
2.04	Construction of subgrade and earthen shoulder with moorum/ gravelly soil having CBR value 10% or more from approved borrow areas with all leads and lifts Complete as per Drawing and technical Specification Clause 305 and as per the direction of the Engineer.	Cum	190,432.00	697 Rupees Six Hundred Ninety Seven only	132,731,104.00
2.05	Construction of embankment with suitable material deposited at site from roadway and structure excavation all complete as per Drawing and Technical Specification Clause 305 and as per the direction of the Engineer.	Cum	28,192.00	57 Rupees Fifty Seven only	1,606,944.00
2.06	Loosening and recompacting the existing subgrade in all kinds of soil upto a depth of 300mm/500mm to meet the requirement of table 300-2 complete as per Technical Specification Clause 305 and as per the direction of the Engineer.	Cum	11,151.00	25 Rupees Twenty Five only	278,775.00
2.07	Earthwork with agriculture soil for filling of median/island complete as per Technical Specification Clause 407 and as per the direction of the Engineer.	Cum	675.00	214 Rupees Two Hundred Fourteen only	144,450.00
2.08	Scarifying the existing bituminous surface layers without disturbing the base including transporting and disposing off waste material at approved location complete as per Technical Specification Clause 501 and as per the direction of the Engineer.	Sqm	15,850.00	10 Rupees Ten only	158,500.00
2.09	Stripping, storing of top soil by road side at 15 m internal and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth as directed by the Engineer and as per technical specification-301.	Cum	2,682.00	180 Rupees One Hundred Eighty only	482,760.00
SUB TOTAL					173,508,397.00

Signature of Contractor
 Subhanish Pattanayak
 Backbone-Utkal (JV) 2008 S. J. 2008
 (Contractor)

Signature of Employer
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR


Item No.	Description	Unit	Quantity	Rate	Amount
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 Gr-V of Table 400-1 complete as per Technical Specification Clause 401 and as per the direction of the Engineer.	Cum	63,822.00	1821 Rupees One Thousand Eight Hundred Twenty One only	116,219,862.00
3.02	Construction of wet mix macadam complete as per Technical Specification Clause 406 and as per the direction of the Engineer.	Cum	47552.00	1920 Rupees One Thousand Nine Hundred Twenty only	91,299,840.00
SUB TOTAL					207,519,702.00
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 the Engineer.	Sqm	192821.00	24 Rupees Twenty Four only	4,627,704.00
4.02	Providing Tack coat complete as per Technical Specification Clause 503 and as per the direction of the Engineer.				
	(a) Over Granular Surface treated with primer	Sqm	192821.00	11 Rupees Eleven only	2,121,031.00
	(b) Over normal bituminous surface	Sqm	174473.00	8 Rupees Eight only	1,395,784.00
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.	Cum	15707.00	7212 Rupees Seven Thousand Two Hundred Twelve only	113,278,884.00

For Backbone-Utkal
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/5 Ins E.I.C.(C), Odisha, BBSR


Item No.	Description	Unit	Quantity	Rate	Amount
4.04	Providing bituminous concrete wearing course using CRMB-55 complete as per Technical Specification Clause 507 and as per the direction of the Engineer.	Cum	6985.00	8597 Rupees Eight Thousand Five Hundred Ninety Seven only	60,050,045.00
4.05	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 clause 601 and as per the direction of the Engineer.	Cum	14809.00	2924 Rupees Two Thousand Nine Hundred Twenty Four only	43,301,516.00
4.06	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	29618.00	5400 Rupees Five Thousand Four Hundred only	159,937,200.00
4.07	Providing and laying 20 mm thick Close Graded Premix Mixed Seal Surfacing type A complete as per Technical Specification Clause 508.	Sqm	18347.00	155 Rupees One Hundred Fifty Five only	2,843,785.00
SUB TOTAL					387,555,949.00

For Backbone-Utkal
 Subhanish Debbarma
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

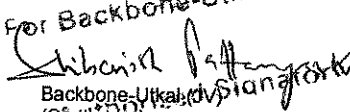
Item No.	Description	Unit	Quantity	Rate	Amount
BILL NO.5 : CULVERTS					
5.01	Earthwork in excavation of foundation for structures complete as per Drawing and Technical Specifications Clause 304 including all leads and lifts and as per the direction of the Engineer.	Cum	2922.00	60 Rupees Sixty only	175,320.00
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 the Engineer.	Cum	470.00	175 Rupees One Hundred Seventy Five only	82,250.00
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 and Technical Specification Clause 304 and as per the direction of the Engineer.	Cum	332.00	698 Rupees Six Hundred Ninety Eight only	231,736.00
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 the Engineer.	Cum	80.00	1983 Rupees One Thousand Nine Hundred Eighty Three only	158,640.00
5.05	Cement Concrete M-15 grade in levelling course and pipe bed etc. including centering and shuttering all complete as per Drawing and Technical Specification Sections 1500 and 1700 and as per the direction of the Engineer.	Cum	1844.00	4292 Rupees Four Thousand Two Hundred Ninety Two only	7,914,448.00
5.06	Cement Concrete M-15 grade in substructure & headwall including centering and shuttering all complete as per Drawing and Technical Specification Sections 1500, 1700, 2200 and as per the direction of the Engineer.	Cum	1,199.00	4480 Rupees Four Thousand Four Hundred Eighty only	5,371,520.00


For Backbone-Utkal (JV)
 Sibirish Jethamya
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Cuttack, ESCR

Item No.	Description	Unit	Quantity	Rate	Amount
5.07	Reinforced cement concrete (M-20 grade) in all types of culverts as per Drawing and Technical Specification Section 1500, 1700 & 2200 and as per the direction of the Engineer.	Cum	1867.00	5107 Rupees Five Thousand One Hundred Seven only	9,534,769.00
5.08	Reinforced cement concrete M-30 grade in approach slabs including cost of reinforcement all complete as per Drawing and Technical Specification Clause 2704 and as per the direction of the Engineer.	Cum	102.00	8000 Rupees Eight Thousand only	816,000.00
5.09	HYSD (TMT) bar reinforcement complete as per Drawing and Technical Specifications Clause 1600 and as per the direction of the Engineer.	MT	121.00	48500 Rupees Forty Eight Thousand Five Hundred only	5,868,500.00
5.10	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.				
	a) 1000 mm dia. In Single Row	Lm	895.00	6900 Rupees Six Thousand Nine Hundred only	6,175,500.00
	b) 1200 mm dia. In Single Row	Lm	253.00	8900 Rupees Eight Thousand Nine Hundred only	2,251,700.00
	c) 1000 mm dia. In Double Row	Double Row-Lm	251.00	13800 Rupees Thirteen Thousand Eight Hundred only	3,463,800.00
	d) 1200 mm dia. In Double Row	Double Row-Lm	244.00	17800 Rupees Seventeen Thousand Eight Hundred only	4,343,200.00

For Backbone-Utkal (WV)

 Subir K. Pattanayak
 Backbone-Utkal (WV) Contractor


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Odisha, BBSR

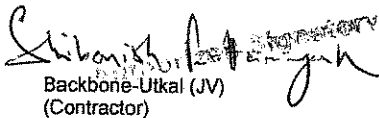
Item No.	Description	Unit	Quantity	Rate	Amount
5.11	Providing , laying and joining 300 mm dia NP-4 Hume Pipe with collars on first class bedding for utility duct and reptile pass including cost of granural bedding and transportation, loading & unloading, taxes, watering, curing, T&P etc. all complete as per Technical Specification Section 2900 & IRC SP-13 and as per the direction of the Engineer	Lm	753.00	1250	941,250.00
				Rupees One Thousand Two Hundred Fifty only	
5.12	Providing , laying and joining 1000 mm dia NP-4 Hume pipe in single row on first class bedding for spur road drain including cost of granural bedding and all materials, labour, transportation ,loading & unloading, taxes,watering,curing,T &P etc.all complete as per Technical Specification Section 2900& IRC SP-13 and as per the direction of the Engineer.	Lm	1278.00	7200	9,201,600.00
				Rupees Seven Thousand Two Hundred only	
5.13	Providing and laying filter material underneath stone pitching in slopes complete as per Drawing and Technical Specification section 2504, 2509, 2510 and as per the direction of the Engineer.	Cum	282.00	948	267,336.00
				Rupees Nine Hundred Forty Eight only	
5.14	Providing and laying stone Pitching on embankment slopes complete as per Drawing and Technical Specification Clause 2504 and as per the direction of the Engineer	Cum	438.00	1513	662,694.00
				Rupees One Thousand Five Hundred Thirteen only	
5.15	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 the Engineer.	Cum	291.00	4400	1,280,400.00
				Rupees Four Thousand Four Hundred only	


Subank Patra
Backbone-Utkal (JV)
(Contractor)

Chief Engineer,
World Bank Projects, Odisha
(Employer)

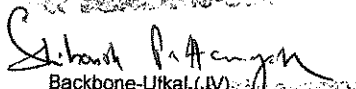
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Cuttack, OSRP


Item No.	Description	Unit	Quantity	Rate	Amount
5.16	Providing weep holes in box portion, return wall, wing wall etc. all complete as per Drawing and Technical Specification Clause. 2706 and as per the direction of the Engineer.	Nos	120.00	100 Rupees One Hundred only	12,000.00
5.17	Supplying, fitting and fixing tar paper bearing in position complete with all accessories as per drawings and technical specification clause 2605, and as per the direction of the Engineer.	Sqm	8.00	25 Rupees Twenty Five only	200.00
5.18	Supplying and fixing Asphaltic Plug expansion joints complete as per Drawing and as per IRC: SP: 69-2005 and as per the direction of the Engineer.	Rmt	103.00	1200 Rupees One Thousand Two Hundred only	123,600.00
5.19	Cement Concrete M-15 grade for parapet Wall as per drawing and Technical Specifications 1500,1700,2100 and 2200 and as per the direction of Engineer.	Cum	39.00	4480 Rupees Four Thousand Four Hundred Eighty only	174,720.00
5.20	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 503,516 & 2700 and as per the direction of the Engineer.	Sqm	464.00	650 Rupees Six Hundred Fifty only	301,600.00
5.21	Synthetic enamel painting of culvert No. and span arrangement as per IRC - 7 - 1971 and as per the direction of the Engineer.	Nos.	180.00	100 Rupees One Hundred only	18,000.00
5.22	Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface etc. Complete as per the direction of Engineer.	Sqm	97.00	45 Rupees Forty Five only	4,365.00


Subhojit Kumar
Backbone-Utkal (JV)
(Contractor)

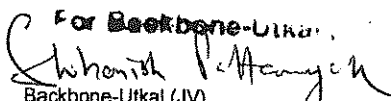

Chief Engineer,
World Bank Projects, Odisha
(Employer)


Item No.	Description	Unit	Quantity	Rate	Amount
5.23	Providing Sand Filling in Foundation Trenches as per Drawing & Technical Specification Clause 304 and as per the direction of the Engineer.	Cum	1513.00	356	538,628.00
				Rupees Three Hundred Fifty Six only	
SUB TOTAL					59,913,776.00
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 the Engineer.	Cum	4906.00	60	294,360.00
				Rupees Sixty only	
6.02	Providing and filling foundation and at the back of abutment, wing wall and return wall etc. and below pipe bed in layers not exceeding 150mm thick with granular material including all leads & lifts as per Technical Specification Clause 304 and as per the direction of the Engineer.	Cum	1859.00	698	1,297,582.00
				Rupees Six Hundred Ninety Eight only	
6.03	Providing Filter media behind abutment, wing wall and return wall complete as per Drawing and Technical Specification Clause 2504 and as per the direction of the Engineer.	Cum	100.00	1983	198,300.00
				Rupees One Thousand Nine Hundred Eighty Three only	
6.04	Cement concrete M-15 grade in levelling course etc including centering and shuttering all complete as per Drawing and Technical Specification Section 1500 , 1700 & 2100 and as per the direction of the Engineer.	Cum	163.00	4292	699,596.00
				Rupees Four Thousand Two Hundred Ninety Two only	
6.05	Cement concrete (M-15 grade) in foundation and substructure etc including centering and shuttering all complete as per Drawing and Technical Specification Section 1500, 1700, 2100 and as per the direction of the Engineer.	Cum	455.00	4480	2,038,400.00
				Rupees Four Thousand Four Hundred Eighty only	


Subash Patra
Backbone-Utkal (JV)
(Contractor)


Chief Engineer,
World Bank Projects, Odisha
(Employer)
Chief Engineer
World Bank Project
O/o the E.I.C.(C), Cuttack, BBSR

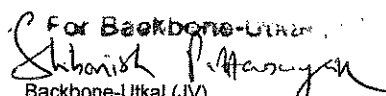
Item No.	Description	Unit	Quantity	Rate	Amount
6.06	Reinforced cement concrete M 20 grade in foundation complete as per Drawing & Technical Specification sections 1500, 1700, 2100, 2200 and as per the direction of the Engineer.	Cum	432.00	5107	2,206,224.00
				Rupees Five Thousand One Hundred Seven only	
6.07	Reinforced cement concrete of following grades in substructure complete as per Drawing & Technical Specification sections 1500, 1700, 2200 and as per the direction of the Engineer.				
	a) M-20 Grade	Cum	1493.00	5295	7,905,435.00
				Rupees Five Thousand Two Hundred Ninety Five only	
6.08	Reinforced cement concrete of following grades in super structure complete as per Drawing and Technical Specification section 1500, 1700, 2300 and as per the direction of the Engineer.				
	a) M-25 grade	Cum	13.00	6569	85,397.00
				Rupees Six Thousand Five Hundred Sixty Nine only	
	b) M-30 Grade	Cum	308.00	6757	2,081,156.00
				Rupees Six Thousand Seven Hundred Fifty Seven only	
6.09	Providing HYSD (TMT) bar reinforcement complete as per drawing and technical specifications clause 1600 and as per the direction of Engineer.				
	a) in foundation	MT	35.00	48300	1,690,500.00
				Rupees Forty Eight Thousand Three Hundred only	
	b) in substructure	MT	119.00	48500	5,771,500.00
				Rupees Forty Eight Thousand Five Hundred only	
	c) in superstructure	MT	52.00	49000	2,548,000.00
				Rupees Forty Nine Thousand only	


For Backbone-Utkal,

 Subhanshu Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Cuttack, BBSR

Item No.	Description	Unit	Quantity	Rate	Amount
6.10	Providing and fixing Tar apaper Bearing complete as per Drawing and Technical Specification 2000 and as per the direction of the Engineer.	Sqm	26.00	25 Rupees Twenty Five only	650.00
6.11	Reinforced cement concrete M-30 grade for in approach slabs complete as per Drawing and Technical Specification section 1500, 1600, 1700, 2700 and as per the direction of the Engineer.	Cum	69.00	8000 Rupees Eight Thousand only	552,000.00
6.12	Providing Bituminous wearing course 56mm thick comprising 50mm thick asphaltic Concrete with modified bitumen comprising of CRMB-55 in a single layer over Bitumenous mastic course 6 mm thick with a prime Coat Complete as per drawing and Technical Specification Section 503,516 & 2700 and as per the direction of Engineer	Sqm	983.00	650 Rupees Six Hundred Fifty only	638,950.00
6.13	Providing and fixing Drainage Spouts Complete as per Drawing and Technical Specification Clause 2705 and as per the direction of the Engineer.	Nos.	14.00	1800 Rupees One Thousand Eight Hundred only	25,200.00
6.14	Providing and laying Stone pitching in slopes complete as per Drawing and Technical Specification Section 2500 and as per the direction of the Engineer.	Cum	107.00	1513 Rupees One Thousand Five Hundred Thirteen only	161,891.00
6.15	Providing as laying fitter material underneath Stone pitching in slopes Complete as per Drawing and Technical Specification Clause 2504 and as per the direction of the Engineer.	Cum	54.00	948 Rupees Nine Hundred Forty Eight only	51,192.00
6.16	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 the Engineer.	Nos.	168.00	100 Rupees One Hundred only	16,800.00

For Backbone-Utkal

 Shobish Pattanayak
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory

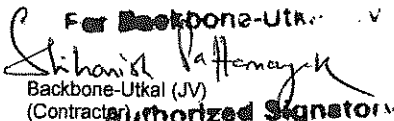

 Chief Engineer,
 World Bank Projects, Odisha
 Chief (Employer)
 World Bank Project
 Odisha E.I.C.(C), Cuttack, BSCR


Item No.	Description	Unit	Quantity	Rate	Amount
6.17	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 the Engineer.	Cum	403.00	4400 Rupees Four Thousand Four Hundred only	1,773,200.00
6.18	Supplying as fixing of Asphaltic plug expansion joint complete as per drawing specifications and as per the direction of Engineer.	Lm	120.00	1200 Rupees One Thousand Two Hundred only	144,000.00
6.19	Synthetic enamel painting of Bridge No. and span arrangement as per IRC-7-1971 and as per the direction of Engineer.	Nos.	6.00	150 Rupees One Hundred Fifty only	900.00
6.20	Carrying and Confirmatory bores up to required depth at locations of bridges as directed by the Engineer complete in all respects, conducting all the tests required as directed by the Engineer and as per Technical Specification Section 2400 and interpretation of the bore data and presentation of the results and as per the direction of the Engineer.				
	a) In all types of soil (except hard rock)				
	i) depth from 0m to 10m	Lm	70.00	1000 Rupees One Thousand only	70,000.00
	ii) depth from 10m to 20m	Lm	70.00	2000 Rupees Two Thousand only	140,000.00
	iii) depth from 20m to 30m	Lm	25.00	2500 Rupees Two Thousand Five Hundred only	62,500.00
	b) In hard rock				
	i) depth from 0m to 5m	Lm	10.00	3500 Rupees Three Thousand Five Hundred only	35,000.00
	ii) depth from 5m to 10m	Lm	7.00	4500 Rupees Four Thousand Five Hundred only	31,500.00

For Backbone-Utkal
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory

Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 Odisha EIC (O), Odisha, BSR

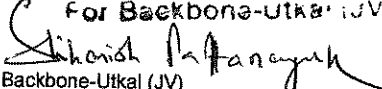
Item No.	Description	Unit	Quantity	Rate	Amount
6.21	Providing and painting of flood gauge on substructure is fall height and 500mm width and as per the direction of the Engineer.	Rm	30.00	600 Rupees Six Hundred only	18,000.00
6.22	Providing and laying 150mm dia. HDPE Service pipe as per Drawing and as per the direction of the Engineer.	Rm	328.00	600 Rupees Six Hundred only	196,800.00
6.23	Providing Gravel 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 the Engineer.	Cum	432.00	698 Rupees Six Hundred Ninety Eight only	301,536.00
6.24	Providing Sand Filling in Foundation as per Drawing & Technical Specification Clause 304, 305 and as per the direction of the Engineer.	Cum	1122.00	356 Rupees Three Hundred Fifty Six only	399,432.00
6.25	Providing and laying PCC of following grades in flooring as per Drawing & technical specification section 1700,2500 and as per the direction of Engineer.				
	a) M-15	Cum	530.00	4292 Rupees Four Thousand Two Hundred Ninety Two only	2,274,760.00
6.26	Providing Reinforced cement concrete crash barrier constructed with M-40 grade concrete with HYSD reinforcement conforming to IRC:21, with MS vertical plate & base plate, 50mm dia pipe and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design and as per dimensions in the approved drawing and at locations directed by the Engineer and Technical Specification Clause 809, and section 1500, 1600, 1700.	Lm	164.00	4250 Rupees Four Thousand Two Hundred Fifty only	697,000.00
SUB TOTAL					34,407,761.00


For Backbone-Utkal

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

Chief Engineer
 World Bank Project
 Odisha E.C. (I), Cuttack


Item No.	Description	Unit	Quantity	Rate	Amount
	BILL NO.7 : RETAINING WALL, DRAINAGE AND PROTECTIVE WORKS				
7.01	Retaining Wall				
(a)	Earthwork in excavation for foundation complete as per Drawing and Technical Specification Clause 304 in Retaining wall for high embankment stretches as per the direction of the Engineer.	Cum	14043.00	60	842,580.00
				Rupees Sixty only	
(b)	Providing Plain cement concrete M -15 in foundation levelling course etc. including centering and shuttering all complete as per Drawing and Technical Clauses 1500, 1700 and as per the direction of the Engineer.	Cum	871.00	4292	3,738,332.00
				Rupees Four Thousand Two Hundred Ninety Two only	
(c)	Providing Cement concrete M -20 for reinforced concrete in foundation and substructure including centering and shuttering all complete as per Drawing and Technical Clauses 1500, 1700, 2100 and as per the direction of the Engineer.	Cum	4926.00	5195	25,590,570.00
				Rupees Five Thousand One Hundred Ninety Five only	
(d)	Providing steel reinforcement HYSD (TMT) for retaining wall complete as per Drawing and Technical Specification Clause 1600 and as per the direction of the Engineer.	MT	394.00	48000	18,912,000.00
				Rupees Forty Eight Thousand only	
(e)	Providing weep holes in retaining wall complete as per Drawing and Technical Specification Clause 2706 and as per the direction of the Engineer.	Nos.	3975.00	100	397,500.00
				Rupees One Hundred only	
7.02	Providing and laying stone pitching on embankment slopes as per Drawing and Technical Specification Clause 2504 and as per the direction of the Engineer.	Cum	7896.00	1513	11,946,648.00
				Rupees One Thousand Five Hundred Thirteen only	

For Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor) **Authorized Signatory**

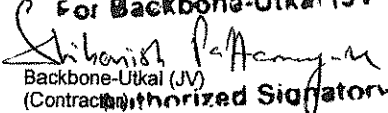

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha E.I.C.(C), Cuttack, BPSR


Item No.	Description	Unit	Quantity	Rate	Amount
7.03	Providing and laying filter material underneath stone pitching on embankment slopes as per Drawing and Technical Specification Clause 2504 and as per the direction of the Engineer.	Cum	5153.00	948	4,885,044.00
				Rupees Nine Hundred Forty Eight only	
7.04	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 the Engineer.	Sqm	82601.00	37	3,056,237.00
				Rupees Thirty Seven only	
7.05	Providing and laying in position pre-cast Cement Concrete saucer drain in blocks of length 500mm of M-35 grade to the required lines and grade over 100mm thick Cement concrete base of M-15 grade including excavation, cost of all material, labour, transportation, taxes, royalties, rent, watering & curing, T & P etc. complete as per Drawing and as per the direction of the Engineer.	Lm	19520.00	3131	61,117,120.00
				Rupees Three Thousand One Hundred Thirty One only	
7.06	Providing and construction of Unlined surface drain as per Drawing and as per the direction of the Engineer.	Cum	17988.00	45	809,460.00
				Rupees Forty Five only	
SUB TOTAL					131,295,491.00
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 the Engineer.	Lm	1420.00	400	568,000.00
				Rupees Four Hundred only	
8.02	Providing and laying service ducts with 160/136mm dia HDPE Double Walled Corrugated Pipe conforming to IS:14930 (Part-II) including cutting of trenches and as per the direction of Engineer.	Lm	3550.00	350	1,242,500.00
				Rupees Three Hundred Fifty only	

For Backbone-Utkal (JV)
 Shikharish Patterayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

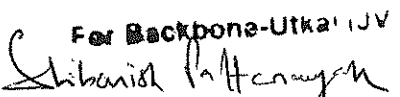

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha E.I.C.(O), Cuttack, BBSR


Item No.	Description	Unit	Quantity	Rate	Amount
8.03	Providing and fixing RCC boundary posts complete as per Drawing and Technical Specification Clause 806 and as per the direction of the Engineer.	Nos.	274.00	550 Rupees Five Hundred Fifty only	150,700.00
8.04	Providing and fixing precast RCC/PCC hectometer, Kilometer and 5th kilometer stones complete as per Technical Specification Clause 804 and as per the direction of the Engineer.				
	a) No of (200) Hectometre Stone	Nos.	100.00	500 Rupees Five Hundred only	50,000.00
	b) No of Kilometre stone	Nos.	20.00	2000 Rupees Two Thousand only	40,000.00
	c) No. of 5th Kilometre Stone	Nos.	5.00	3000 Rupees Three Thousand only	15,000.00
8.05	Constructing footpath/ paved separator at passenger platform / paved part of medians and islands with 50mm thick Chequered tile flooring using 25mm thick pre-cast machine pressed cement concrete chequered tiles over 25mm thick cement mortar bed in CM(1:1) over 100mm thick PCC in CC M-15 over sand filling including cost of all materials ,labour,transportaion,taxes ,royalties,watering ,curing,sundries.T&P etc.complete as per Drawing and Technical Specifications and as per the direction of the Engineer. complete as per Drawing and Technical Specifications Clause 409 and 407 and as per the direction of the Engineer.	Sqm	1328.00	1050 Rupees One Thousand Fifty only	1,394,400.00
8.06	Providing passenger shelters for Bus Bays as per Drawing and Technical Specifications Section 1300,1500, 1600, 1700, 2100, 2200, 2300 and as per the direction of the Engineer.	Nos.	30.00	130000 Rupees One Lakh Thirty Thousand only	3,900,000.00

For Backbone-Utkal (JV)

 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory

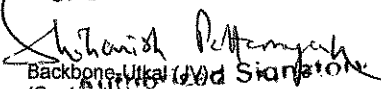

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 O/o the E.I.C., Odisha, SECR


Item No.	Description	Unit	Quantity	Rate	Amount
8.07	Providing and laying of hot applied thermoplastic compound in Lane line / Edge marking/ Arrows/ Letters and other markings along the strips 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes, as per Technical Specifiacation section 800 and as per direction of Engineer.	Sqm	13320.00	440	5,860,800.00
				Rupees Four Hundred Forty only	
8.08	Supplying and fixing sign boards complete as per Technical Specifications Clause 801. 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 the Engineer.				
(a)	Informatory Signs				
	(i) Facility Information (800 x 600)mm	Nos.	16.00	6000	96,000.00
				Rupees Six Thousand only	
	(ii) Direction Signs (1200 x 700 mm)	Nos.	2.00	8000	16,000.00
				Rupees Eight Thousand only	
	(iii) Advance Direction (size 1800 x 1200mm) ,	Nos.	4.00	10000	40,000.00
				Rupees Ten Thousand only	
	(iv) Re-Assurance Sign (1800 X 1200 mm) ,	Nos.	2.00	10000	20,000.00
				Rupees Ten Thousand only	
	(v) Destination Sign (1500 X 900 mm) ,	Nos.	2.00	9000	18,000.00
				Rupees Nine Thousand only	
	(vi) Place Identification (1500 X 900 mm) ,	Nos.	28.00	9000	252,000.00
				Rupees Nine Thousand only	
	(vii) Bus Lane Sign (450mm x 600mm)	Nos.	30.00	4500	135,000.00
				Rupees Four Thousand Five Hundred only	
	(viii) Other Informatory Signs (2100mm x 1500mm)	Nos.	2.00	12500	25,000.00
				Rupees Twelve Thousand Five Hundred only	

For Backbone-Utkal JV

 Subir K. Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 O/o the E.I.C., Odisha, ESRP


Item No.	Description	Unit	Quantity	Rate	Amount
(b)	CAUTIONARY SIGNS triangular 900mm side	Nos.	12.00	5500 Rupees Five Thousand Five Hundred only	66,000.00
(c)	MANDATORY SIGNS				
	(i) Octagon 900 mm height	Nos.	65.00	5500 Rupees Five Thousand Five Hundred only	357,500.00
	(ii) Triangular 900 mm side	Nos.	259.00	5500 Rupees Five Thousand Five Hundred only	1,424,500.00
8.09	Providing & fixing retro - reflectorised road delineators complete as per Drawing , Technical Specifications Clause 805 and as per the direction of the Engineer.				
	(i) Roadway delinator	Nos.	222.00	1500 Rupees One Thousand Five Hundred only	333,000.00
	(ii) Hazard Marker	Nos.	48.00	1500 Rupees One Thousand Five Hundred only	72,000.00
	(iii) Object Marker	Nos.	30.00	1500 Rupees One Thousand Five Hundred only	45,000.00
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 the Engineer.	Nos.	500.00	600 Rupees Six Hundred only	300,000.00

For Backbone-Utkal JV

 Backbone-Utkal JV
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha E.I.C., Odisha, ESR

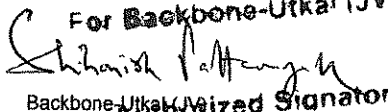
Item No.	Description	Unit	Quantity	Rate	Amount
8.11	Providing and fixing of metal beam crash barrier made out of cold rolled steel strip W profile of 3 mm thick having a minimum yield strength of 2400 kg/sqcm, width of 313 mm and depth of corrugation as 83 mm hot dip galvanized of zinc coating @ 550 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 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 directed by the Engineer.	Lm	9540.00	2700	25,758,000.00
				Rupees Two Thousand Seven Hundred only	
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	1,927.00	2600	5,010,200.00
				Rupees Two Thousand Six Hundred only	
8.13	Supply of colour video coverage in Digital format during construction as per Technical Specifications Clause 126 As per requirement and as per the direction of the Engineer.	set	15.00	25000	375,000.00
				Rupees Twenty Five Thousand only	
8.14	Providing and marking rumble strips for comprising of six rumbles in each set etc. complete at required places as per Drawing and as per the direction of the engineer.	Lm.	280.00	2000	560,000.00
				Rupees Two Thousand only	


For Backbone-Utkal JV
 Shantik Pattnayak
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)

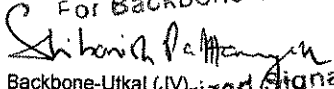
Chief Engineer
 World Bank Projects
 Odisha E.I.C.O., Cuttack, Odisha, INDIA


Item No.	Description	Unit	Quantity	Rate	Amount
8.15	Providing road hump complete at required places as per Drawing and as per the direction of the Engineer.	Mtr	155.00	2100	325,500.00
				Rupees Two Thousand One Hundred only	
8.16	Providing and fixing of bi-directional retro reflective raised pavement markers of approved colour. Quality & make confirming to ASTM D-4280 as per approved drawing and locations provided in the schedule made from injection moulded high impact polymer with approved quality adhesives including cost of all materials our, transportation, taxes, duties, sundries, T&P etc. Complete as per the technical specifications and directions of Engineer.	No	8,772	225	1,973,700.00
				Rupees Two Hundred Twenty Five only	
SUB TOTAL					50,423,800.00
BILL NO.9 MAINTENANCE & REPAIR					
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 direction of the Engineer.	cum	331.00	85	28,135.00
				Rupees Eighty Five only	
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 the direction of the Engineer.	sqm	26,460.00	50	1,323,000.00
				Rupees Fifty only	
9.03	Maintenance of Earth Shoulder Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor etc. complete as per direction of the Engineer.	sqm	66,150.00	12	793,800.00
				Rupees Twelve only	

For Backbone-Utkal IJV

 Subhish Pattanayak
 Backbone-Utkal IJV
 (Contractor) Authorized Signatory

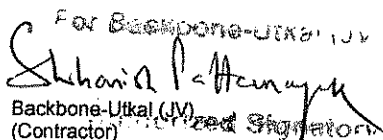

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 Odisha E.I.C.(O), Cuttack, BSCR


Item No.	Description	Unit	Quantity	Rate	Amount
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 directed by the Engineer, per clause 511, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2)	sqm	26,168.00	150	3,925,200.00
				Rupees One Hundred Fifty only	
9.05	Expoxy bonding of new concrete to old concrete for jacketing as technical Specification clause 2805 and as per the direction of Engineer.	Lm	306.00	5000	1,530,000.00
				Rupees Five Thousand only	
9.05	Providing temporary diversion including temporary cross drainage works with Crushed Slag for construction of structures plying of traffic in both directions wherever necessary and maintenance including traffic control and safety as per drawing and Technical Specification complete till the operation of the original road/structure including dismantling and clearing debris and as per the direction of Engineer.	Lm	460.00	2500	1,150,000.00
				Rupees Two Thousand Five Hundred only	
9.06	Providing temporary passage of traffic by widening existing pavement with Crushed Slag for plying of traffic in both directions wherever necessary and maintenance including traffic control and safety as per drawing and Technical Specification and as per the direction of Engineer.				
(i)	With New Material	Cum	2,584	1200	3,100,800.00
				Rupees One Thousand Two Hundred only	
(ii)	With Salvaged Material obtained from dismantling roadway and /or diversion	Cum	2,584	150	387,600.00
				Rupees One Hundred Fifty only	
SUB TOTAL					12,238,535.00

For Backbone-Utkal JV

 Backbone-Utkal JV
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)


Item No.	Description	Unit	Quantity	Rate	Amount
	BILL NO.10 : ENVIRONMENTAL MITIGATION MEASURES				
10.01	Earthwork in excavation of foundation for structures complete as per Drawing No. OSRP/CEG/SH/ENV/1 - A, B, C, D, 03, 04 - A, B, 05, 05 - A, 07, 09, 10, 12 and Technical Specifications Clause 304 including all leads and lifts and as per the direction of the Engineer.	Cum	321.00	45 Rupees Forty Five only	14,445.00
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 Drawing No. OSRP/CEG/SH/ENV/1 - A, B, C, D, 03, 04 - A, B, 05, 05 - A, 07, 09, 10, 12 direction of the Engineer and Technical Specification Clause 304 and as per the direction of the Engineer.	Cum	59.00	356 Rupees Three Hundred Fifty Six only	21,004.00
10.03	Providing & laying in position Cement Concrete M-15 grade in foundation, levelling course etc. including centering and shuttering all complete as per Drawing No. OSRP/CEG/SH/ENV/1 - A, B, C, D, 03, 04 - A, 05 - A, 07, 09, 10, 12 and Technical Specification Sections 1500 and 1700 and as per the direction of the Engineer.	Cum	208.00	4292 Rupees Four Thousand Two Hundred Ninety Two only	892,736.00
10.04	Providing & laying in position Cement Concrete PCC M-20 grade in foundation, levelling course etc. including centering and shuttering all complete as per drawing no. OSRP/CEG/SH/ENV/1A,B,C,09, Major Jns and Technical Specification Sections 1500 and 1700.and as per the direction of the Engineer.	Cum	43.00	5107 Rupees Five Thousand One Hundred Seven only	219,601.00
10.05	Providing weep holes in PCC toe wall with 100mm dia AC pipe at 1mtrs horizontal interval all complete as per Drawing no. OSRP/CEG/SH/ENV/03 and Technical Specifications cl no. 2706 & 2200 and as per the direction of the Engineer.	Nos	193.00	100	19,300.00

For Backbone-Utkal (JV)

 Subhanid Pattanayak
 Backbone-Utkal (JV)
 (Contractor)

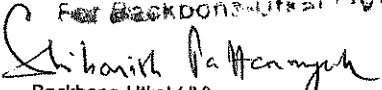

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(C), Cuttack, ESCR


Item No.	Description	Unit	Quantity	Rate	Amount
				Rupees One Hundred only	
10.06	Providing & laying in position Reinforced Cement Concrete RCC M-20 grade in foundation complete as per Drawing No. OSRP/CEG/SH/ENV/04-A,B,,C 05,5-A,,06,07,10, & Technical Specification sections 1700,2100 & 2200 and as per the direction of the engineer.	Cum	65.00	5107 Rupees Five Thousand One Hundred Seven only	331,955.00
10.07	Providing HYSD(TMT) bar reinforcement with anti-corrosive treatment coating including cutting,bending,binding and placing the bars in position including cost of binding wire etc.complete as per Drawing No.OSRP/CEG/SH/ENV/04-A,B.C.D,05,06,07,10 and Technical Specifications Clause 1600 and as per the direction of the Engineer.	MT	3.00	48000 Rupees Forty Eight Thousand only	144,000.00
10.08	Providing and laying filter material under neath the pitching in slopes at water bodies and ponds as per technical specification clause 2500, drawing no.OSRP/CEG/SH/ENV/3 and direction of Engineer-in-Charge.	Cum	116.00	1983 Rupees One Thousand Nine Hundred Eighty Three only	230,028.00
10.09	Providing and laying stone pitching on slopes over filter material at water bodies and ponds as per technical specification clause 2500, drawing no.OSRP/CEG/SH/ENV/3 and direction of Engineer-in-Charge.	Cum	154.00	1513 Rupees One Thousand Five Hundred Thirteen only	233,002.00
10.10	Providing cement paint two coats to the walls as per drawing no. OSRP/CEG/SH/ENV/03, 04-A, B, 05, 05A, 10 as per direction of Engineer-in-Charge.	Sqm	473.00	45 Rupees Forty Five only	21,285.00

For Backbone-Utkal JV
 Sh. Harish Chatterjee
 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signator

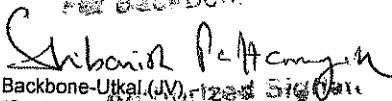

 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Projects
 O/o the E.I.C., Cuttack, OSRP


Item No.	Description	Unit	Quantity	Rate	Amount
10.11	Providing and fixing fixed flower vase of bottom(150x150), top (400x400) of depth 300mm and 40mm thick CC M-20 grade as per drawing no OSRP/CEG/SH/ENV/4A and as per direction of Engineer.	Nos	84.00	350	29,400.00
				Rupees Three Hundred Fifty only	
10.12	Construction of approach road with GSB and moorum topping well mixed and compacted as hard sholder as per the enviromental drawing ,technical specification cl.no.3002 and as per direction of Engineer.	Lm	700.00	1500	1,050,000.00
				Rupees One Thousand Five Hundred only	
10.13	Maintenance of haulage road for 4 occurrences throughout the construction period as per technical specification clause no. 3002 asnd direction of Engineer.	Cum	22,500	75	1,687,500.00
				Rupees Seventy Five only	
10.14	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.and as per the direction of the Engineer.	Cum	30,000	204	6,120,000.00
				Rupees Two Hundred Four only	
10.15	Providing and making masonry Oil & Grease trap chamber of required size including excavation of foundation in all kinds of soil, 100mm thick bed concrete in CC M15 over 100mm thick sand filling, 1st class KB brick masonry in (1:3) for walls up to required height, covered with 100mm thick RCC slab with man hole covers and reinforcement bars as per design, including 12mm thick cement plaster in CM(1:3) with a neat coat of cement punning to the inside wall surfaces including cost of all materials, labour, transportation, taxes, sundries, curing, T&P etc. all complete as per approved drawing No OSRP/CEG/ENV/06, technical specifications and as per the direction of the Engineer.	Nos	1.00	200000	200,000.00
				Rupees Two Lakhs only	

For Backbone-Utkal

 Shivarish Pattanayak
 Backbone-Utkal (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 World Bank Project
 O/o the E.I.C.O, Cuttack, BBSR

Item No.	Description	Unit	Quantity	Rate	Amount
10.16	Providing silt fence and sediment arrestor in the construction zones and stock piles of top soil by fixing wooden posts of 100mm dia firmly to the ground at required intervals and placing closely woven fabric of coconut fibre reinforced with HDPE materials etc. complete as per drawing No OSRP/CE/PW, technical specifications including cost of all materials, labour, transportation, taxes, sundries, curing, T&P etc. and as per the direction of the Engineer.	Lm	3,500.00	225	787,500.00
				Rupees Two Hundred Twenty Five only	
10.17	Grouting stone pitching on embankments of reptile passes for making trap drain 23cm deep with Cement Concrete M15 grade using 20mm down stone aggregates as per drawing no-OSRP/CEG/ENV/14, technical specifications including cost of all materials, labour, transportation, taxes, sundries, curing, T&P etc. and as per the direction of the Engineer.	Sqm	421.00	225	94,725.00
				Rupees Two Hundred Twenty Five only	
10.18	Providing erosion control blanket made from coconut fibre reinforced with closely woven HDPE nets on both sides with appature size less than 5mm of weight not less than 600 gm/sqm, over embankment slopes including preparation of bed, dressing the slopes, removing boulders, pebbles, vegetations and fixed firmly to the slopes using "U" shape galvanized iron hooks of 4mm diametre having dimension 300x75mm and covered with 100mm thick top soil brought from the stock piles/ approved area , spreading manure and spreading of native seeds or planting of shrubs/ grass and maintaining the same for one month by sprinkling water at regular interval as per drawing no-OSRP/PMU/ENV/02 technical specifications including cost of all materials, labour, transportation, taxes, sundries, watering, T&P etc. and as per the direction of the Engineer.	Sqm	600.00	300	180,000.00
				Rupees Three Hundred only	
SUB TOTAL					12,276,481.00

For BACKBONE UTKAL (JV) Project

 Subhanish Pattanayak
 Backbone-Utkal (JV), Project Signatory
 (Contractor)


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.O., Cuttack, Odisha

Item No.	Description	Unit	Quantity	Rate	Amount
Schedule of Daywork Rates: 1. Labour					
D101	Labour (Un-skilled)	Day	100	250 Rupees Two Hundred Fifty only	25,000.00
D102	Mason (Special)	Day	15	350 Rupees Three Hundred Fifty only	5,250.00
D103	Carpenter (Special)	Day	5	350 Rupees Three Hundred Fifty only	1,750.00
D104	Mason (Second Class)	Day	15	300 Rupees Three Hundred only	4,500.00
D105	Carpenter (Second Class)	Day	5	300 Rupees Three Hundred only	1,500.00
D106	Steelworker Erector	Day	20	350 Rupees Three Hundred Fifty only	7,000.00
D107	Driver for vehicle up to 10 tons	Day	15	300 Rupees Three Hundred only	4,500.00
D108	Operator for excavator, dragline, shovel or crane	Day	15	300 Rupees Three Hundred only	4,500.00
D109	Operator for tractor with dozer blade or ripper	Day	15	300 Rupees Three Hundred only	4,500.00
D110	Operator grader	Day	15	400 Rupees Four Hundred only	6,000.00
D111	Operator in other construction equipment	Day	15	300 Rupees Three Hundred only	4,500.00
D112	Chowkidars for watch & ward	Day	15	300 Rupees Three Hundred only	4,500.00
					73500.00
D113	Allow 15% percent of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above			15.000% Rupees And Fifteen Paise	11025
Total Daywork Rates: 1. Labour					84525.00

S. K. Singh
 Backbone-Utkal (JV)
 (Contractor)

[Signature]
 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 Odisha E.I.C.C., Cuttack, Odisha

Item 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	4800 Rupees Four Thousand Eight Hundred only	24,000.00
D202	HYSD reinforcing bars upto 25 mm dia conforming to IS:1786:1989	Per Mt	1	34500 Rupees Thirty Four Thousand Five Hundred only	34,500.00
D203	Bricks of class designation 75 as per IS:1077:1992	Per 1000 Nos	5000	6500 Rupees Six Thousand Five Hundred only	32,500.00
D204	Anti Corrosive Bituminous paint	Per Lit	5	200 Rupees Two Hundred only	1,000.00
D205	Enamel Paint of any shade & colour (IS:2932-1964 & IS 137-1975)	Per Lit	5	230 Rupees Two Hundred Thirty only	1,150.00
D206	Coarse Sand as per IS 1542	Per Cum	15	250 Rupees Two Hundred Fifty only	3,750.00
D207	R.R. Stone for masonry	Per Cum	15	2000 Rupees Two Thousand only	30,000.00
D208	Crusher broken stone aggregates up to 25 mm nominal size	Per Cum	15	1500 Rupees One Thousand Five Hundred only	22,500.00
D209	Crusher broken stone aggregates Above 25 mm nominal size	Per Cum	15	1400 Rupees One Thousand Four Hundred only	21,000.00
D210	Portable water at site	Per KL	1250	15 Rupees Fifteen only	18,750.00
D211	Gravel/ Moorum for Road work	Per Cum	15	500 Rupees Five Hundred only	7,500.00

Subodh Pattanayak
Backbone-Utkal (JV)
(Contractor)

[Signature]
Chief Engineer,
World Bank Projects, Odisha
(Employer)

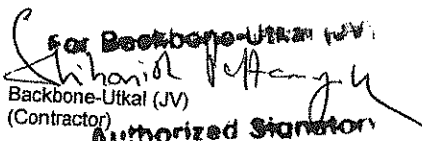
Chief Engineer
World Bank Projects
O/o the E.I.C.O., Odisha, India


Item No.	Description	Unit	Quantity	Rate	Amount
D212	Bitumen-VG-30	Per Mt	1	34500 Rupees Thirty Four Thousand Five Hundred only	34,500.00
					231150
D213	Allow 15% percent of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above			15.000% Rupees And Fifteen Paise	34672.5
Total Daywork Rates: 2. Materials					265822.50
Schedule of Daywork Rates: 3. Contractor's Equipment					265822.50
D301	Excavator, face shovel, or dragging including the cost of operator:				
D301.1	Up to and including 1 m ³	Hour	15	1400 Rupees One Thousand Four Hundred only	21,000.00
D301.2	Over 1 m ³ to 2 m ³	Hour	10	1450 Rupees One Thousand Four Hundred Fifty only	14,500.00
D301.3	Over 2 m ³	Hour	5	1450 Rupees One Thousand Four Hundred Fifty only	7,250.00
D302	Tractor, including bull or angle dozer including the cost of operator				
D302.1	Up to and including 150 kW	Hour	15	300 Rupees Three Hundred only	4,500.00
D302.2	Over 150 kW to 200 kW	Hour	10	300 Rupees Three Hundred only	3,000.00
D302.3	Over 200 kW to 250 kW	Hour	5	300 Rupees Three Hundred only	1,500.00
D303	Tractor with ripper including the cost of operator:				
D303.1	Up to and including 200 kW	Hour	10	350 Rupees Three Hundred Fifty only	3,500.00
D303.2	Over 200 kW to 250 kW	Hour	5	350 Rupees Three Hundred Fifty only	1,750.00
D304	Motor grader including the cost of operator:	Hour	10	1600 Rupees One Thousand Six Hundred only	16,000.00

S. Banik
Backbone-Utkal (JV)
(Contractor)

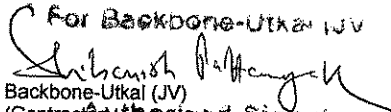
Chief Engineer,
World Bank Projects, Odisha
Chief (Employer)
World Bank Project
Office E.C.O, Cuttack, Odisha

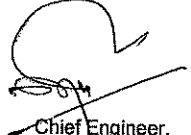
Item No.	Description	Unit	Quantity	Rate	Amount
D305	Crane- 5 tonne including the cost of operator:	Hour	10	850 Rupees Eight Hundred Fifty only	8,500.00
D306	Diesel Road Roller, or Vibratory Compactor upto 10 t including the cost of operator:	Hour	10	1000 Rupees One Thousand only	10,000.00
D307	Trucks, or Truck tipper, or Truck with mounted water tank or truck with crane for removal of accidental vehicles including the cost of operator.	Hour	25	650 Rupees Six Hundred Fifty only	16,250.00
D308	Tractor with trolley, or tractor with water trailer, tractor with ripper Tractor with hydraulic scraper including the cost of operator				
	(a) upto 25 HP	Hour	10	300 Rupees Three Hundred only	3,000.00
	(b) For 25-40 HP	Hour	10	300 Rupees Three Hundred only	3,000.00
D309	Bitumen mixture (10-14 Cft.) C.C including the cost of operator	Hour	5	200 Rupees Two Hundred only	1,000.00
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	5	300 Rupees Three Hundred only	1,500.00
	b) Sets 11 to 20 HP	Hour	5	500 Rupees Five Hundred only	2,500.00
	c) Sets above 20 HP	Hour	5	750 Rupees Seven Hundred Fifty only	3,750.00
D311	Generator sets mounted on trolley including the cost of operator				
	a) Sets upto 5 Kva	Hour	5	350 Rupees Three Hundred Fifty only	1,750.00
	b) Sets 5-15 Kva	Hour	5	450 Rupees Four Hundred Fifty only	2,250.00

for Backbone-Utkal JV

 Backbone-Utkal (JV)
 (Contractor)
 Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer,
 World Bank Project
 O/o the E.I.C.(O), Odisha, BBSR

Item No.	Description	Unit	Quantity	Rate	Amount
D312	Mobile Crane / Power winch including the cost of operator	Hour	5	500 Rupees Five Hundred only	2,500.00
D313	Bull Dozer 100/110 Hp including the cost of operator	Hour	5	2500 Rupees Two Thousand Five Hundred only	12,500.00
D314	Plate compactors including the cost of operator	Hour	5	250 Rupees Two Hundred Fifty only	1,250.00
D315	Jack hammers for dismantling including the cost of operator	Hour	5	300 Rupees Three Hundred only	1,500.00
D316	Utility Vehicles including the cost of driver	Hour	5	220 Rupees Two Hundred Twenty only	1,100.00
D317	Mini Hot Mix Plant (5 TPH) including the cost of operator	Hour	5	1500 Rupees One Thousand Five Hundred only	7,500.00
					152850
D318	Allow 15% percent of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above			15.000% Rupees And Fifteen Paise	22927.5
Total Daywork Rates: 3. Equipment					175777.50

For Backbone-Utkal JV

 Subhash Pattanayak
 Backbone-Utkal (JV)
 (Contractor) Authorized Signatory


 Chief Engineer,
 World Bank Projects, Odisha
 (Employer)
 Chief Engineer
 World Bank Project
 O/o the E.I.C.(O), Odisha, BBSR