

**Engineering Procurement and
Construction (EPC) Draft Agreement
For the work
“Improvement of Phulnakhara-
Niali-Madhab Road (4-lane) from
0/000 km to 35/451 km in the
district of Cuttack under State Plan”.**

**WORKS DEPARTMENT,
GOVERNMENT OF ODISHA.**

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

**Table of Contents
OVERVIEW OF FRAME WORK**

Sl No.	Description	Page No.
	Part I: Preliminary	1
	ENGINEERING, PROCUREMENT AND CONSTRUCTION AGREEMENT	2-3
1	DEFINITIONS AND INTERPRETATION	4
	1.1 Definitions	4
	1.2 Interpretation	4-5
	1.3 Measurements and Arithmetic Conventions	6
	1.4 Priority of agreements and errors/discrepancies	6
	1.5 Joint and several liability	7
	Part II: Scope of Project	8
2	2.1 SCOPE OF THE PROJECT	9
3	OBLIGATIONS OF THE CONTRACTOR	10
	3.1 Obligations of the Contractor	10-11
	3.2 Obligations relating to sub-contracts and any other agreements	11
	3.3 Deleted	12
	3.4 Contractor's personnel	12
	3.5 Advertisement on Project Highway	12
	3.6 Contractor's care of the Works	12
	3.7 Electricity, water and other services	12
	3.8 Unforeseeable difficulties	12
4	OBLIGATIONS OF THE AUTHORITY	13
	4.1 Obligations of the Authority	13
	4.2 Maintenance obligations prior to the Appointed Date	14
	4.3 Environmental Clearances	14-15
5	REPRESENTATIONS AND WARRANTIES	16
	5.1 Representations and warranties of the Contractor	16
	5.2 Representations and warranties of the Authority	16-17
	5.3 Disclosure	18
6	DISCLAIMER	19
	6.1 Disclaimer	19
	Part III Construction and Maintenance	20
7	PERFORMANCE SECURITY	21
	7.1 Performance Security	21
	7.2 Extension of Performance Security	21
	7.3 Appropriation of Performance Security	21
	7.4 Release of Performance Security	22

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	7.5 Retention Money	22
8	RIGHT OF WAY	23
	8.1 The Site	23
	8.2 Procurement of the Site	23
	8.3 Damages for delay in handing over the Site	24
	8.4 Site to be free from Encumbrances	25
	8.5 Protection of Site from encroachments	25
	8.6 Special/temporary Right of Way	25
	8.7 Access to the Authority and the Authority’s Engineer	26
	8.8 Geological and archaeological finds	26
9	UTILITIES AND TREES	27
	9.1 Existing utilities and roads	27
	9.2 Shifting of obstructing utilities	27
	9.3 New utilities	27
	9.4 Felling of trees	28
10	DESIGN AND CONSTRUCTION OF THE PROJECT HIGHWAY	29
	10.1 Obligations prior to commencement of Works	29
	10.2 Design and Drawings	30
	10.3 Construction of the Project Highway	32
	10.4 Maintenance during Construction Period	33
	10.5 Extension of time for completion	33
	10.6 Incomplete Works	35
	10.7 Maintenance Manual	35
11	QUALITY ASSURANCE, MONITORING AND SUPERVISION	36
	11.1 Quality of Materials and workmanship	36
	11.2 Quality control system	36
	11.3. Methodology	36
	11.4. Inspection and technical audit by the Authority	37
	11.5 External technical audit	37
	11.6 Inspection of construction records	37
	11.7 Monthly progress reports	37
	11.8 Inspection	37
	11.9 Samples	38
	11.10 Tests	38

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	11.11 Examination of work before covering up	38
	11.12 Rejection	39
	11.13 Remedial work	39
	11.14 Delays during construction	39
	11.15 Quality control records and Documents	40
	11.16 Video recording	40
	11.17 Suspension of unsafe Construction Works	40
12	COMPLETION CERTIFICATE	41
	12.1 Tests on completion	41
	12.2 Provisional Certificate	41
	12.3 Completion of remaining Works	42
	12.4 Completion Certificate	42
	12.5 Rescheduling of Tests	43
13	CHANGE OF SCOPE	44
	13.1 Change of Scope	44
	13.2 Procedure for Change of Scope	44
	13.3 Payment for Change of Scope	45
	13.4 Restrictions on Change of Scope	45
	13.5 Power of the Authority to undertake works	46
14	MAINTENANCE	47
	14.1 Maintenance obligations of the Contractor	47
	14.2 Maintenance Requirements	48
	14.3 Maintenance Programme	48
	14.4 Safety, vehicle breakdowns and accidents	48
	14.5 Lane closure	48
	14.6 Reduction of payment for non-performance of Maintenance obligations	49
	14.7 Authority's right to take remedial measures	49

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	14.8 Restoration of loss or damage to Project Highway	49
	14.9 Overriding powers of the Authority	49
15	SUPERVISION AND MONITORING DURING MAINTENANCE	51
	15.1 Inspection by the Contractor	51
	15.2 Inspection and payments	51
	15.3 Tests	51
	15.4 Reports of unusual occurrence	52
16	TRAFFIC REGULATION	53
	16.1 Traffic regulation by the Contractor	53
17	DEFECTS LIABILITY	54
	17.1 Defects Liability Period	54
	17.2 Remedying Defects	54
	17.3 Cost of remedying Defects	54
	17.4 Contractor’s failure to rectify Defects	54
	17.5 Contractor to search cause	55
	17.6. Extension of Defects Liability Period	55
18	AUTHORITY’S ENGINEER	56
	18.1 Appointment of the Authority’s Engineer	56
	18.2 Duties and authority of the Authority’s Engineer	56
	18.3 Delegation by the Authority’s Engineer	56
	18.4 Instructions of the Authority’s Engineer	57
	18.5 Determination by the Authority’s Engineer	57
	18.6 Remuneration of the Authority’s Engineer	58
	18.7 Termination of the Authority’s Engineer	58
	Part IV: Financial Covenants	59
19	PAYMENTS	60

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	19.1 Contract Price	60
	19.2 Advance Payment	60
	19.3 Procedure for estimating the payment for the Works	61
	19.4 Stage Payment Statement for Works	62
	19.5 Stage Payment for Works	62
	19.6 Monthly Maintenance Statement of the Project Highway	62
	19.7 Payment for Maintenance of the Project Highway	63
	19.8 Payment of Damages	63
	19.9 Time of payment and interest	63
	19.10 Price adjustment for the Works	64
	19.11 Restrictions on price adjustment	67
	19.12 Price adjustment for Maintenance of Project Highway	67
	19.13 Final Payment Statement	67
	19.14 Discharge	68
	19.15 Final Payment Certificate	68
	19.16 Final payment statement for Maintenance	68
	19.17 Change in law	69
	19.18 Correction of Interim Payment Certificates	69
	19.19 Authority's claims	69
	19.20 Bonus for early completion	69
	19.21 Royalty of Minor Minerals	70-71
20	INSURANCE	71
	20.1 Insurance for Works and Maintenance	71
	20.2 Notice to the Authority	72
	20.3 Evidence of Insurance Cover	72

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	20.4 Remedy for failure to insure	72
	20.5 Waiver of subrogation	72
	20.6 Contractor’s waiver	72-73
	20.7 Cross liabilities	73
	20.8 Accident or injury to workmen	73
	20.9 Insurance against accident to workmen	73
	20.10 Application of insurance proceeds	73
	20.11 Compliance with policy conditions	73
	Part V Force Majeure and Termination	74
21	FORCE MAJEURE	75
	21.1 Force Majeure	75
	21.2 Non-Political Event	75
	21.3 Indirect Political Event	75-76
	21.4 Political Event	76
	21.5 Duty to report Force Majeure Event	76
	21.6 Effect of Force Majeure Event on the Agreement	77
	21.7 Termination Notice for Force Majeure Event	77
	21.8 Termination Payment for Force Majeure Event	77
	21.9 Dispute resolution	78
	21.10 Excuse from performance of obligations	78
22	SUSPENSION OF CONTRACTOR’S RIGHTS	79
	22.1 Suspension upon Contractor Default	79
	22.2 Authority to act on behalf of Contractor	79
	22.3 Revocation of Suspension	79
	22.4 Termination	79

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
23	TERMINATION	80
	23.1 Termination for Contractor Default	80
	23.2 Termination for Authority Default	81-82
	23.3 Termination for Authority’s convenience	82
	23.4 Requirements after Termination	82
	23.5 Valuation of Unpaid Works	82-83
	23.6 Termination Payment	83-84
	23.7 Other rights and obligations of the Parties	84
	23.8 Survival of rights	84
	Part VI Other Provisions	85
24	ASSIGNMENT AND CHARGES	86
	24.1 Restrictions on assignment and charges	86
	24.2 Hypothecation of Materials or Plant	86
25	LIABILITY AND INDEMNITY	87
	25.1 General indemnity	88
	25.2 Indemnity by the Contractor	88
	25.3 Notice and contest of claims	88
	25.4 Defence of claims	88
	25.5 No consequential claims	89
	25.6 Survival on Termination	89
26	DISPUTE RESOLUTION	90
	26.1 Dispute Resolution	90
	26.2 Conciliation	90
	26.3 Arbitration	90-91
	26.4 Adjudication by Regulatory Authority, Tribunal or Commission	91

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
27	MISCELLANEOUS	92
	27.1 Governing law and jurisdiction	92
	27.2 Waiver of immunity	92
	27.3 Delayed payments	92
	27.4 Waiver	92-93
	27.5 Liability for review of Documents and Drawings	93
	27.6 Exclusion of implied warranties etc	93
	27.7 Survival	93
	27.8 Entire Agreement	93
	27.9 Severability	93-94
	27.10 No partnership	94
	27.11 Third parties	94
	27.12 Successors and assigns	94
	27.13 Notices	94-95
	27.14 Language	95
	27.15 Counterparts	95
	27.16 Confidentiality	95
	27.17 Copyright and Intellectual Property rights	95-96
	27.18 Limitation of Liability	96
28	ARTICLE 28: DEFINITIONS.	97-104
	Schedules	105
	Schedule- A.	106
	Annex-1: Site	107-113
	Annex-II: Dates for providing Right of way of Construction Zone	114

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	Annex-III: Alignment Plans	115
	Annex-IV: Environment Clearances	116
29	Schedule-B	117
	Description of Project	118
	1. Description of Project	118
	2. A. Two Lane with paved shoulder	122
	2.B.Four Lane without paved shoulder	
	3. Specification and Standard	122
	4. Annex-1: Description (Four- Laning)	123
30	Schedule-C	139
	Project Facilities	139
	1. Project Facilities	139
	2. Description of Project Facilities	139-140
31	Schedule-D	141
	Specification and Standard	141
	1. Construction	141
	2. Design Standard	141
	Annex-1: Specification and Standard for Construction	142
32	Schedule-E	143
	Maintenance Requirements	143
	1. Maintenance Requirements	143
	2. Repair/rectification of Defects and deficiencies	143
	3. Defects and deficiencies	143
	4.Extension of time limit	143
	5. Emergency repairs/restoration	144

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	6.Daily inspection by the Contractor	144
	7. Pre-monsoon inspection /Post-monsoon in spection	144
	8. Repairs on account of natural calamities	144
	Annex-I : Repair/rectification of Defects and deficiencies	145
33	Schedule-F	149
	Applicable Permits	149
	1.Applicable Permits	149
34	Schedule - G	150
	Annex-I : Form of Bank Guarantee	150
	Annex-II: Form for Guarantee for Withdrawal of Retention Money	154
	Annex-III: Form for Guarantee for Advance Payment	157
35	Schedule - H	160
36	Schedule - I	166
	Drawings	166
	1. Drawings	166
	2. Additional Drawings	166
	3. Annex-I : List of Drawings	167
37	Schedule - J (Project Completion Schedule)	168
	Project Completion Schedule	168
	Project Milestone-I	168
	Project Milestone-II	168
	Project Milestone-III	168
	Scheduled Completion Date	169
	Extension of time	169
38	Schedule - K	170

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
	Tests on Completion	170
	Schedule for Tests	170
	Tests	170
	Agency for conducting Tests	171
	Completion Certificate	171
39	Schedule - L	172
	Completion Certificate	172
	Provisional Certificate	172
40	Schedule - M	174
	Payment Reduction for Non-Compliance	174
	1. Payment reduction for non-compliance with the Maintenance Requirements	174
	2. Percentage reductions in lump sum payments on monthly basis	174
41	Schedule - N	176
	Selection of Authority's Engineer	176
	1. Selection of Authority's Engineer	176
	2. Terms of Reference	176
	3. Appointment of Government entity as Authority's Engineer	176
	4. Annex-I : Terms of Reference for Authority's Engineer	177
42	Schedule - O	183
	Forms of Payment Statements	183
	1. Stage Payment Statement for Works	183
	2. Monthly Maintenance Payment Statement	183
	3. Contract claim of Damages	183
43	Schedule - P	184
	Insurance	184
	1. Insurance	184
	2. Insurance for Contractor's Defects Liability	184
	3. Insurance against injury to persons and damage to property	184
	4. Insurance to be in joint names	185

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Sl No.	Description	Page No.
44	Schedule - Q	186
	Tests on Completion of Maintenance Perio	186
	1. Riding Qualitytest	186
	2. Visual and physicaltest	186
45	Schedule - R	187
	Taking Over Certificate	187

Part I

Preliminary

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ENGINEERING, PROCUREMENT AND CONSTRUCTION AGREEMENT

THIS AGREEMENT¹ is entered into on this the day of, 20....

BETWEEN

The **Superintending Engineer, Cuttack (R&B) Division-II, Cuttack** and having its office at **Cuttack**, representative of **Engineer-in-Chief (Civil), Roads-I, Govt. of Odisha, Unit IV, Kesari Nagar, Bhubaneswar**: the “Authority” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors & assigns) of One part,

AND

{-----},² means the selected bidder³ having its registered office at,

Serially numbered footnotes in this Agreement are for guidance of the Authority and should be omitted from the draft Agreement forming part of Bid Documents. Footnotes marked “\$” shall be retained in the draft Agreement.

²All provisions enclosed in curly parenthesis shall be retained in the Bid Documents and shall be modified as required after the selected bidder has been identified.

³Refers to the single entity or the lead member of the consortium/joint venture, which is the selected bidder under the RFP.

(hereinafter referred to as the “**Contractor**” which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the Other Part.

WHEREAS:

(A)[The Government of Odisha] had entrusted to the Authority [for the work of “**Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan**”.

(B) **The Authority had resolved “Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”. in ***** by Four-Laning] on Engineering, Procurement, (“EPC”) basis in accordance with the terms and conditions to be set forth in an agreement to be entered into.**

(C) The Authority had accordingly invited proposals by its Request for Proposal No. *** dated *** (the “**Request for Proposal**” or “**RFP**”) for evaluation of bidders for EPC contract of the above referred project.

(D) The Authority had prescribed the technical and commercial terms and conditions, and invited bids (the “**Request for Proposals**” or “**RFP**”) from the bidders for undertaking the project.

⁴ All project-specific provisions in this Model EPC Agreement have been enclosed in square parenthesis and

⁵This Clause 1.5 may be omitted if the Contractor is not a Consortium. Even if the Contractor is a Consortium, the Authority may, at its discretion, delete this provision.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

may be modified, as necessary, before issuing the draft Agreement forming part of Bid Documents.

- (E) After evaluation of the bids received, the Authority had accepted the bid of the selected bidder and issued its Letter of Acceptance No. dated (herein after called the “LOA”) to the selected bidder for the **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”**. at the contract price specified hereinafter, requiring the selected bidder to inter alia:
- (i) deliver to the Authority a legal opinion from the legal counsel of the selected bidder with respect to the authority of the selected bidder to enter into this Agreement and the enforceability of the provisions thereof, within **10 (ten) days** of the date of issue of LOA; and
 - (ii) Execute this Agreement within 15 (fifteen) days of the date of issue of LOA.

- (F) The Contractor has fulfilled the requirements specified in Recital (E) above;

NOW THEREFORE in consideration of the foregoing and the respective covenants and agreements set forth in this Agreement, the sufficiency and adequacy of which is hereby acknowledged, the Authority hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such other sum as may become payable under the provisions of the Agreement at the times and in the manner specified by the Agreement and intending to be legally bound hereby, the Parties agree as follows:

The following documents attached hereto shall be deemed to form an integral part of this contract:

- (a) Volume-I:
 - The Agreement;
 - Corrigendum to the Agreement;
 - Addendum, if any, to RFP;
 - Letter comprising the financial Bid;
 - Letter of Acceptance;
 - Power of Attorney;
 - Legal Opinion;
 - Any other document to be specified
- (b) Volume II: Alignment Plans and Drawings;
 - Annex-III of Schedule-A (Alignment Plan);
 - Typical Cross Sections;
 - Lay out of Major Junctions;
 - GAD of the bridges;
 - Any other drawings to be specified.
- (c) Volume-III: Technical Bid

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 1

DEFINITIONS AND INTERPRETATION

1.1 Definitions

The words and expressions beginning with capital letters and defined in this Agreement (including those in Article 28) shall, unless the context otherwise requires, have the meaning ascribed thereto herein, and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules.

1.2 Interpretation

1.2.1 In this Agreement, unless the context otherwise requires,

- a. references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;
- b. references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted;
- c. references to a “person” and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;
- d. the table of contents, headings or sub-headings in this Agreement are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Agreement;
- e. the words “include” and “including” are to be construed without limitation and shall be deemed to be followed by “without limitation” or “but not limited to” whether or not they are followed by such phrases;
- f. references to “construction” or “building” include, unless the context otherwise requires, survey and investigation, design, developing, engineering, procurement, supply of plant, materials, equipment, labour, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Project Highway, including maintenance during the Construction Period, removing of defects, if any, and other activities incidental to the construction and “construct” or “build” shall be construed accordingly;
- g. references to “development” include, unless the context otherwise requires, construction, renovation, refurbishing, augmentation, up-gradation and other activities incidental thereto during the Construction Period, and “develop” shall be construed accordingly;
- h. any reference to any period of time shall mean a reference to that according to Indian standard time;
 - i. any reference to day shall mean a reference to a calendar day;
 - j. references to a “business day” shall be construed as a reference to a day (other than a Sunday) on which banks in [Bhubaneswar] are generally open for business;
 - k. any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;
 - l. references to any date, period or Project Milestone shall mean and include such date, period or Project Milestone as may be extended pursuant to this Agreement;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- m. any reference to any period commencing “from” a specified day or date and “till” or “until” a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;
- n. the words importing singular shall include plural and vice versa;
- o. references to any gender shall include the other and the neutral gender;
- p. “lakh” means a hundred thousand (100,000) and “crore” means ten million (10,000,000);
- q. “indebtedness” shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;
- r. references to the “winding-up”, “dissolution”, “insolvency”, or “reorganisation” of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganisation, dissolution, arrangement, protection or relief of debtors;
- s. save and except as otherwise provided in this Agreement, any reference, at any time, to any agreement, deed, instrument, licence or document of any description shall be construed as reference to that agreement, deed, instrument, licence or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Clause shall not operate so as to increase liabilities or obligations of the Authority hereunder or pursuant hereto in any manner whatsoever;
- t. any agreement, consent, approval, authorisation, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Authority’s Engineer shall be valid and effective only if it is in writing under the hand of a duly authorised representative of such Party or the Authority’s Engineer, as the case may be, in this behalf and not otherwise;
- u. the Schedules and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;
- v. references to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Agreement, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears;
- w. the damages payable by either Party to the other of them, as set forth in this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the “Damages”); and
- x. time shall be of the essence in the performance of the Parties’ respective obligations. If any time period specified herein is extended for the reasons specified in the Agreement, such extended time shall also be of the essence.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- 1.2.2 Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Contractor to the Authority shall be provided free of cost and in three copies, and if the Authority is required to return any such Documentation with its comments and/or approval, it shall be entitled to retain two copies thereof.
- 1.2.3 The rule of construction, if any, that a contract should be interpreted against the parties responsible for the drafting and preparation thereof, shall not apply.
- 1.2.4 Any word or expression used in this Agreement shall, unless otherwise defined or construed in this Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act, 1897 shall not apply.

1.3 Measurements and Arithmetic Conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down.

1.4 Priority of agreements and errors/discrepancies

- 1.4.1 This Agreement, and all other agreements and documents forming part of or referred to in this Agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:
- (A) this Agreement; and
 - (B) all other agreements and documents forming part hereof or referred to herein; i.e. this Agreement at (a) above shall prevail over the agreements and documents at (b).
- 1.4.2 Subject to the provisions of Clause 1.4.1, in case of ambiguities or discrepancies within this Agreement, the following shall apply:
- (a) between two or more Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;
 - (b) between the Clauses of this Agreement and the Schedules, the Clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail;
 - (c) between any two Schedules, the Schedule relevant to the issue shall prevail;
 - (d) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;
 - (e) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and
 - (f) between any value written in numerals and that in words, the latter shall prevail.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

1.5 Joint and several liability

1.5.1 If the Contractor has formed a Consortium of two or more persons for implementing the Project:

(a) these persons shall, without prejudice to the provisions of this Agreement, be deemed to be jointly and severally liable to the Authority for the performance of the Agreement; and

(b) the Contractor shall ensure that no change in the composition of the Consortium is effected without the prior consent of the Authority.

1.5.2 Without prejudice to the joint and several liability of all the members of the Consortium, the Lead Member shall represent all the members of the Consortium and shall at all times be liable and responsible for discharging the functions and obligations of the Contractor. The Contractor shall ensure that each member of the Consortium shall be bound by any decision, communication, notice, action or inaction of the Lead Member on any matter related to this Agreement and the Authority shall be entitled to rely upon any such action, decision or communication of the Lead Member. The Authority shall have the right to release payments solely to the Lead Member and shall not in any manner be responsible or liable for the *inter se* allocation of payments among members of the Consortium.}\$

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Part II

Scope of Project

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 2

SCOPE OF THE PROJECT

2.1 Scope of the Project

Under this Agreement, the scope of the Project (the “Scope of the Project”) shall mean and include:

- (a) **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”** on the Site set forth in Schedule-A and as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D;
- (b) maintenance of the Project Highway in accordance with the provisions of this Agreement and in conformity with the requirements set forth in Schedule-E; and
- (c) Performance and fulfilment of all other obligations of the Contractor in accordance with the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under this Agreement.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 3

OBLIGATIONS OF THE CONTRACTOR

3.1 Obligations of the Contractor

- 3.1.1 Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, design, engineering, procurement, construction, and maintenance of the Project Highway and observe, fulfil, comply with and perform all its obligations set out in this Agreement or arising hereunder.
- 3.1.2 The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.
- 3.1.3 Subject to the provisions of Clauses 3.1.1 and 3.1.2, the Contractor shall discharge its obligations in accordance with Good Industry Practice and as a reasonable and prudent person.
- 3.1.4 The Contractor shall remedy any and all loss or damage to the Project Highway from the Appointed Date until the end of the Construction Period at the Contractor’s cost, save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.
- 3.1.5 The Contractor shall remedy any and all loss or damage to the Project Highway during the Defects Liability Period at the Contractor’s cost to the extent that such loss or damage shall have arisen out of the reasons specified in Clause 17.3.
- 3.1.6 The Contractor shall remedy any and all loss or damage to the Project Highway during the Maintenance Period at the Contractor’s cost, including those stated in Clause 14.1.2, save and except to the extent that any such loss or damage shall have arisen on account of any default or neglect of the Authority or on account of a Force Majeure Event.
- 3.1.7 The Contractor shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement:
- (a) make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits set forth in Schedule-F and obtain and keep in force and effect such Applicable Permits in conformity with the Applicable Laws;
 - (b) procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes and systems used or incorporated into the Project Highway;
 - (c) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement;
 - (d) ensure and procure that its Sub-contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Contractor’s obligations under this Agreement;
 - (e) not do or omit to do any act, deed or thing which may in any manner be violative of any of the provisions of this Agreement;
 - (f) support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (g) ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labour in accordance with the Applicable Laws and Good Industry Practice;
 - (h) keep, on the Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope Orders and other communications given under this Agreement. The Authority's Engineer and its authorised personnel shall have the right of access to all these documents at all reasonable times;
 - (i) cooperate with other contractors employed by the Authority and personnel of any public authority; and
 - (j) not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Authority or of others.
- 3.1.8 The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works.

3.2 Obligations relating to sub-contracts and any other agreements

- 3.2.1 The Contractor shall not sub-contract any Works in more than 50% (fifty per cent) of the total length of the Project Highway and shall carry out Works directly under its own supervision and through its own personnel in at least 50% (fifty per cent) of the total length of the Project **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”** Provided, however, that in respect of the Works carried out directly by the Contractor, it may enter into contracts for the supply and installation of Materials, Plant, equipment, road furniture, safety devices and labour, as the case may be, for such Works. For the avoidance of doubt, the Parties agree that the Contractor may sub-divide the aforesaid length of 50% (fifty per cent) in no more than 5 (five) sections of the Project Highway. The Parties further agree that all obligations and liabilities under this Agreement for the entire project Highway shall at all times remain with the Contractor. {The Parties also agree that obligation of the Contractor to carry out Works directly in at least 50% (fifty per cent) of the total length of the Project Highway shall be discharged solely by the Lead Member.}§
- 3.2.2 In the event any sub-contract for Works, or the aggregate of such sub-contracts with any Sub-contractor, exceeds 5% (five percent) of the Contract Price, the Contractor shall communicate the name and particulars, including the relevant experience of the sub-contractor, to the Authority prior to entering into any such sub-contract. The Authority shall examine the particulars of the sub-contractor from the national security and public interest perspective and may require the Contractor, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.
- 3.2.3 In the event any sub-contract referred to in Clause 3.2.2 relates to a sub-contractor who has, over the preceding 3 (three) years, not undertaken at least one work of a similar nature with a contract value exceeding 40% (forty per cent) of the value of the sub-contract to be awarded hereunder and received payments in respect thereof for an amount equal to at least such 40% (forty per cent), the Authority may, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, require the Contractor not to proceed with such sub-contract, and the Contractor shall comply therewith.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

^s May be deleted if the Contractor is not a Consortium

3.2.4 It is expressly agreed that the Contractor shall, at all times, be responsible and liable for all its obligations under this Agreement notwithstanding anything contained in the agreements with its Sub-contractors or any other agreement that may be entered into by the Contractor, and no default under any such agreement shall excuse the Contractor from its obligations or liability hereunder.

3.3 Deleted

3.4 Contractor's personnel

3.4.1 The Contractor shall ensure that the personnel engaged by it or by its Sub-contractors in the performance of its obligations under this Agreement are at all times appropriately qualified, skilled and experienced in their respective functions in conformity with Good Industry Practice.

3.4.2 The Authority's Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's or Sub-contractor's personnel. Provided that any such direction issued by the Authority's Engineer shall specify the reasons for the removal of such person.

3.4.3 The Contractor shall on receiving such a direction from the Authority's Engineer order for the removal of such person or persons with immediate effect. It shall be the duty of the Contractor to ensure that such persons are evicted from the Site within 10 (ten) days of any such direction being issued in pursuance of Clause 3.4.2. The Contractor shall further ensure that such persons have no further connection with the Works or Maintenance under this Agreement. The Contractor shall then appoint (or cause to be appointed) a replacement.

3.5 Advertisement on Project Highway

The Project Highway or any part thereof shall not be used in any manner to advertise any commercial product or services.

3.6 Contractor's care of the Works

The Contractor shall bear full risk in and take full responsibility for the care of the Works, and of the Materials, goods and equipment for incorporation therein, from the Appointed Date until the date of Provisional Certificate (with respect to the Works completed prior to the issuance of the Provisional Certificate) and/or Completion Certificate (with respect to the Works referred to in the Punch List), save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.

3.7 Electricity, water and other services

The Contractor shall be responsible for procuring of all power, water and other services that it may require.

3.8 Unforeseeable difficulties

Except as otherwise stated in the Agreement:

- (a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;
- (b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and
- (c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 4

OBLIGATIONS OF THE AUTHORITY

4.1 Obligations of the Authority

- 4.1.1 The Authority shall, at its own cost and expense, undertake, comply with and perform all its obligations set out in this Agreement or arising hereunder.
- 4.1.2 The Authority shall be responsible for the correctness of the Scope of the Project, Project Facilities, Specifications and Standards and the criteria for testing of the completed Works.
- 4.1.3 The Authority shall provide to the Contractor:
- (a) upon receiving the Performance Security under Clause 7.1.1, the Right of Way in accordance with the provisions of Clauses 8.2 and 8.3, within a period of 15 (fifteen) days from the date of this Agreement, no less than 90% (ninety per cent) of the total length of the Project Highway; for **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”**.
 - (b) approval of the general Arrangement drawings (The GAD) from the competent authority in accordance with the Specifications and standards and subject to terms and conditions specified in such approval within a period of 60 (Sixty) days from the Appointed date and reimbursement of all costs and expenses paid by the contractor to the railway authorities for and in respect of the road over-bridges/under bridges; and⁵
 - (c) all environmental clearances as required under Clause 4.3.⁶
- 4.1.4 Delay in providing the Right of Way or approval of GAD by railway authorities, as the case may be, in accordance with the provisions of Clause 4.1.3 shall entitle the Contractor to Damages in a sum calculated in accordance with the provisions of Clause 8.3 of this Agreement and Time Extension in accordance with the provisions of Clause 10.5 of this Agreement. For the avoidance of doubt, the Parties agree that the Damages for delay in approval of GAD by the railway authorities for a particular road over-bridge/under-bridge shall be deemed to be equal to the Damages payable under the provisions of Clause 8.3 for delay in providing Right of Way for a length of 2 (two) kilometre for each such road over-bridge/under-bridge.
- 4.1.5 Notwithstanding anything to the contrary contained in this Agreement, the Parties expressly agree that the aggregate Damages payable under Clauses 4.1.4, 8.3 and 9.2 shall not exceed **1% (one per cent)** of the Contract Price. For the avoidance of doubt, the Damages payable by the Authority under the aforesaid Clauses shall not be additive if they arise concurrently from more than one cause but relate to the same part of the Project Highway **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”**. Both the parties agree that payment of these Damages shall be full and final settlement of all claims of the Contractor and such compensation shall be the sole remedy against delays of the Authority and both parties further agree this as final cure against delays of the Authority.

⁵ Clause (b) may be omitted if the Project does not include a road over-bridge/under-bridge.

⁶ Clause 4.1.3 (c) may be suitably modified in the event that all the environmental clearances for the Project Highway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Highway have been received; or such environmental clearances for the Project Highway are not required.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

4.1.6 The Authority agrees to provide support to the Contractor and undertakes to observe, comply with and perform, subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:

- (a) upon written request from the Contractor, and subject to the Contractor complying with Applicable Laws, provide reasonable support to the Contractor in procuring Applicable Permits required from any Government Instrumentality for implementation of the Project;
- (b) upon written request from the Contractor, provide reasonable assistance to the Contractor in obtaining access to all necessary infrastructure facilities and utilities, including water and electricity at rates and on terms no less favourable than those generally available to commercial customers receiving substantially equivalent services;
- (c) procure that no barriers that would have a material adverse effect on the works are erected or placed on or about the Project **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan” on EPC contract**, by any Government Instrumentality or persons claiming through or under it, except for reasons of Emergency, national security, law and order or collection of inter-state taxes;
- (d) not do or omit to do any act, deed or thing which may in any manner be violative of any of the provisions of this Agreement;
- (e) support, cooperate with and facilitate the Contractor in the implementation of the Project in accordance with the provisions of this Agreement; and
- (f) upon written request from the Contractor and subject to the provisions of Clause 3.3, provide reasonable assistance to the Contractor and any expatriate personnel of the Contractor or its Sub-contractors to obtain applicable visas and work permits for the purposes of discharge by the Contractor or its Sub-contractors of their obligations under this Agreement and the agreements with the Sub-contractors.

4.2 Maintenance obligations prior to the Appointed Date

The Authority shall, prior to the Appointed Date, maintain the Project Highway **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”** at its own cost and expense, so that its traffic worthiness and safety are at no time materially inferior as compared to its condition 10 (ten) days prior to the last date for submission of the Bid, and in the event of any material deterioration or damage other than normal wear and tear, undertake repair thereof. For the avoidance of doubt, the Authority shall undertake only routine maintenance prior to the Appointed Date, and it shall undertake special repairs only in the event of excessive deterioration or damage caused due to unforeseen events such as floods or earthquake.

.3 Environmental Clearances

The Authority represents and warrants that the environmental clearances required for construction of the Project shall be procured by the Authority prior to the date of issue of LOA. For the avoidance of doubt, the present status of environmental clearances is specified in Schedule-A*.

**"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan"**

*Clause 4.3 may be suitably modified in the event that all the environmental clearances for the Project Highway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Highway have been received; or such environmental clearances for the Project Highway are not required.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 5

REPRESENTATIONS AND WARRANTIES

5.1 Representations and warranties of the Contractor

The Contractor represents and warrants to the Authority that:

- (a) it is duly organised and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
- (b) it has taken all necessary corporate and/or other actions under Applicable Laws to authorise the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
- (c) this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement will be legally valid, binding and enforceable obligations against it in accordance with the terms hereof;
- (d) it is subject to the laws of Odisha/ India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;
- (e) the information furnished in the Bid and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement;
- (f) the execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
- (g) there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Agreement;
- (h) it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
- (i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (j) no representation or warranty by it contained herein or in any other document furnished by it to the Authority or to any Government Instrumentality in relation to Applicable Permits contains or will contain any untrue or misleading statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;
- (k) no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or employee of the Authority in connection therewith;
- (l) all information provided by the {selected bidder/ members of the Consortium} in response to the Request for Proposals or otherwise, is to the best of its knowledge and belief, true and accurate in all material respects; and
- (m) nothing contained in this Agreement shall create any contractual relationship or obligation between the Authority and any Sub-contractors, designers, consultants or agents of the Contractor.

5.2 Representations and warranties of the Authority

The Authority represents and warrants to the Contractor that:

- (a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;
- (b) it has taken all necessary actions under the Applicable Laws to authorise the execution, delivery and performance of this Agreement;
- (c) it has the financial standing and capacity to perform its obligations under this Agreement;
- (d) this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
- (e) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;
- (f) it has complied with Applicable Laws in all material respects;
- (g) it has good and valid right to the Site and has the power and authority to grant the Right of Way in respect thereof to the Contractor; and
- (h) it has procured Right of Way and environment clearances such that the Contractor can commence construction forthwith on 90% (ninety per cent) of the total length of the Project Highway.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

5.3 Disclosure

In the event that any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 6

DISCLAIMER

6.1 Disclaimer

- 6.1.1 The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Proposal, Scope of the Project, Specifications and Standards of design, construction and maintenance, Site, local conditions, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Site and all information provided by the Authority or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in Clause 4.1.2 and Clause 5.2, the Authority makes no representation whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, statement or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Authority in this regard.
- 6.1.2 The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.
- 6.1.3 The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause 6.1.1 above and hereby acknowledges and agrees that the Authority shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.
- 6.1.4 The Parties agree that any mistake or error in or relating to any of the matters set forth in Clause 6.1.1 above shall not vitiate this Agreement, or render it voidable.
- 6.1.5 In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Clause 6.1.1 above, that Party shall immediately notify the other Party, specifying the mistake or error.
- 6.1.6 Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor; and the Authority shall not be liable in any manner for such risks or the consequences thereof.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Part III
Construction and Maintenance

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 7

PERFORMANCE SECURITY

7.1 Performance Security

7.1.1 The Contractor shall, for the performance of its obligations hereunder during the Construction Period, provide to the Authority, within 10 (ten) days of the date of this Agreement, an irrevocable and unconditional guarantee from a Nationalised Bank, counter guaranteed by its branch at Bhubaneswar in the form set forth in Schedule-G (the “**Performance Security**”) for an amount equal to **7.5 % (seven and half percent)** of the Contract Price. The Performance Security shall be valid until 60 (sixty) days after the Defects Liability Period. Until such time the Performance Security is provided by the Contractor pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security, the Authority shall release the Bid Security to the Contractor. For the avoidance of doubt, the parties expressly agree that the Contractor shall provide, no later than 30 (thirty) days prior to the expiry of the Performance Security for the defects Liability Period specified in Clause 17.1.1, a Performance Security in respect of the extended Defects Liability Period specified in Clause 17.1.2 for an amount equal to **5% (five per cent)** of the estimated cost of Structures and Major Bridges specified therein (**Prevailing the Govt. order**).

7.1.2 Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Contractor to provide the Performance Security in accordance with the provisions of Clause 7.1.1 and within the time specified therein or such extended period as may be provided by the Authority, in accordance with the provisions of Clause 7.1.3, the Authority may encash the Bid Security and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

7.1.3 In the event the Contractor fails to provide the Performance Security within 10 (ten) days of this Agreement, it may seek extension of time for a period not exceeding **20 (Twenty)** days on payment of Damages for such extended period in a sum calculated at the rate of **0.05 % (zero point zero five per cent)** of the Contract Price for each day until the Performance Security is provided.

7.2 Extension of Performance Security

The Contractor may initially provide the Performance Security for a period of 2 (two) years; provided that it shall procure the extension of the validity of the Performance Security, as necessary, at least 2 (two) months prior to the date of expiry thereof. Upon the Contractor providing an extended Performance Security, the previous Performance Security shall be deemed to be released and the Authority shall return the same to the Contractor within a period of 7 (seven) business days from the date of submission of the extended Performance Security.

7.3 Appropriation of Performance Security

7.3.1 Upon occurrence of a Contractor’s Default, the Authority shall, without prejudice to its

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

other rights and remedies hereunder or in law, be entitled to encash and appropriate the relevant amounts from the Performance Security as Damages for such Contractor’s Default.

- 7.3.2 Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance Security as aforesaid failing which the Authority shall be entitled to terminate the Agreement in accordance with Article 23. Upon replenishment or furnishing of a fresh Performance Security, as the case may be, as aforesaid, the Contractor shall be entitled to an additional Cure Period of 30 (thirty) days for remedying the Contractor’s Default, and in the event of the Contractor not curing its default within such Cure Period, the Authority shall be entitled to encash and appropriate such Performance Security as Damages, and to terminate this Agreement in accordance with Article 23.

7.4 Release of Performance Security

The Authority shall return the Performance Security to the Contractor within 60 (sixty) days of the later of the expiry of the Maintenance Period or the Defects Liability Period under this Agreement. Notwithstanding the aforesaid, the Parties agree that the Authority shall not be obliged to release the Performance Security until all Defects identified during the Defects Liability Period have been rectified.

7.5 Retention Money

- 7.5.1 From every payment for Works due to the Contractor in accordance with the provisions of Clause 19.5, the Authority shall deduct 6% (six per cent) thereof as guarantee money for performance of the obligations of the Contractor during the Construction Period (the “**Retention Money**”) subject to the condition that the maximum amount of Retention Money shall not exceed 5% (five per cent) of the Contract Price.
- 7.5.2 Upon occurrence of a Contractor’s Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money as Damages for such Contractor’s Default.
- 7.5.3 The Contractor may, upon furnishing an irrevocable and unconditional bank guarantee substantially in the form provided at Annex-II of Schedule-G, require the Authority to refund the Retention Money deducted by the Authority under the provisions of Clause 7.5.1. Provided that, the refund hereunder, shall be made in **tranches of not less than 1% (one per cent) of the Contract Price.**
- 7.5.4 Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall discharge the bank guarantees furnished by the Contractor under the provisions of Clause 7.5.3 and refund the balance of Retention Money remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5.2 and the amounts refunded under the provisions of Clause 7.5.3.
- 7.5.5 The Parties agree that in the event of Termination of this Agreement, the Retention Money and the bank guarantees specified in this Clause 7.5 shall be treated as if they are Performance Security and shall be reckoned as such for the purposes of Termination Payment under Clause 23.6.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 8

RIGHT OF WAY

8.1 The Site

The site of the Project Highway (the “**Site**”) shall comprise the site described in Schedule-A in respect of which the Right of Way shall be provided by the Authority to the Contractor. The Authority shall be responsible for:

- (a) acquiring and providing Right of Way on the Site in accordance with the alignment finalised by the Authority, free from all encroachments and encumbrances, and free access thereto for the execution of this Agreement; and
- (b) obtaining licences and permits for environment clearance for the Project Highway.

8.2 Procurement of the Site

8.2.1 The Authority Representative and the Contractor shall, within 15 (fifteen) days of the date of this Agreement, inspect the Site and prepare a memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site. Subject to the provisions of Clause 8.2.3, such memorandum shall have appended thereto an appendix (the “**Appendix**”) specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor. Signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorised representatives of the Parties shall be deemed to constitute valid evidence of giving the Right of Way to the Contractor for discharging its obligations under and in accordance with the provisions of this Agreement and for no other purpose whatsoever. Whenever the Authority is ready to hand over any part or parts of the Site included in the Appendix, it shall inform the Contractor, by notice, the proposed date and time such of handing over. The Authority Representative and the Contractor shall, on the date so notified, inspect the specified parts of the Site, and prepare a memorandum containing an inventory of the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site so handed over. Signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorised representatives of the Parties shall be deemed to constitute valid evidence of giving the relevant Right of Way to the Contractor.

8.2.2 The Authority shall provide the Right of Way to the Contractor in respect of all land included in the Appendix by the date specified in Schedule-A for those parts of the Site referred to therein, or no later than 90 (Ninty) days of the Appointed Date for those parts of the Site which have not been specified in Schedule-A, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Contractor, it shall pay to the Contractor, Damages in a sum calculated in accordance with Clause 8.3.1

8.2.3 Notwithstanding anything to the contrary contained in this Clause 8.2, the Authority shall specify the parts of the Site, if any, for which Right of Way shall be provided to the Contractor on the dates specified in Schedule-A. Such parts shall also be included in the Appendix prepared in pursuance of Clause 8.2.1. For the avoidance of doubt, the Parties expressly agree that the Appendix shall in no event contain sections of the Project Highway the cumulative length of which exceeds 10% (ten per cent) of the total length of the Project Highway.

8.3 Damages for delay in handing over the Site

8.3.1 In the event the Right of Way to any part of the Site is not provided by the Authority on or before the date(s) specified in Clause 8.2 for any reason other than Force Majeure or breach of this Agreement by the Contractor, the Authority shall pay Damages to the

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Contractor in a sum calculated in accordance with the following formula for and in respect of those parts of the Site to which the Right of Way has not been provided:

Amount of Damages in Rs. per day per metre = $0.05 \times C \times 1/L \times 1/N$

Where

C = the Contract Price; L = length of the Project Highway in metres; and

N = Completion period in days (Appointed Date to Scheduled Completion Date)

In the event that any Damages are due and payable to the Contractor under the provisions of this Clause 8.3.1 for delay in providing the Right of Way, the Contractor shall, subject to the provisions of Clause 10.5, be entitled to Time Extension equal to the period for which the Damages have become due and payable under this Clause 8.3.1, save and except that:

- (a) if any delays involve time overlaps, the overlaps shall not be additive; and
- (b) such Time Extension shall be restricted only to the Works which are affected by the delay in providing the Right of Way.

For the avoidance of doubt, the Parties expressly agree that the Damages specified hereunder and the Time Extension specified in Clause 10.5 shall be restricted only to failure of the Authority to provide the Right of Way for and in respect of the width of the roadway, its embankment.

- 8.3.2 Notwithstanding anything to the contrary contained in this Agreement, the Contractor expressly agrees that Works on all parts of the Site for which Right of Way is granted within 90(Ninety) days of the Appointed Date, or with respect to the parts of the Site provided in Schedule-A, no later than the date(s) specified therein, as the case may be, shall be completed before the Scheduled Completion Date and shall not qualify for any Time Extension under the provisions of Clause 8.3.1.
- 8.3.3 Notwithstanding anything to the contrary contained in this Agreement, the Authority may at any time withdraw any Works forming part of this Agreement, subject to such Works not exceeding an aggregate value, such value to be determined in accordance with Schedule-H, equal to 10(ten) percent of the Contract Price. Provided that if any Works cannot be undertaken within the municipal limits of a town or within any area falling in a reserved forest or wildlife sanctuary, as the case may be, because the requisite clearances or approvals for commencing construction of Works therein have not been given within 180 (One hundred and eighty) days of the Appointed date, the affected Works shall be deemed to be withdrawn under the provisions of this Clause 8.3.3 unless the Parties agree to the contrary, and such Works shall not be computed for the purposes of the aforesaid ceiling of 10% (ten per cent) hereunder.
- 8.3.4 In the event of withdrawal of Works under Clause 8.3.3, the Contract Price shall be reduced by an amount equal to 90 (ninety) per cent of the value of the Works withdrawn and the Contractor shall not be entitled to any other compensation or Damages for the withdrawal of Works.

Provided that if any Works are withdrawn after commencement of the Construction of such works, the Authority shall pay to the Contractor 110% (one hundred and ten per cent) of the fair value of the work done, as assessed by the Authority's Engineer:

8.4 Site to be free from Encumbrances

Subject to the provisions of Clause 8.2, the Site shall be made available by the Authority

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

to the Contractor pursuant hereto free from all Encumbrances and occupations and without the Contractor being required to make any payment to the Authority on account of any costs, compensation, expenses and charges for the acquisition and use of such Site for the duration of the Project Completion Schedule. For the avoidance of doubt, it is agreed that the existing rights of way, easements, privileges, liberties and appurtenances to the Site shall not be deemed to be Encumbrances. It is further agreed that, unless otherwise specified in this Agreement, the Contractor accepts and undertakes to bear any and all risks arising out of the inadequacy or physical condition of the Site.

8.5 Protection of Site from encroachments

On and after signing the memorandum and/or subsequent memorandum referred to in Clause 8.2.1, and until the issue of the Completion Certificate, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure and procure that no encroachment thereon takes place. During the Construction Period, the Contractor shall protect the Site from any and all occupations, encroachments or Encumbrances, and shall not place or create nor permit any Sub-contractor or other person claiming through or under the Agreement to place or create any Encumbrance or security threat over all or any part of the Site or the Project Assets, or on any rights of the Contractor therein or under this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or occupation forthwith to the Authority and undertake its removal at its own cost and expenses.

8.6 Special/temporary Right of Way

The Contractor shall bear all costs and charges for any special or temporary right of way required by it in connection with access to the Site. The Contractor shall obtain at its cost such facilities on or outside the Site as may be required by it for the purposes of the Project Highway and the performance of its obligations under this Agreement.

8.7 Access to the Authority and the Authority’s Engineer

- 8.7.1 The Right of Way given to the Contractor hereunder shall always be subject to the right of access of the Authority and the Authority’s Engineer and their employees and agents for inspection, viewing and exercise of their rights and performance of their obligations under this Agreement.
- 8.7.2 The Contractor shall ensure, subject to all relevant safety procedures, that the Authority has un-restricted access to the Site during any emergency situation, as decided by the Authority’s Engineer.

8.8 Geological and archaeological finds

It is expressly agreed that mining, geological or archaeological rights do not form part of this Agreement with the Contractor for the Works, and the Contractor hereby acknowledges that it shall not have any mining rights or interest in the underlying minerals, fossils, antiquities, structures or other remnants or things either of particular geological or archaeological interest and that such rights, interest and property on or under the Site shall vest in and belong to the Authority or the concerned Government Instrumentality. The Contractor shall take all reasonable precautions to prevent its workmen or any other person from removing or damaging such interest or property and shall inform the Authority forthwith of the discovery thereof and comply with such instructions as the concerned Government Instrumentality may reasonably give for the removal of such property. For the avoidance of doubt, it is agreed that any reasonable expenses incurred by the Contractor hereunder shall be reimbursed by the Authority. It is also agreed that the Authority shall procure that the instructions hereunder are issued by the concerned Government Instrumentality within a reasonable period.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

**ARTICLE 9
UTILITIES AND TREES**

9.1 Existing utilities and roads

Notwithstanding anything to the contrary contained herein, the Contractor shall ensure that the respective entities owning the existing roads, right of way, level crossings, structures, or utilities on, under or above the Site are enabled by it to keep them in continuous satisfactory use, if necessary, by providing suitable temporary diversions with the authority of the controlling body of that road, right of way or utility.

9.2 Shifting of obstructing utilities

The Contractor shall, in accordance with Applicable Laws and with assistance of the Authority, cause shifting of any utility (including electric lines, water pipes and telephone cables) to an appropriate location or alignment, if such utility or obstruction adversely affects the execution of Works or Maintenance of the Project Highway in accordance with this Agreement. The actual cost of such shifting, as approved and communicated by the entity owning the utility, shall be paid by the Contractor and reimbursed by the Authority to the Contractor. In the event of any delay in such shifting by the entity owning the utility beyond a period of 180 (one hundred and eighty) days from the date of notice by the Contractor to the entity owning the utility and to the Authority, the Contractor shall be entitled to Damages in a sum calculated in accordance with the formula specified in Clause 8.3.1 for the period of delay, and to Time Extension in accordance with Clause 10.5 for and in respect of the part(s) of the Works affected by such delay; provided that if the delays involve any time overlaps, the overlaps shall not be additive.

9.3 New utilities

- 9.3.1 The Contractor shall allow, subject to such conditions as the Authority may specify, access to, and use of the Site for laying telephone lines, water pipes, electric cables or other public utilities. Where such access or use causes any financial loss to the Contractor, it may require the user of the Site to pay compensation or damages as per Applicable Laws. For the avoidance of doubt, it is agreed that use of the Site under this Clause 9.3 shall not in any manner relieve the Contractor of its obligation to construct and maintain the Project Highway in accordance with this Agreement and any damage caused by such use shall be restored forthwith at the cost of the Authority.
- 9.3.2 The Authority may, by notice, require the Contractor to connect any adjoining road to the Project Highway, and the connecting portion thereof falling within the Site shall be constructed by the Contractor at the Authority's cost in accordance with Article 10.
- 9.3.3 The Authority may by notice require the Contractor to connect, through a paved road, any adjoining service station, hotel, motel or any other public facility or amenity to the Project Highway, whereupon the connecting portion thereof that falls within the Site shall be constructed by the Contractor on payment of the cost. The cost to be paid by the Authority to the Contractor shall be determined by the Authority's Engineer. For the avoidance of doubt, in the event such road is to be constructed for the benefit of any entity, the Authority may require such entity to make an advance deposit with the Contractor or the Authority, as the case may be, of an amount equal to the estimated cost as determined by the Authority's Engineer and such advance shall be adjusted against the cost of construction as determined by the Authority's Engineer hereunder.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

- 9.3.4 In the event the construction of any Works is affected by a new utility or works undertaken in accordance with this Clause 9.3, the Contractor shall be entitled to a reasonable Time Extension as determined by the Authority’s Engineer.

9.4 Felling of trees

The Authority shall assist the Contractor in obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a Material Adverse Effect on the construction or maintenance of the Project Highway. The cost of such felling shall be borne by the Authority and in the event of any delay in felling thereof for reasons beyond the control of the Contractor; it shall be excused for failure to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees. The Parties hereto agree that the felled trees shall be deemed to be owned by the Authority and shall be disposed in such manner and subject to such conditions as the Authority may in its sole discretion deem appropriate. For the avoidance of doubt, the Parties agree that if any felling of trees hereunder is in a forest area, the Applicable Permit thereof shall be procured by the Authority within the time specified in the Agreement.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 10

DESIGN AND CONSTRUCTION OF THE PROJECT HIGHWAY

10.1 Obligations prior to commencement of Works

10.1.1 Within 20 (twenty) days of the Appointed Date, the Contractor shall:

- (a) appoint its representative, duly authorised to deal with the Authority in respect of all matters under or arising out of or relating to this Agreement;
- (b) appoint a design director (the “**Design Director**”) who will head the Contractor’s design unit and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs;
- (c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this Agreement, the Applicable Laws and Applicable Permits; and
- (d) make its own arrangements for quarrying of materials needed for the Project Highway under and in accordance with the Applicable Laws and Applicable Permits.

10.1.2 The Authority shall, within 15 (fifteen) days of the date of this Agreement, appoint an engineer (the “**Authority’s Engineer**”) to discharge the functions and duties specified in this Agreement, and shall notify to the Contractor the name, address and the date of appointment of the Authority’s Engineer forthwith.

10.1.3 Within 30 (thirty) days of the Appointed Date, the Contractor shall submit to the Authority and the Authority’s Engineer a programme (the “**Programme**”) for the Works, developed using networking techniques giving the following details:

Part I Contractor’s organisation for the Project, the general methods and arrangements for design and construction, environmental management plan, Quality Assurance Plan including design quality plan, traffic management and safety plan covering safety of users and workers during construction, Contractor’s key personnel and equipment.

Part II Programme for completion of all stages of construction given in Schedule-H and Project Milestones of the Works as specified in Project Completion Schedule set forth in Schedule-J. The Programme shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of design and stages of Works;
- (b) the periods for reviews under Clause 10.2;
- (c) the sequence and timing of inspections and tests specified in this Agreement.

The Contractor shall submit a revised programme whenever the previous programme is inconsistent with the actual progress or with the Contractor’s obligations.

Part III Monthly cash flow forecast.

10.1.4 The Contractor shall compute, on the basis of the Drawings prepared in accordance with Clause 10.2.4, and provide to the Authority’s Engineer, the length, area and numbers, as the case may be, in respect of the various items of work specified in Schedule-H and comprising the Scope of the Project. The Parties expressly agree that these details shall

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

form the basis for estimating the interim payments for the Works in accordance with the provisions of Clause 19.3. For the avoidance of doubt, the sum of payments to be computed in respect of all the items of work shall not exceed the Contract Price, as may be adjusted in accordance with the provisions of this Agreement.

- 10.1.5 The Contractor shall appoint a safety consultant (the “**Safety Consultant**”) to carry out safety audit at the design stage of the Project Highway in accordance with the Applicable Laws and Good Industry Practice. The Safety Consultant shall be appointed after proposing to the Authority a panel of three names of qualified and experienced firms from whom the Authority may choose one to be the Safety Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Authority a revised panel of three names from the firms empanelled as safety consultants by the Ministry of Road Transport and Highways/ for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for the key personnel of the Safety Consultant who shall have adequate experience and qualifications in safety audit of the highway projects. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging of the Safety Consultant.
- 10.1.6 The safety audit pursuant to Clause 10.1.5 shall be carried out by the Safety Consultant in respect of all such design details that have a bearing on safety of Users as well as pedestrians and animals involved in or associated with accidents. The recommendations of the Safety Consultant shall be incorporated in the design of the Project Highway and the Contractor shall forward to the Authority’s Engineer a certificate to this effect together with the recommendations of the Safety Consultant. In the event that any works required by the Safety Consultant shall fall beyond the scope of Schedule-B, Schedule-C or Schedule-D, the Contractor shall make a report thereon and seek the instructions of the Authority for Change in Scope. For the avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be independent of the design and implementation team of the Contractor.

10.2 Design and Drawings

- 10.2.1 Design and Drawings shall be developed in conformity with the Specifications and Standards set forth in Schedule-D. In the event, the Contractor requires any relaxation in design standards due to restricted Right of Way in any section, the alternative design criteria for such section shall be provided for review of the Authority’s Engineer.
- 10.2.2 The Contractor shall appoint a proof check consultant (the “**Proof Consultant**”) after proposing to the Authority a panel of three names of qualified and experienced firms from whom the Authority may choose one to be the Proof Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Authority a revised panel of three names from the firms empanelled as proof consultants by the NH wing, PWD Govt. of Odisha, for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for two key personnel of the Proof Consultant who shall have adequate experience and qualifications in highways and bridges respectively. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging of the Proof Consultant.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

10.2.3 The Proof Consultant shall:

- (a) evolve a systems approach with the Design Director so as to minimise the time required for final designs and construction drawings; and
- (b) proof check the detailed calculations, drawings and designs, which have been approved by the Design Director.

10.2.4 In respect of the Contractor’s obligations with respect to the design and Drawings of the Project Highway as set forth in Schedule-I, the following shall apply:

- (a) The Contractor shall prepare and submit, with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, three copies each of the design and Drawings, duly certified by the Proof Consultant, to the Authority’s Engineer for review. Provided, however, that in respect of Major Bridges and Structures, the Authority’s Engineer may require additional drawings for its review in accordance with Good Industry Practice.
- (b) by submitting the Drawings for review to the Authority’s Engineer, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, including field construction criteria related thereto, are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws;
- (c) within 15 (fifteen) days of the receipt of the Drawings, the Authority’s Engineer shall review the same and convey its observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards. The Contractor shall not be obliged to await the observations of the Authority’s Engineer on the Drawings submitted pursuant hereto beyond the said period of 15 (fifteen) days and may begin or continue Works at its own discretion and risk; Provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days;
- (d) if the aforesaid observations of the Authority’s Engineer indicate that the Drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such Drawings shall be revised by the Contractor in conformity with the provisions of this Agreement and resubmitted to the Authority’s Engineer for review. The Authority’s Engineer shall give its observations, if any, within 10 (ten) days of receipt of the revised Drawings. In the event the Contractor fails to revise and resubmit such Drawings to the Authority’s Engineer for review as aforesaid, the Authority’s Engineer may withhold the payment for the affected works in accordance with the provisions of Clause 19.5.4. If the Contractor disputes any decision, direction or determination of the Authority’s Engineer hereunder, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure;
- (e) no review and/or observation of the Authority’s Engineer and/or its failure to review and/or convey its observations on any Drawings shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Authority’s Engineer or the Authority be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the construction works shall be corrected at the Contractor’s cost, notwithstanding any review under this Article 10;
- (f) the Contractor shall be responsible for delays in submitting the Drawing as set forth in Schedule-I caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the Authority; and

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (g) the Contractor warrants that its designers, including any third parties engaged by it, shall have the required experience and capability in accordance with Good Industry Practice and it shall indemnify the Authority against any damage, expense, liability, loss or claim, which the Authority might incur, sustain or be subject to arising from any breach of the Contractor’s design responsibility and/or warranty set out in this Clause.
- 10.2.5 Any cost or delay in construction arising from review by the Authority’s Engineer shall be borne by the Contractor.
- 10.2.6 Works shall be executed in accordance with the Drawings provided by the Contractor in accordance with the provisions of this Clause 10.2 and the observations of the Authority’s Engineer thereon as communicated pursuant to the provisions of Clause 10.2.4 (d). Such Drawings shall not be amended or altered without prior written notice to the Authority’s Engineer. If a Party becomes aware of an error or defect of a technical nature in the design or Drawings, that Party shall promptly give notice to the other Party of such error or defect.
- 10.2.7 Within 90 (ninety) days of the Project Completion Date, the Contractor shall furnish to the Authority and the Authority’s Engineer a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities.

10.3 Construction of the Project Highway.

- 10.3.1 The Contractor shall construct the Project Highway as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. 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 730 (Seven Hundred Thirty days)*** from the Appointed Date shall be the scheduled completion date **(the “Scheduled Completion Date”)** and the Contractor agrees and undertakes that the construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.
- 10.3.2 The Contractor shall construct the Project Highway in accordance with the Project Completion Schedule set forth in Schedule-J. In the event that the Contractor fails to achieve any Project Milestone or the Scheduled Completion Date within a period of 30 (thirty) days from the date set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority of a sum calculated at the rate of 0.05% (zero point zero five percent) of the Contract Price for delay of each day reckoned from the date specified in Schedule –J and until such Project Milestone is achieved or the Works are completed; provided that if the period for any or all Project Milestones or the Scheduled Completion Date is extended in accordance with the provisions of this Agreement, the dates set forth in Schedule-J shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-J has been amended as above; provided further that in the event the Works are completed within or before the Scheduled Completion Date including any Time Extension, applicable for that work or section, the Damages paid under this Clause 10.3.2 shall be refunded by the Authority to the Contractor, but without any interest thereon. For the avoidance of doubt, it is agreed that recovery of Damages under this Clause 10.3.2 shall be without prejudice to the rights of the Authority under this Agreement including the right of Termination thereof. The Parties further agree that Time Extension hereunder shall only be reckoned for and in respect of the affected works as specified in Clause 10.5.2.
- 10.3.3 The Authority shall notify the Contractor of its decision to impose Damages in pursuance with the provisions of this Clause 10.3. Provided that no deduction on account of Damages shall be effected by the Authority without notifying the Contractor of its decision to

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

impose the Damages, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice. The Parties expressly agree that the total amount of Damages under Clause 10.3.2 shall not exceed 10% (ten percent) of the Contract Price.

10.4 Maintenance during Construction Period

During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition 10 (ten) days prior to the date of this Agreement, and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at its cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of Works and conforms to Good Industry Practice; provided further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Authority's Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the Project Highway. It is further agreed that in the event the Project includes construction of a bypass or tunnel and realignment of the existing carriageway, the Contractor shall maintain the existing highway in such sections until the new Works are open to traffic.

10.5 Extension of time for completion

10.5.1 Without prejudice to any other provision of this Agreement for and in respect of extension of time, the Contractor shall be entitled to extension of time in the Project Completion Schedule (the **“Time Extension”**) to the extent that completion of any Project Milestone is or will be delayed by any of the following, namely:

- (a) delay in providing the Right of Way, environmental clearances or approval of railway authorities, specified in Clause 4.1.4;
- (b) Change of Scope (unless an adjustment to the Scheduled Completion Date has been agreed under Article 13);
- (c) Occurrence of a Force Majeure Event;
- (d) any delay, impediment or prevention caused by or attributable to the Authority, the Authority's personnel or the Authority's other contractors on the Site; and
- (e) any other cause or delay which entitles the Contractor to Time Extension in accordance with the provisions of this Agreement.

10.5.2 The Contractor shall, no later than 15 (fifteen) business days from the occurrence of an event or circumstance specified in Clause 10.5.1, inform the Authority's Engineer by notice in writing, with a copy to the Authority, stating in reasonable detail with supporting particulars, the event or circumstances giving rise to the claim for Time Extension in accordance with the provisions of this Agreement. Provided that the period of 15 (fifteen) business days shall be calculated from the date on which the Contractor became aware, or should have become aware, of the occurrence of such an event or circumstance. Provided further that notwithstanding anything to the contrary contained in this Agreement, Time Extension shall be due and applicable only for the Works which are affected by the aforesaid events or circumstances and shall not in any manner affect the Project Completion Schedule for and in respect of the Works which are not affected hereunder.

10.5.3 In the event of the failure of the Contractor to issue to the Authority's Engineer a notice in accordance with the provisions of Clause 10.5.2 within the time specified therein, the Contractor shall not be entitled to any Time Extension and shall forfeit its right for any such claims in future. For the avoidance of doubt, in the event of failure of the Contractor to issue notice as specified in this clause 10.5.3, the Authority shall be discharged from all

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

liability in connection with the claim.

10.5.4 The Authority's Engineer shall, on receipt of the claim in accordance with the provisions of Clause 10.5.2, examine the claim expeditiously within the time frame specified herein. In the event the Authority's Engineer requires any clarifications to examine the claim, the Authority's Engineer shall seek the same within 15 (fifteen) days from the date of receiving the claim. The Contractor shall, on receipt of the communication of the Authority's Engineer requesting for clarification, furnish the same to the Authority's Engineer within 10 (ten) days thereof. The Authority's Engineer shall, within a period of 60 (sixty) days from the date of receipt of such clarifications, forward in writing to the Contractor its determination of Time Extension. Provided that, when determining each extension of time under this Clause 10.5 the Authority's Engineer shall review previous determinations and may increase, but shall not decrease, the total Time Extension.

10.5.5 If the event or circumstance giving rise to the notice has a continuing effect:

- (a) a fully detailed claim shall be considered as interim;
- (b) the Contractor shall, no later than 10 (ten) days after the close of each month, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority's Engineer may reasonably require; and
- (c) the Contractor shall send a final claim within 30 (thirty) days after the effect of the event or the circumstance ceases. Upon receipt of the claim hereunder, the Authority's Engineer shall examine the same in accordance with the provisions of Clause 10.5.4 within a period of 60 (sixty) days of the receipt thereof.

10.6 Incomplete Works

In the event the Contractor fails to complete the Works in accordance with the Project Completion Schedule, including any Time Extension granted under this Agreement, the Contractor shall endeavour to complete the balance work expeditiously and shall pay Damages to the Authority in accordance with the provisions of Clause 10.3.2 for delay of each day until the Works are completed in accordance with the provisions of this Agreement. Recovery of Damages under this Clause shall be without prejudice to the rights of the Authority under this Agreement including the right to termination under Clause 23.1.

10.7 Maintenance Manual

No later than 60 (sixty) days prior to the Project Completion Date, the Contractor shall, in consultation with the Authority's Engineer, evolve a maintenance manual (the "Maintenance Manual") for the regular and preventive maintenance of the Project Highway in conformity with the Specifications and Standards, safety requirements and Good Industry Practice, and shall provide 5 (five) copies thereof to the Authority's Engineer. The Authority's Engineer shall review the Maintenance Manual within 15 (fifteen) days of its receipt and communicate its comments to the Contractor for necessary modifications, if any.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 11

QUALITY ASSURANCE, MONITORING AND SUPERVISION

11.1 Quality of Materials and workmanship

The Contractor shall ensure that the Construction, Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

11.2 Quality control system

11.2.1 The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the “**Quality Assurance Plan**” or “**QAP**”).

11.2.2 The Contractor shall, within 30 (thirty) days of the Appointed Date, submit to the Authority’s Engineer its Quality Assurance Plan which shall include the following:

- (a) organisation, duties and responsibilities, procedures, inspections and documentation;
- (b) quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the Specifications for Road and Bridge Works issued by MORTH, relevant IRC specifications and Good Industry Practice; and
- (c) internal quality audit system.

The Authority’s Engineer shall convey its comments to the Contractor within a period of 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Clause 11.2.

11.2.3 The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.

11.2.4 The cost of testing of Construction, Materials and workmanship under this Article 11 shall be borne by the Contractor.

11.3. Methodology

The Contractor shall, at least 15 (fifteen) days prior to the commencement of the construction, submit to the Authority’s Engineer for review the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management and measures for ensuring safety. The Authority’s Engineer shall complete the review and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

11.4. Inspection and technical audit by the Authority

The Authority or any representative authorised by the Authority in this behalf may inspect and review the progress and quality of the construction of Project Highway and issue appropriate directions to the Authority’s Engineer and the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

11.5 External technical audit

At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority’s Engineer for taking remedial action in accordance with this Agreement. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause 11.5, the external technical audit shall not affect any obligations of the Contractor or the Authority’s Engineer under this Agreement.

11.6 Inspection of construction records

The Authority shall have the right to inspect the records of the Contractor relating to the Works.

11.7 Monthly progress reports

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Authority and the Authority’s Engineer a monthly report on progress of the Works and shall promptly give such other relevant information as may be required by the Authority’s Engineer.

11.8 Inspection

11.8.1 The Authority’s Engineer and its authorized representative 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 for use in the Works; and
- (b) during production, manufacture and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship, and to check the progress of manufacture of Materials.

11.8.2 The Contractor shall give the Authority’s Engineer and its authorized agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

11.8.3 The Authority’s Engineer shall submit a monthly inspection report (the “**Inspection Report**”) to the Authority and the Contractor bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. For the avoidance of doubt, such inspection or submission of Inspection Report by the Authority’s Engineer shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever.

11.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Authority’s Engineer for pre-construction review:

- (a) manufacturer's test reports and standard samples of manufactured Materials; and
- (b) samples of such other Materials as the Authority’s Engineer may require.

11.10 Tests

11.10.1 For determining that the Works conform to the Specifications and Standards, the Authority’s Engineer shall require the Contractor to carry out or cause to be carried out

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

tests, at such time and frequency and in such manner as specified in this Agreement and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority's Engineer shall comprise at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

- 11.10.2 In the event that results of any tests conducted under this Clause 11.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Authority's Engineer in this behalf. The Authority's Engineer shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

11.11 Examination of work before covering up

In respect of the work which the Authority's Engineer is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Authority's Engineer whenever any such work is ready and before it is covered up. The Authority's Engineer shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority's Engineer does not require to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (three) business days' notice, to the Authority's Engineer to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Authority's Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority's Engineer, the Contractor shall be entitled to assume that the Authority's Engineer would not undertake the said inspection.

11.12 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Authority's Engineer shall reject the Plant, Materials, design 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 requirements of this Agreement.

If the Authority's Engineer requires the Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such cost shall be recoverable by the Authority from the Contractor; and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.13 Remedial work

- 11.13.1 Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor to:

- (a) remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (b) remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and
- (c) execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

11.13.2

If the Contractor fails to comply with the instructions issued by the Authority’s Engineer under Clause 11.13.1, within the time specified in the Authority’s Engineer’s notice or as mutually agreed, the Authority’s Engineer may advise the Authority to have the work executed by another agency. The cost so incurred by the Authority for undertaking such work shall, without prejudice to the rights of the Authority to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.14 Delays during construction

Without prejudice to the provisions of Clause 10.3.2, in the event the Contractor does not achieve any of the Project Milestones or the Authority’s Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Project Highway is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice, by a communication inform the Authority’s Engineer in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Project Completion Date.

11.15 Quality control records and Documents

The Contractor shall hand over to the Authority’s Engineer a copy of all its quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.

11.16 Video recording

During the Construction Period, the Contractor shall provide to the Authority for every calendar quarter, a video recording, which will be compiled into a 3 (three)-hour compact disc or digital video disc, as the case may be, covering the status and progress of Works in that quarter. The video recording shall be provided to the Authority no later than 15 (fifteen) days after the close of each quarter after the Appointed Date.

11.17 Suspension of unsafe Construction Works

- 11.17.1 Upon recommendation of the Authority’s Engineer to this effect, the Authority may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Authority’s Engineer, such work threatens the safety of the Users and pedestrians.
- 11.17.2 The Contractor shall, pursuant to the notice under Clause 11.17.1, suspend the Works or any part thereof for such time and in such manner as may be specified by the Authority and thereupon carry out remedial measures to secure the safety of suspended works, the Users and pedestrians. The Contractor may by notice require the Authority’s Engineer to inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked. Upon receiving the recommendations of the Authority’s Engineer, the Authority shall either revoke such

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Authority, and the procedure set forth in this Clause 11.17 shall be repeated until the suspension hereunder is revoked.

11.17.3 Subject to the provisions of Clause 21.6, all reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of suspension (the “**Preservation Costs**”), shall be borne by the Contractor; provided that if the suspension has occurred as a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.

11.17.4 If suspension of Works is for reasons not attributable to the Contractor, the Authority’s Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 12

COMPLETION CERTIFICATE

12.1 Tests on completion

12.1.1 At least 30 (thirty) days prior to the likely completion of the Project Highway, or a Section thereof, the Contractor shall notify the Authority's Engineer of its intent to subject the Project Highway or a Section thereof, to Tests. The date and time of each of the Tests shall be determined by the Authority's Engineer in consultation with the Contractor, and notified to the Authority who may designate its representative to witness the Tests. The Contractor shall either conduct the Tests as directed by the Authority's Engineer or provide such assistance as the Authority's Engineer may reasonably require for conducting the Tests. In the event of the Contractor and the Authority's Engineer failing to mutually agree on the dates for conducting the Tests, the Contractor shall fix the dates by giving not less than 10 (ten) days notice to the Authority's Engineer.

12.1.2 All Tests shall be conducted in accordance with Schedule-K. The Authority's Engineer shall either conduct or observe, monitor and review the Tests conducted by the Contractor, as the case may be, and review the results of the Tests to determine compliance of the Project Highway or a Section thereof, with Specifications and Standards and if it is reasonably anticipated or determined by the Authority's Engineer during the course of any Test that the performance of the Project Highway or Section or any part thereof, does not meet the Specifications and Standards, it shall have the right to suspend or delay such Test and require the Contractor to remedy and rectify the Defect or deficiencies. Upon completion of each Test, the Authority's Engineer shall provide to the Contractor and the Authority copies of all Test data including detailed Test results. For the avoidance of doubt, it is expressly agreed that the Authority's Engineer may require the Contractor to carry out or cause to be carried out additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway or Section thereof with the Specifications and Standards.

12.2 Provisional Certificate

12.2.1 Subject to the provisions of Clause 12.2.5, upon completion of all Works forming part of the Project Highway, save and except the Works for which Time Extension has been granted under Clause 10.5, the Authority's Engineer shall, at the request of the Contractor, issue a provisional certificate of completion substantially in the form set forth in Schedule-L (the “**Provisional Certificate**”) if the Tests for and in respect of the completed Works are successful. The Provisional Certificate shall have appended thereto a list of outstanding items of work (the “**Punch List**”) that need to be completed in accordance with the provisions of this Agreement. The Contractor undertakes to complete the minor outstanding items of works in respect of those Sections of the Project Highway for which the Provisional Certificate has been issued, within a period of 30 (thirty) days of the date of Provisional Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof. For the avoidance of doubt, the Parties agree that the Punch List shall include all Works for which Time Extension has been granted and shall also include any minor outstanding items of work forming part of the completed Sections if such works do not materially affect the use of the completed Sections for their intended purpose. The Parties further agree that Provisional Certificate shall not be issued if the completed Works cannot be safely and reliably placed in service of the Users thereof.

12.2.2 Upon issue of Provisional Certificate, the provisions of Articles 14 and 17 shall apply to the completed parts of the Project Highway and the property and ownership of all such completed Works shall vest in the Authority.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- 12.2.3 If the Authority’s Engineer determines that the Project Highway or any completed part thereof does not conform to the provisions of this Agreement and cannot be safely and reliably placed in operation, it shall forthwith make a report in this behalf and send copies thereof to the Authority and the Contractor and withhold issuance of the provisional Certificate until the Defects or deficiencies are rectified by the Contractor and Tests are successful in accordance with this Article 12.
- 12.2.4 Notwithstanding anything to the contrary contained in Clause 12.2.3, the Authority may, at any time after receiving a report from the Authority’s Engineer under that Clause, direct the Authority’s Engineer to issue a Provisional Certificate under Clause 12.2.1 and such direction shall be complied forthwith.
- 12.2.5 No Provisional Certificate shall be issued under the provisions of this Clause 12.2 until the Contractor has submitted valid claims for payment of at least 80% (eighty per cent) of the amount arrived at after reducing the lump sum price specified in Clause 19.1.1 by the amount attributable to works which have been withdrawn under the provisions of Clause 8.3.3. For the avoidance of doubt and by way of illustration, the Parties agree that if the Contract Price specified in Clause 19.1.1 is Rs. 105 cr. (Rs. one hundred and five crore) and the works withdrawn under Clause 8.3.3 have a value of Rs. 5 cr. (Rs. five crore), a Provisional Certificate shall not be issued until valid claims for payment of an amount of Rs. 80 cr. (Rs. eighty crore) have been submitted by the Contractor in accordance with the provisions of this Agreement. It is further agreed that all price adjustments made in pursuance of Clause 19.10 shall not be reckoned for computation of the claims for payments referred to in this Clause 12.2.5.

12.3 Completion of remaining Works

All items in the Punch List shall be completed by the Contractor in accordance with the provisions of this Agreement. For any delay in their completion other than for the reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to recover Damages from the Contractor in accordance with the provisions of Clause 10.3.2 of this Agreement.

12.4 Completion Certificate

- 12.4.1 Upon completion of all Works, including the items specified in the Punch List, and the Authority’s Engineer determining the Tests to be successful, it shall forthwith issue to the Contractor and the Authority a certificate substantially in the form set forth in Schedule-L (the “**Completion Certificate**”).
- 12.4.2 Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary works from the Site within a period of 30 (thirty) days thereof, failing which the Authority may remove or cause to be removed, such equipment, materials, debris and temporary works and recover from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority.
- 12.4.3 Without prejudice to the obligations of the Contractor specified in Articles 14 and 17, the property and ownership of all the completed Works forming part of the Project Highway shall vest in the Authority.

12.5 Rescheduling of Tests

If the Authority’s Engineer certifies to the Authority and the Contractor that it is unable to issue the Completion Certificate or Provisional Certificate, as the case may be, because of events or circumstances on account of which the Tests could not be held or had to be suspended, the Contractor shall be entitled to re-schedule the Tests and hold the same as soon as reasonably practicable.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

**ARTICLE 13
CHANGE OF SCOPE**

13.1 Change of Scope

13.1.1 The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications/alterations to the Works (**“Change of Scope”**) before the issue of the Completion Certificate either by giving an instruction or by requesting the Contractor to submit a proposal for Change of Scope involving additional cost or reduction in cost. Any such Change of Scope shall be made and valued in accordance with the provisions of this Article 13.

13.1.2 Change of Scope shall mean:

- (a) change in specifications of any item of Works;
- (b) omission of any work from the Scope of the Project except under Clause 8.3.3; provided that, subject to Clause 13.5, the Authority shall not omit any work under this Clause in order to get it executed by any other authority; and / or
- (c) any additional work, Plant, Materials or services which are not included in the Scope of the Project, including any associated Tests on completion of construction.

13.1.3 If the Contractor determines at any time that a Change of Scope will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Authority of executing, maintaining or operating the Project Highway, (iii) improve the efficiency or value to the Authority of the completed Project Highway, or (iv) otherwise be of benefit to the Authority, it shall prepare a proposal with relevant details at its own cost. The Contractor shall submit such proposal, supported with the relevant details and the amount of reduction in the Contract Price to the Authority to consider such Change of Scope. The Authority shall, within 15 (fifteen) days of receipt of such proposal, either accept such Change of Scope with modifications, if any, and initiate proceedings therefor in accordance with this Article 13 or reject the proposal and inform the Contractor of its decision. For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Authority, save and except any Works necessary for meeting any Emergency.

13.2 Procedure for Change of Scope

13.2.1 In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority’s Engineer to issue to the Contractor a notice specifying in reasonable detail the works and services contemplated thereunder (the **“Change of Scope Notice”**).

13.2.2 Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Authority and the Authority’s Engineer such information as is necessary, together with preliminary documentation in support of:

- (a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and
- (b) the options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:
 - (i) break down of the quantities, unit rates and cost for different items of work;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (ii) Proposed design for the Change of Scope; and
- (iii) proposed modifications, if any, to the Project Completion Schedule of the Project Highway.

For the avoidance of doubt, the Parties expressly agree that, subject to the provisions of Clause 13.4.2, the Contract Price shall be increased or decreased, as the case may be, on account of Change of Scope.

13.2.3 The Contractor’s quotation of costs for the Change of Scope shall be determined on the following principles:

- (a) For works where Schedule of Rates (SOR) of concerned circle of State’s Public Works Department are available shall be applicable for determination of costs. In case of non-availability of current SOR, the available Schedule of Rates shall be applied by updating the same based on WPI.
- (b) For works not similar in nature to the Works being executed, the cost of work shall be derived on the basis of MORTH Standard Data Book and the applicable schedule of rates for the relevant circle, as published by the respective State Government, and such rates shall be indexed with reference to the WPI once every year, with the base being the month and year of the publication of the said schedule of rates; provided, however, that for any item not included in the schedule of rates, the prevailing market rates as determined by the authority’s Engineer shall apply, and for any item in respect of which MORTH Standard Data Book does not provide the requisite details, the Authority’s Engineer shall determine the rate in accordance with Good Industry Practice.

13.2.4 Upon reaching an agreement, the Authority shall issue an order (the “**Change of Scope Order**”) requiring the Contractor to proceed with the performance thereof. In the event that the Parties are unable to agree, the Authority may:

- (a) issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority till the matter is resolved in accordance with Article 26; or
- (b) Proceed in accordance with Clause 13.5.

13.2.5 The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the works undertaken by the Contractor under this Article.

13.3 Payment for Change of Scope

Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order.

13.4 Restrictions on Change of Scope

13.4.1 No Change of Scope shall be executed unless the Authority has issued the Change of Scope Order save and except any Works necessary for meeting any Emergency.

13.4.2 Unless the Parties mutually agree to the contrary, the total value of all Change of Scope Orders shall not exceed 10 (ten) per cent of the Contract Price.

13.4.3 Notwithstanding anything to the contrary in this Article 13, no change made necessary because of any default of the Contractor in the performance of its obligations under this

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Agreement shall be deemed to be Change of Scope, and shall not result in any adjustment of the Contract Price or the Project Completion Schedule.

13.5 Power of the Authority to undertake works

- 13.5.1 In the event the Parties are unable to agree to the proposed Change of Scope Orders in accordance with Clause 13.2, the Authority may, after giving notice to the Contractor and considering its reply thereto, award such works or services to any person on the basis of open competitive bidding from amongst bidders who are pre-qualified for undertaking the additional work; provided that the Contractor shall have the option of matching the first ranked bid in terms of the selection criteria, subject to payment of 2% (two per cent) of the bid amount to the Authority^s, and thereupon securing the award of such works or services. For the avoidance of doubt, it is agreed that the Contractor shall be entitled to exercise such option only if it has participated in the bidding process and its bid does not exceed the first ranked bid by more than 10% (ten percent) thereof. It is also agreed that the Contractor shall provide assistance and cooperation to the person who undertakes the works or services hereunder, but shall not be responsible for rectification of any Defects and/ or maintenance of works carried out by other agencies.
- 13.5.2 The works undertaken in accordance with this Clause 13.5 shall conform to the Specifications and Standards and shall be carried out in a manner that minimises the disruption in operation of the Project Highway. The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the works carried out under this Clause 13.5.

^s The Authority shall transfer 75% (seventy five percent) of the amount so received to the first ranked bidder whose bid shall have been matched by the Contractor.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 14

MAINTENANCE.

14.1 Maintenance obligations of the Contractor

14.1.1 The Contractor shall maintain the Project Highway for a period of **5 (Five)** years commencing from the date of the Provisional Certificate (the “Maintenance Period”). For the performance of its Maintenance obligations, the Contractor shall be paid for 4 years of Maintenance Period including structures: **No maintenance charges shall be paid for the first year; 0.5% of the Contract Price for the second, third & fourth year and 1% of the Contract Price for the fifth year inclusive of all taxes.** The amount payable for maintenance shall be adjusted to reflect any increase or decrease arising out of variation in WPI to be determined in accordance with the provisions of Clause 19.12. For the avoidance of doubt, it is agreed that in the event no Provisional Certificate is issued, the Maintenance Period shall commence from the date of the Completion Certificate. It is further agreed that the Contract Price hereunder shall be reckoned with reference to the amount specified in Clause 19.1.1, which shall be adjusted to the extent of Change of Scope and the works withdrawn under the provisions of Clause 8.3.3, but shall not include any price adjustments in pursuance of Clause 19.10.

14.1.2. During the Maintenance Period, the Authority shall provide to the Contractor access to the Site for Maintenance in accordance with this Agreement. The obligations of the Contractor hereunder shall include:

14.1.2

- (a) Permitting safe, smooth and uninterrupted flow of traffic on the Project Highway;
- (b) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices;
- (c) Undertaking repairs to structures;
- (d) Informing the Authority of any unauthorised use of the Project Highway;
- (e) Informing the Authority of any encroachments on the Project Highway; and
- (f) operation and maintenance of all communication, patrolling, and administrative systems necessary for the efficient maintenance of the Project Highway in accordance with the provisions of this Agreement.

14.1.3 In respect of any Defect or deficiency not specified in Schedule-E, the Contractor shall, at its own cost, undertake repair or rectification in accordance with Good Industry Practice, save and except to the extent that such Defect or deficiency shall have arisen on account of any default or neglect of the Authority or a Force Majeure Event.

14.1.4 The Contractor shall remove promptly from the Project Highway any waste materials (including hazardous materials and waste water), rubbish and other debris (including, without limitation, accident debris) and keep the Project Highway in a clean, tidy and orderly condition, and in conformity with the Applicable Laws, Applicable Permits and Good Industry Practice.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

14.2 Maintenance Requirements

The Contractor shall ensure and procure that at all times during the Maintenance Period, the Project Highway conforms to the maintenance requirements set forth in Schedule-E (the “**Maintenance Requirements**”).

14.3 Maintenance Programme

14.3.1 The Contractor shall prepare a monthly maintenance programme (the “**Maintenance Programme**”) in consultation with the Authority’s Engineer and submit the same to the Authority’s Engineer not later than 10 (ten) days prior to the commencement of the month in which the Maintenance is to be carried out. For this purpose a joint monthly inspection by the Contractor and the Authority’s Engineer shall be undertaken. The Maintenance Programme shall contain the following:

- (a) The condition of the road in the format prescribed by the Authority’s Engineer;
- (b) the proposed maintenance works; and
- (c) deployment of resources for maintenance works.

14.4 Safety, vehicle breakdowns and accidents

14.4.1 The Contractor shall ensure safe conditions for the Users, and in the event of unsafe conditions, lane closures, diversions, vehicle breakdowns and accidents, it shall follow the relevant operating procedures for removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good Industry Practice.

14.4.2 The Contractor shall maintain and operate a round-the-clock vehicle rescue post with one mobile crane having the capacity to lift a truck with a Gross Vehicle Weight of 30,000 (thirty thousand) kilograms; and such post shall be located at to be decided by Authority Engineer. The Contractor shall promptly remove any damaged vehicles and debris from the Project Highway to enable safe movement of traffic and shall report all accidents to the police forthwith.

14.5 Lane closure

14.5.1 The Contractor shall not close any lane of the Project Highway for undertaking maintenance works except with the prior written approval of the Authority’s Engineer. Such approval shall be sought by the Contractor through a written request to be made at least 10 (ten) days before the proposed closure of lane and shall be accompanied by particulars thereof. Within 5 (five) business days of receiving such request, the Authority’s Engineer shall grant permission with such modifications as it may deem necessary and a copy of such permission shall be sent to the Authority.

14.5.2 Upon receiving the permission pursuant to Clause 14.5.1, the Contractor shall be entitled to close the designated lane for the period specified therein, and in the event of any delay in re-opening such lane, the Contractor shall, for every stretch of 250 (two hundred and fifty) metres, or part thereof, pay Damages to the Authority calculated at the rate of 0.1% (zero point one per cent) of the monthly maintenance payment for each day of delay until the lane has been re-opened for traffic.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

14.6 Reduction of payment for non-performance of Maintenance obligations

14.6.1 In the event that the Contractor fails to repair or rectify any Defect or deficiency set forth in Schedule-E within the period specified therein, it shall be deemed as failure of performance of Maintenance obligations by the Contractor and the Authority shall be entitled to effect reduction in monthly lump sum payment for maintenance in accordance with Clause 19.7 and Schedule-M, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

14.6.2 If the nature and extent of any Defect justifies more time for its repair or rectification than the time specified in Schedule-E, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

14.7 Authority's right to take remedial measures

In the event the Contractor does not maintain and/or repair the Project Highway or any part thereof in conformity with the Maintenance Requirements, the Maintenance Manual or the Maintenance Programme, as the case may be, and fails to commence remedial works within 15 (fifteen) days of receipt of the Maintenance Inspection Report under Clause 15.2 or a notice in this behalf from the Authority or the Authority's Engineer, as the case may be, the Authority shall, without prejudice to its rights under this Agreement including Termination thereof, be entitled to undertake such remedial measures at the cost of the Contractor, and to recover its cost from the Contractor. In addition to recovery of the aforesaid cost, a sum equal to 20% (twenty per cent) of such cost shall be paid by the Contractor to the Authority as Damages.

14.8 Restoration of loss or damage to Project Highway

Save and except as otherwise expressly provided in this Agreement, in the event that the Project Highway or any part thereof suffers any loss or damage during the Maintenance from any cause attributable to the Contractor, the Contractor shall, at its cost and expense, rectify and remedy such loss or damage forthwith so that the Project Highway conforms to the provisions of this Agreement.

14.9 Overriding powers of the Authority

14.9.1 If in the reasonable opinion of the Authority, the Contractor is in material breach of its obligations under this Agreement and, in particular, the Maintenance Requirements, and such breach is causing or likely to cause material hardship or danger to the Users and pedestrians, the Authority may, without prejudice to any of its rights under this Agreement including Termination thereof, by notice require the Contractor to take reasonable measures immediately for rectifying or removing such hardship or danger, as the case may be.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- 14.9.2 In the event that the Contractor, upon notice under Clause 14.9.1, fails to rectify or remove any hardship or danger within a reasonable period, the Authority may exercise overriding powers under this Clause 14.9.2 and take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it for rectifying or removing such hardship or danger; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required hereunder; provided further that any costs and expenses incurred by the Authority in discharge of its obligations hereunder shall be recovered by the Authority from the Contractor, and the Authority shall be entitled to deduct any such costs and expenses incurred from the payments due to the Contractor under Clause 19.7 for the performance of its Maintenance obligations.
- 14.9.3 In the event of a national emergency, civil commotion or any other circumstances specified in Clause 21.3, the Authority may take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it, and exercise such control over the Project Highway or give such directions to the Contractor as may be deemed necessary; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required in the circumstances which caused the exercise of such overriding power by the Authority. For the avoidance of doubt, it is agreed that the consequences of such action shall be dealt in accordance with the provisions of Article 21. It is also agreed that the Contractor shall comply with such instructions as the Authority may issue in pursuance of the provisions of this Clause 14.9.3, and shall provide assistance and cooperation to the Authority, on a best effort basis, for performance of its obligations hereunder.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 15

SUPERVISION AND MONITORING DURING MAINTENANCE

15.1 Inspection by the Contractor

- 15.1.1 The Authority’s Engineer shall undertake regular inspections to evaluate continuously the compliance with the Maintenance Requirements.
- 15.1.2 The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required shall be conveyed to the Authority’s Engineer forthwith. The Contractor shall complete the proposed maintenance works before the onset of the monsoon and send a compliance report to the Authority’s Engineer. Post monsoon inspection shall be undertaken by the Contractor and the inspection report together with details of any damages observed and proposed action to remedy the same shall be conveyed to the Authority’s Engineer forthwith.

15.2 Inspection and payments

- 15.2.1 The Authority’s Engineer may inspect the Project Highway at any time, but at least once every month, to ensure compliance with the Maintenance Requirements. It shall make a report of such inspection (“**Maintenance Inspection Report**”) stating in reasonable detail the Defects or deficiencies, if any, with particular reference to the Maintenance Requirements, the Maintenance Manual, and the Maintenance Programme, and send a copy thereof to the Authority and the Contractor within 10 (ten) days of such inspection.
- 15.2.2 After the Contractor submits to the Authority’s Engineer the Monthly Maintenance Statement for the Project Highway pursuant to Clause 19.6, the Authority’s Engineer shall carry out an inspection within 10 (ten) days to certify the amount payable to the Contractor. The Authority’s Engineer shall inform the Contractor of its intention to carry out the inspection at least 3 (three) business days in advance of such inspection. The Contractor shall assist the Authority’s Engineer in verifying compliance with the Maintenance Requirements.
- 15.2.3 For each case of non-compliance of Maintenance Requirements as specified in the inspection report of the Authority’s Engineer, the Authority’s Engineer shall calculate the amount of reduction in payment in accordance with the formula specified in Schedule-M.
- 15.2.4 Any deduction made on account of non-compliance will not be paid subsequently even after establishing the compliance thereof. Such deductions will continue to be made every month until the compliance is procured.

15.3 Tests

For determining that the Project Highway conforms to the Maintenance Requirements, the Authority’s Engineer shall require the Contractor to carry out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice. The Contractor shall, with due diligence, carry out or cause to be carried out all such tests in accordance with the instructions of the Authority’s Engineer and furnish the results of such tests forthwith to the Authority’s Engineer.

At any time during the Maintenance Period, the competent Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor, in

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

the presence of the representatives of the Contractor and the competent authority, shall carry out the Tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the competent authority for taking remedial measures. After completion of the remedial measures by the Contractor, the auditor shall undertake a closure audit, and this process will continue till the remedial measures have brought the maintenance works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause, the external technical audit shall not affect any obligations of the Contractor or the competent authority under the Agreement.

15.4 Reports of unusual occurrence

The Contractor shall, during the Maintenance Period, prior to the close of each day, send to the Authority and the Authority’s Engineer, by facsimile or e-mail, a report stating accidents and unusual occurrences on the Project Highway relating to the safety and security of the Users and Project Highway. A monthly summary of such reports shall also be sent within 3 (three) business days of the closing of month. For the purposes of this Clause 15.4, accidents and unusual occurrences on the Project Highway shall include:

- (a) accident, death or severe injury to any person;
- (b) damaged or dislodged fixed equipment;
- (c) flooding of Project Highway; and
- (d) any other unusual occurrence.

**"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan"**

ARTICLE 16

TRAFFIC REGULATION

16.1 Traffic regulation by the Contractor

- 16.1.1 The Contractor shall take all the required measures and make arrangements for the safety of Users during the construction and maintenance of the Project Highway or a Section thereof in accordance with the provisions of MORTH Specifications. It shall provide, erect and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic passing through the Section under construction or maintenance.
- 16.1.2 All works shall be carried out in a manner creating least interference to traffic passing through the Project Highway or a Section thereof. In stretches where construction or maintenance works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Authority's Engineer for any proposed arrangement for traffic regulation during Construction and Maintenance, which approval shall not be unreasonably withheld.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

**ARTICLE 17
DEFECTS LIABILITY.**

17.1 Defects Liability Period

17.1.1 The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Highway or any Section thereof, till the expiry of a period of 5 (five) years commencing from the date of Provisional Certificate (the “**Defects Liability Period**”). Provided that the Defects Liability Period shall in no case be less than 60 (sixty) months from the date of Completion Certificate for and in respect of works for which, Time Extension was granted. Provided, further that in the event no Provisional Certificate is issued, the Defects Liability Period shall commence from the date of the Completion Certificate. For the avoidance of doubt, any repairs or restoration on account of usual wear or tear in the Project Highway or any Section thereof shall form a part of the Maintenance obligations of the Contractor as specified in Article 14.

17.1.2 Deleted.

17.2 Remedying Defects

Save and except as provided in Clause 14.1.2, the Contractor shall repair or rectify all Defects and deficiencies observed by the Authority’s Engineer during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by the Authority’s Engineer in this behalf, or within such reasonable period as may be determined by the Authority’s Engineer at the request of the Contractor, in accordance with Good Industry Practice.

17.3 Cost of remedying Defects

For the avoidance of doubt, any repair or rectification undertaken in accordance with the provisions of Clause 17.2, including any additional testing, shall be carried out by the Contractor at its own risk and cost, to the extent that such rectification or repair is attributable to:

- (a) The design of the Project;
- (b) Plant, Materials or workmanship not being in accordance with this Agreement and the Specifications and Standards;
- (c) Improper maintenance during construction of the Project Highway by the Contractor; and/ or
- (d) Failure by the Contractor to comply with any other obligation under this Agreement.

17.4 Contractor’s failure to rectify Defects

In the event that the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor’s cost so as to make the Project Highway conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority’s Engineer.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

The cost so determined and an amount equal to twenty percent of the cost as Damages shall be recoverable by the Authority from the Contractor and may be deducted by the Authority from any monies due to the Contractor.

17.5 Contractor to search cause

- 17.5.1 The Authority's Engineer may instruct the Contractor to examine the cause of any Defect in the Works or part thereof before the expiry of the Defects Liability Period.
- 17.5.2 In the event any Defect identified under Clause 17.5.1 is attributable to the Contractor, the Contractor shall rectify such Defect within the period specified by the Authority's Engineer, and shall bear the cost of the examination and rectification of such Defect.
- 17.5.3 In the event such Defect is not attributable to the Contractor, the Authority's Engineer shall, after due consultation with the Authority and the Contractor, determine the costs incurred by the Contractor on such examination and notify the same to the Contractor, with a copy to the Authority, and the Contractor shall be entitled to payment of such costs by the Authority.

17.6. Extension of Defects Liability Period

The Defects Liability Period shall be deemed to be extended till the identified Defects under Clause 17.2 have been remedied.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 18

AUTHORITY’S ENGINEER

18.1 Appointment of the Authority’s Engineer

- 18.1.1 The Authority shall appoint a consulting engineering firm substantially in accordance with the selection criteria set forth in Schedule-N, to be the engineer under this Agreement (the **“Authority’s Engineer”**).
- 18.1.2 The appointment of the Authority’s Engineer shall be made no later than 15 (fifteen) days from the date of this Agreement. The Authority shall notify the appointment or replacement of the Authority’s Engineer to the Contractor.
- 18.1.3 The staff of the Authority’s Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Authority’s Engineer to carry out its duties.

18.2 Duties and authority of the Authority’s Engineer

- 18.2.1 The Authority’s Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, and substantially in accordance with the terms of reference (**“Terms of Reference” or “TOR”**) set forth in Annex 1 of Schedule N, but subject to obtaining prior written approval of the Authority before determining:
- (a) any Time Extension;
 - (b) any additional cost to be paid by the Authority to the Contractor;
 - (c) the Termination Payment; or
 - (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 50,00,000 (Rupees fifty lakh) only.
- 18.2.2 No decision or communication of the Authority’s Engineer shall be effective or valid unless it is accompanied by an attested true copy of the approval of the Authority for and in respect of any matter specified in Clause 18.2.1.
- 18.2.3 The Authority’s Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority’s Engineer within 10 (ten) days of the beginning of every month. For the avoidance of doubt, the Authority’s Engineer shall include in its report, compliance of the recommendations of the Safety Consultant.

18.3 Delegation by the Authority’s Engineer

- 18.3.1 The Authority’s Engineer may, by order in writing, delegate any of his duties and responsibilities to suitably qualified and experienced personnel who are accountable to Authority’s Engineer, or may revoke any such delegation, under intimation to the Authority and the Contractor. Provided, however, that the Authority’s Engineer shall be responsible and liable for all actions and omissions of such personnel.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- 18.3.2 Any failure of the Authority’s Engineer to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Authority to reject the work, Plant or Materials, which is not in accordance with the provisions of this Agreement and the Specifications and Standards.
- 18.3.3 Notwithstanding anything stated in Clause 18.3.1 above, the Authority’s Engineer shall not delegate the authority to refer any matter for the Authority’s prior approval wherever required in accordance with the provisions of Clause 18.2.

18.4 Instructions of the Authority’s Engineer

- 18.4.1 The Authority’s Engineer may issue to the Contractor instructions for remedying any Defect. The Contractor shall take such instructions from the Authority’s Engineer, or from an assistant to whom appropriate authority has been delegated under Clause 18.3.
- 18.4.2 The instructions issued by the Authority’s Engineer shall be in writing. However, if the Authority’s Engineer issues any oral instructions to the Contractor, it shall confirm in writing the oral instructions within 2 (two) working days of issuing them.
- 18.4.3 In case the Contractor does not receive the confirmation of the oral instruction within the time specified in Clause 18.4.2, the Contractor shall seek the written confirmation of the oral instructions from the Authority’s Engineer. The Contractor shall obtain acknowledgement from the Authority’s Engineer of the communication seeking written confirmation. In case of failure of the Authority’s Engineer or its delegated assistant to reply to the Contractor within 2 (two) days of the receipt of the communication from the Contractor, the Contractor may not carry out the instruction.
- 18.4.4 In case of any dispute on any of the instructions issued by the delegated assistant, the Contractor may refer the dispute to the Authority’s Engineer, who shall then confirm, reverse or vary the instructions within [3 (three)] business days of the dispute being referred.

18.5 Determination by the Authority’s Engineer

- 18.5.1 The Authority’s Engineer shall consult with each Party in an endeavour to reach agreement wherever this Agreement provides for the determination of any matter by the Authority’s Engineer. If such agreement is not achieved, the Authority’s Engineer shall make a fair determination in accordance with this Agreement having due regard to all relevant circumstances. The Authority’s Engineer shall give notice to both the Parties of each agreement or determination, with supporting particulars.
- 18.5.2 Each Party shall give effect to each agreement or determination made by the Authority’s Engineer in accordance with the provisions of this Agreement. Provided, however, that if any Party disputes any instruction, decision, direction or determination of the Authority’s Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

18.6 Remuneration of the Authority’s Engineer

The remuneration, cost and expenses of the Authority’s Engineer shall be paid by the Authority.

18.7 Termination of the Authority’s Engineer

- 18.7.1 The Authority may, in its discretion, replace the Authority’s Engineer at any time, but only after appointment of another Authority’s Engineer in accordance with Clause 18.1.

**"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan"**

18.7.2 If the Contractor has reasons to believe that the Authority's Engineer is not discharging its duties and functions in accordance with the provisions of this Agreement, it may make a written representation to the Authority and seek termination of the appointment of the Authority's Engineer. Upon receipt of such representation, the Authority shall hold a tripartite meeting with the Contractor and Authority's Engineer and make best efforts for an amicable resolution of the representation. In the event that the appointment of the Authority's Engineer is terminated hereunder, the Authority shall appoint forthwith another Authority's Engineer in accordance with Clause 18.1.

Part IV

Financial Covenants.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

ARTICLE 19

PAYMENTS

19.1 Contract Price

- 19.1.1 The Authority shall make payments to the Contractor for the Works on the basis of the lump sum price accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of Rs. (Rs.) (the **“Contract Price”**), which shall be subject to adjustments in accordance with the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the cost of Maintenance which shall be paid separately in accordance with the provisions of Clause 19.7. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until issue of Completion Certificate.
- 19.1.2 The **Contract Price excludes all duties (GST), taxes**, royalty, and fees that may be levied in accordance with the laws and regulations in force as on the Base Date on the Contractor's equipment, Plant, Materials and supplies acquired for the purpose of this Agreement and on the services performed under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement.
- 19.1.3 The Contract Price shall not be adjusted for any change in costs stated in Clause 19.1.2 above, except as stated in Clauses 19.10 and 19.17.
- 19.1.4 The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.
- 19.1.5 Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project Highway.
- 19.1.6 All payments under this Agreement shall be made in Indian Rupees.

19.2 Advance Payment

- 19.2.1 The Authority shall make an interest-bearing advance payment (the **“Advance Payment”**), equal in amount to 10 (ten) percent of the Contract Price, for mobilisation expenses and for acquisition of equipment. The Advance Payment shall be made in **four instalments**. The 1st instalment shall be an amount equal to 2% (Two) of the contract price, the 2nd instalment shall be equal to 3% of the contract price, the 3rd instalment shall be 3% (three percent) and the 4th instalment shall be 2% (two percent) of contract price. The advance payment would be deemed as interest-bearing advance at an interest rate of 10% (ten) per annum, to be compounded quarterly. The interest would be recovered along with the recovery of advance payment.
- 19.2.2 The Contractor may apply to the Authority for the first instalment of the Advance Payment at any time after the Appointed Date, along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of Schedule-G, to remain effectivetill the complete and full repayment thereof.
- 19.2.3 At any time, after 30 (thirty) days from the Appointed Date, the Contractor may apply to the Authority for the second instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Schedule-G, to remain effective till the complete and full repayment thereof

19.2.4 At any time, after 60 (sixty) days from the Appointed Date, the Contractor may apply to the Authority for the third instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof.

19.2.4.1 At any time, after 90 (Ninety) days from the Appointed Date on verification of Plant and Machineries by S.E., Mechanical (R&B), the Contractor may apply to the Authority for the fourth instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Nationalised Bank, counter guaranteed by its branch at Bhubaneswar for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof.

19.2.5 The first, second and third instalments shall be paid by the Authority to the Contractor within 15 (fifteen) days of the receipt of its respective requests in accordance with the provisions of this Clause 19.2.

19.2.6 Each instalment of advance payment shall be repaid by the contractor to the authority no later than 365 (Three hundred & sixty five) days from the respective date of advance payment.

19.2.7 The contractor shall repay each instalment of the advance payment on or before the due date of repayment. In the event of the contractor's failure to make the repayment on time the Authority shall be entitled to encash the Bank guarantee for advance payment. The parties expressly agree that for any delay in repayment of the advance payment the contractor shall pay interest to the Authority for each day of delay, such interest to be calculated at the rate of 18% (eighteen percent) per annum.

19.2.8 If the Advance Payment has not been fully repaid prior to Termination under Clause 21.7 or Article 23, as the case may be, the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Authority. Without prejudice to the provisions of Clause 19.2.7, in the event of Termination for Contractor Default, the Advance Payment shall be deemed to carry interest at the rate of 10% (ten per cent) per annum from the date of Advance Payment to the date of recovery by encashment of the Bank Guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on each instalment of the Advance Payment, regardless of whether the instalment or any part thereof has been repaid to the Authority prior to Termination.

19.3 Procedure for estimating the payment for the Works

19.3.1 The Authority shall make interim payments to the Contractor as certified by the Authority's Engineer on completion of a stage, in a length, number or area as specified, and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in Schedule-H.

19.3.2 The Contractor shall base its claim for interim payment for the stages completed till the end of the month for which the payment is claimed, valued in accordance with Clause 19.3.1, supported with necessary particulars and documents in accordance with this Agreement.

19.3.3 Any reduction in the Contract Price arising out of Change of Scope or the works withdrawn under Clause 8.3 shall not affect the amounts payable for the items or stage payments thereof which are not affected by such Change of Scope or withdrawal. For avoidance of

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

doubt and by way of illustration, the Parties agree that if the amount assigned to Project Highway is reduced from Rs. 100 crore to Rs. 80 crore owing to Change of Scope or withdrawal of work, the reduction in payment shall be restricted to relevant payments for Project Highway only and the payment due in respect of all other stage payments under the item Major Project Highway shall not be affected in any manner. The Parties further agree that the adjustments arising out of the aforesaid modifications shall be carried out in a manner that the impact of such modifications is restricted to the said Change of Scope or withdrawal, as the case may be, and does not alter the payments due for and in respect of items or stage payments which do not form part of such Change of Scope or withdrawal.

19.4 Stage Payment Statement for Works

The Contractor shall submit a statement (the **“Stage Payment Statement”**), in 3 copies, by the 7th (seventh) day of the month to the Authority’s Engineer in the form set forth in Schedule-O, showing the amount calculated in accordance with Clause 19.3 to which the Contractor considers himself entitled for completed stage(s) of the Works. The Stage Payment Statement shall be accompanied with the progress reports and any other supporting documents.

19.5 Stage Payment for Works

19.5.1 Within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, the Authority’s Engineer shall broadly determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment against the Stage Payment Statement, pending issue of the Interim Payment Certificate by the Authority’s Engineer. Within 10 (ten) days of the receipt of recommendation of the Authority’s Engineer, the Authority shall make electronic payment directly to the Contractor’s bank account.

19.5.2 Within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, the Authority’s Engineer shall determine and shall deliver to the Authority and the Contractor an IPC certifying the amount due and payable to the Contractor, after adjusting the payments already released to the Contractor against the said statement. For the avoidance of doubt, the Parties agree that the IPC shall specify all the amounts that have been deducted from the Stage Payment Statement and the reasons therefor.

19.5.3 In cases where there is a difference of opinion as to the value of any stage, the Authority’s Engineer’s view shall prevail and interim payments shall be made to the Contractor on this basis; provided that the foregoing shall be without prejudice to the Contractor’s right to raise a Dispute.

19.5.4 The Authority’s Engineer may, for reasons to be recorded, withhold from payment:

- (a) the estimated value of work or obligation that the Contractor has failed to perform in accordance with this Agreement and the Authority’s Engineer had notified the Contractor; and
- (b) the estimated cost of rectification of work done being not in accordance with this Agreement.

19.5.5 Payment by the Authority shall not be deemed to indicate the Authority’s acceptance, approval, consent or satisfaction with the work done.

19.6 Monthly Maintenance Statement of the Project Highway

19.6.1 The Contractor shall submit to the Authority’s Engineer a monthly maintenance statement (**“Monthly Maintenance Statement”**) in 3 (three) copies by the 7th (seventh) day of each month in the format set forth in Schedule-O for the Maintenance of the Project Highway during the previous month.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

19.6.2 The monthly lump sum amount payable for Maintenance shall be 1/12th (one-twelfth) of the annual cost of Maintenance as specified in Clause 14.1.1.

19.7 Payment for Maintenance of the Project Highway

19.7.1 Within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, the Authority's Engineer shall verify the Contractor's monthly maintenance statement and certify the amount to be paid to the Contractor taking into account:

- (a) Compliance with the Maintenance Requirements; and
- (b) reduction for non-compliance with the Maintenance Requirement in accordance with Clause 19.7.2.

The Authority's Engineer shall deliver to the Authority an IPC approving or amending the monthly maintenance statement to reflect the amount due to the Contractor in accordance with this Agreement.

19.7.2 Maintenance shall be measured in units of one kilometer each; provided, however, that payment thereof shall be made in fixed monthly amounts in accordance with this Agreement. If the Maintenance Requirements set forth in Schedule-E are not met, reduction in payments shall be made in accordance with the provisions of Schedule-M. The reductions for non-compliance with the Maintenance Requirements shall be applied on the basis of monthly inspections by the Authority's Engineer.

19.7.3 The deduction made on account of non-compliance with the Maintenance Requirements shall not be subsequently considered for payment after the compliance is achieved by repair or rectification.

19.7.4 The Authority shall pay to the Contractor every quarter any amount due under any IPC under this Clause 19.7. The payment shall be made no later than 30 (thirty) days from the date of submission of the last IPC for the relevant quarter.

19.8 Payment of Damages

19.8.1 The Contractor may claim Damages due and payable to it in accordance with the provisions of this Agreement.

19.8.2 The Authority's Engineer shall issue the IPC within 15 (fifteen) days of the receipt of the claim under Clause 19.8.1, after making adjustments in accordance with the provisions of this Agreement. The Authority shall pay to the Contractor the amount due under any IPC within a period of 30 (thirty) days from the date of the submission of the claim under this Clause 19.8. In the event of the failure of the Authority to make payment to the Contractor within the specified time, the Authority shall be liable to pay to the Contractor interest thereon and the provisions of Clause 19.9 shall apply *mutatis mutandis* thereto.

19.9 Time of payment and interest

19.9.1 The Authority shall pay to the Contractor any amount due under any payment certificate issued by the Authority's Engineer in accordance with the provisions of this Article 19, or in accordance with any other clause of this Agreement as follows:

- (a) payment shall be made no later than 30 (thirty) days from the date of submission of the Stage Payment Statement by the Contractor to the Authority's Engineer for certification in accordance with the provisions of Clause 19.4 for an IPC; provided that, in the event the IPC is not issued by the Authority's Engineer within the aforesaid period of 30 (thirty)

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

days, the Authority shall pay the amount shown in the Contractor’s Stage Payment Statement and any discrepancy therein shall be added to, or deducted from, the next payment certificate issued to the Contractor; and

- (b) payment shall be made no later than 30 (thirty) days from the date of submission of the Final Payment Certificate for Works along with the discharge submitted to the Authority’s Engineer in accordance with the provisions of Clause 19.15 for certification.

19.9.2 In the event of the failure of the Authority to make payment to the Contractor within the time period stated in this Clause 19.9, the Authority shall be liable to pay to the Contractor interest at the Base Rate plus 2% (two percent), calculated at quarterly rests, on all sums remaining unpaid from the date on which the same should have been paid, calculated in accordance with the provisions of Clause 19.9.1(a) and (b) and till the date of actual payment.

19.10. Price adjustment for the Works

19.10.1 The amounts payable to the Contractor for Works shall be adjusted in accordance with the provisions of this Clause 19.10.

19.10.2 Subject to the provisions of Clause 19.10.3, the amounts payable to the Contractor for Works, shall be adjusted in the IPC issued by the Authority’s Engineer for the increase or decrease in the index cost of inputs for the Works, by the addition or subtraction of the amounts determined by the formulae prescribed in Clause 19.10.4.

19.10.3 To the extent that full compensation for any increase or decrease in costs to the Contractor is not covered by the provisions of this or other Clauses in this Agreement, the costs and prices payable under this Agreement shall be deemed to include the amounts required to cover the contingency of such other increase or decrease of costs and prices.

19.10.4 The Contract Price shall be adjusted for increase or decrease in rates and price of labour, cement, steel, Plant, machinery and spares, bitumen, fuel and lubricants, and other material inputs in accordance with the principles, procedures and formulae specified below:

- (a) Price adjustment shall be applied on completion of the specified stage of the respective item of work in accordance with Schedule-H;
- (b) Adjustment for each item of work/stage shall be made separately.
- (c) The following expressions and meanings are assigned to the value of the work done:

RW= Value of work done for the completion of a stage under the following items of Schedule-H:

- i. Road Works and
- ii. Other works

BR = Value of work done for the completion of a stage under the items Major Bridges and Structures (Schedule-H)

- (d) Price adjustment for changes in cost shall be paid in accordance with the following formulae:
 - i. $VRW = 0.85 RW \times [PL \times (LI - LO)/LO + PA \times (AI - AO)/AO + PF \times (FI - FO)/FO + PB \times (BI - BO)/BO + PM \times (MI - MO)/MO + PC \times (CI - CO)/CO + PS \times (SI - SO)/SO]$
 - ii. $VBR = 0.85 BR \times [PL \times (LI - LO)/LO + PA \times (AI - AO)/AO + PF \times (FI - FO)/FO + PM \times (MI - MO)/MO + PC \times (CI - CO)/CO + PS \times (SI - SO)/SO]$

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

Where

VRW = Increase or decrease in the cost of road works/other works during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e)

VBR = Increase or decrease in the cost of Major Bridges and Structures during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e)

PB, PC, PL, PM, and PS are the percentages of bitumen, cement, labour, other materials, and steel/components (including strands and cables) respectively for the relevant item as stated in sub-paragraph (e)

PA is the percentage of Plant, machinery and spares component for the relevant item as stated in sub-paragraph (e).

PF is the percentage of fuel and lubricants for the relevant items as stated in sub-paragraph (e).

AO = The wholesale price index as published by the Ministry of Commerce & Industry, Government of India (hereinafter called “WPI”) for construction machinery for the month of the Base Date.

AI = The WPI for construction machinery for the month three months prior to the month to which the IPC relates.

BO = The official retail price of bitumen at the nearest refinery at [Haladia/Vizag] on the Base Date.

BI = The official retail price of bitumen at nearest refinery at [Haladia/Vizag], on the first day of the month three months prior to the month to which the IPC relates.

CO = The WPI for cement for the month of the Base Date.

CI = The WPI for cement for the month three months prior to the month to which the IPC relates.

FO = The official retail price of high speed diesel (HSD) oil at the existing consumer pumps of Indian Oil Corporation (“IOC”) in the State of [Odisha] on the Base Date.

FI = The official retail price of HSD at the existing consumer pumps of IOC in the State of [Odisha] on the first day of the month three months prior to the month to which the IPC relates.

LO = The consumer price index for industrial workers for the State of Odisha, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called “CPI”) for the month of the Base Date.

LI = The CPI for the month three months prior to the month to which the IPC relates.

MO = The WPI for all commodities for the month of the Base Date.

MI = The WPI for all commodities for the month three months prior to the month to which the IPC relates.

SO = The WPI for steel (rods) for the month of the Base Date.

SI = The WPI for steel (rods) for the month three months prior to the month to which the IPC relates.

**“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km
in the district of Cuttack under State Plan”**

(e) The following percentages shall govern the price adjustment of the Contract Price:

Component	Item				
	Road Works				Major Bridges and Structures
	Earthwork, Granular work, and Other works	Bituminous work	Cement Concrete Pavement	Culverts, minor bridges and other structures	
Labour (PL)	[20%]	[20%]	[20%]	[15%]	[15%]
Cement (PC)	[5%]	Nil	[20%]	[15%]	[15%]
Steel (PS)	Nil	Nil	Nil	[15%]	[20%]
Bitumen (PB)	Nil	[15%]	Nil	Nil	Nil
Fuel and lubricants (PF)	[10%]	[10%]	[10%]	[10%]	[10%]
Other Materials (PM)	[50%]	[40%]	[35%]	[30%]	[25%]
Plant, machinery and spares. (PA)	[15%]	[15%]	[15%]	[15%]	[15%]
Total	100%	100%	100%	100%	100%

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (f) In case an IPC relates to a month which is within 3 (three) months from the Base Date, no price adjustment shall be applicable.

19.11 Restrictions on price adjustment

Price adjustment shall be due and payable only in respect of the stages of Works for which the Stage Payment Statement has been submitted by the Contractor no later than 30 (thirty) days from the date of the applicable Project Milestone or the Scheduled Completion Date, as the case may be, including any Time Extension granted therefor in accordance with the provisions of this Agreement. For the avoidance of doubt, in the event of submission of any Stage Payment Statement after the period specified herein, price adjustment shall be applicable until the date of the respective Project Milestone or the Scheduled Completion Date, as the case may be.

19.12. Price adjustment for Maintenance of Project Highway

Lump sum payment for Maintenance shall be adjusted every quarter for changes in rates and prices of various inputs in accordance with the formula given below:

$$V = P \times (W^1 - W^0) / W^0$$

V = Increase or decrease in the quarterly lump sum payment

P = Quarterly lump sum payment due to the Contractor after adjusting any reduction in payment for non compliance of the Maintenance Requirements

W⁰ = The wholesale price index (all commodities) for the month of the Base Date.

W¹ = The wholesale price index (all commodities) for the first day of the quarter under consideration for determining the price adjustment.

19.13 Final Payment Statement

19.13.1 Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.4, the Contractor shall submit to the Authority's Engineer for consideration six copies of a Final Payment Statement (the “**Final Payment Statement**”) for Works, with supporting documents showing in detail, in the form prescribed by the Authority's Engineer:

- (a) the summary of Contractor's Stage Payment claims for Works as submitted in accordance with Clause 19.4;
- (b) the amounts received from the Authority against each claim; and
- (c) any further sums which the Contractor considers due to it from the Authority.

If the Authority's Engineer disagrees with or cannot verify any part of the Final Payment Statement, the Contractor shall submit such further information as the Authority's Engineer may reasonably require. The Authority's Engineer shall deliver to the Authority:

- (i) an IPC for those parts of the Final Payment Statement which are not in dispute, along with a list of disputed items which shall then be settled in accordance with the provisions of Article 26; or
- (ii) a Final Payment Certificate in accordance with Clause 19.15 if there are no disputed items.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

19.13.2 If the Authority’s Engineer does not prescribe the form referred to in Clause 19.13.1 within 15 (fifteen) of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.

19.14 Discharge

Upon submission of the Final Payment Statement for Works under Clause 19.13, the Contractor shall give to the Authority, with a copy to the Authority’s Engineer, a written discharge confirming that the total of the Final Payment Statement represents full and final settlement of all monies due to the Contractor in respect of this Agreement for all the Works arising out of this Agreement, except for any monies due to either Party on account of any Defect. Provided that such discharge shall become effective only after the payment due has been made in accordance with the Final Payment Certificate issued pursuant to Clause 19.15.

19.15 Final Payment Certificate

19.15.1 Within 30 (thirty) days after receipt of the Final Payment Statement for Works under Clause 19.13, and the written discharge under Clause 19.14, and there being no disputed items of claim, the Authority’s Engineer shall deliver to the Authority, with a copy to the Contractor, a final payment certificate (the **“Final Payment Certificate”**) stating the amount which, in the opinion of the Authority’s Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Authority’s Engineer shall ascertain from the Authority all amounts previously paid by the Authority and for all sums to which the Authority is entitled, the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.

19.15.2 The Authority shall, in accordance with the provisions of Clause 19.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

19.16 Final payment statement for Maintenance

19.16.1 Within 30 (thirty) days after completion of the Maintenance Period, the Contractor shall submit to the Authority’s Engineer six copies of the final payment statement for Maintenance of the Project Highway, with supporting documents showing the details set forth below in the form prescribed by the Authority’s Engineer:

- (a) the total amount claimed in accordance with the monthly statement for Maintenance of Project Highway;
- (b) the amount paid in accordance with the Interim Payment Certificates; and
- (c) any sums which the Contractor considers to be due to it, with supporting documents.

19.16.2 The Authority’s Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance under Clause 19.16.1, segregating the items of amount payable from the items of amount disallowed. The Authority shall make payment on the basis of the final payment authorised by the Authority’s Engineer within a period of 30 (thirty) days of the receipt of the Final Payment Statement from the Authority’s Engineer.

19.16.3 If the Authority’s Engineer does not prescribe the form within 15 (fifteen) days of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

19.17 Change in law

19.17.1 If as a result of Change in Law, the Contractor suffers any additional costs in the execution of the Works or in relation to the performance of its other obligations under this Agreement, the Contractor shall, within 15 (fifteen) days from the date it becomes reasonably aware of such addition in cost, notify the Authority with a copy to the Authority's Engineer of such additional cost due to Change in Law.

19.17.2 If as a result of Change in Law, the Contractor benefits from any reduction in costs for the execution of this Agreement or in accordance with the provisions of this Agreement, either Party shall, within 15 (fifteen) days from the date it becomes reasonably aware of such reduction in cost, notify the other Party with a copy to the Authority's Engineer of such reduction in cost due to Change in Law.

19.17.3 The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the notice from the Contractor or the Authority, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

19.18 Correction of Interim Payment Certificates

The Authority's Engineer may by an Interim Payment Certificate make any correction or modification in any previous Interim Payment Certificate issued by the Authority's Engineer.

19.19 Authority's claims

If the Authority considers itself to be entitled to any payment from the Contractor under any Clause of this Agreement, it shall give notice and particulars to the Contractor 20 (twenty) days before making the recovery from any amount due to the Contractor, and shall take into consideration the representation, if any, made by the Contractor in this behalf, before making such recovery.

19.20 Bonus for early completion

In the event that the Project Completion Date occurs prior to the Scheduled Completion Date, the Contractor shall be entitled to receive a payment of bonus equivalent to 0.03% (zero point zero three per cent) of the Contract Price for each day by which the Project Completion Date precedes the Scheduled Completion Date, but subject to a maximum of 3% (three per cent) of the Contract Price. Provided, however, that the payment of bonus, if any, shall be made only after the issue of the Completion Certificate. For the avoidance of the doubt, the Parties agree that for the purpose of determining the bonus payable hereunder, the Contract Price shall always be deemed to be the amount specified in Clause 19.1.1, and shall exclude any revision thereof for any reason. The Parties also agree that bonus shall be payable only if each work for which Extension of Time has been granted is completed within respective Extended Time.

19.21 Royalty of minor minerals.

The contractor is required to pay royalty to the Government of Odisha towards use of minor minerals as mentioned below and produce such documents in support of their payment to the concerned Executive Engineer with their bills, failing which the amount towards royalties of different materials as utilized by them will be recovered from their bills and deposited in the Government revenue.

The royalty will be recovered from the work bill of the contractor at the rates as per prevailing

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

OMMC rules 2016, which has come in to force w.e.f.15.12.2016 and communicated vide works department Letter No 918 dated 16.01.2017. Any revision in rates of royalty during execution of work, such revised royalty shall be recovered.

The Goods and Service Tax (GST) shall be applicable on the works contract as per GST rules and as amended from time to time by the Government.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 20

INSURANCE

20.1 Insurance for Works and Maintenance

20.1.1 The Contractor shall effect and maintain at its own cost the insurances specified in Schedule-P and as per the requirements under the Applicable Laws.

20.1.2 Subject to the provisions of Clause 21.6, the Authority and the Contractor shall, in accordance with its obligations as provided for in this Agreement, be liable to bear the cost of any loss or damage that does not fall within the scope of this Article 20 or cannot be recovered from the insurers.

20.1.3 Subject to the exceptions specified in Clause 20.1.4 below, the Contractor shall, save and except as provided for in this Agreement, fully indemnify, hold harmless and defend the Authority from and against any and all losses, damages, costs, charges and/or claims with respect to:

(a) the death of or injury to any person; or

(b) the loss of or damage to any property (other than the Works);

that may arise out of or in consequence of any breach by the Contractor of this Agreement during the execution of the Works or the remedying of any Defects therein.

20.1.4 Notwithstanding anything stated above in Clause 20.1.3, the Authority shall fully indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims arising out of or with respect to

(a) the use or occupation of land or any part thereof by the Authority;

(b) the right of the Authority to execute the Works, or any part thereof, on, over, under, in or through any land;

(c) the damage to property which is the unavoidable result of the execution and completion of the Works, or the remedying of any Defects therein, in accordance with this Agreement; and

(d) the death of or injury to persons or loss of or damage to property resulting from any act or neglect of the Authority, its agents, servants or other contractors, not being employed by the Contractor.

Provided that, in the event of any injury or damage as a result of the contributory negligence of the Contractor, the Authority shall be liable to indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims to the extent as may be proportionately determined to be the liability of the Authority, its servants or agents or other contractors not associated with the Contractor in such injury or damage.

20.1.5 Without prejudice to the obligations of the Parties as specified under Clauses 20.1.3 and 20.1.4, the Contractor shall maintain or effect such third-party insurances as may be required under the Applicable Laws.

20.1.6 The Contractor shall provide to the Authority, within 30 days of the Appointed Date, evidence of professional liability insurance maintained by its Design Director and/or

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

consultants to cover the risk of professional negligence in the design of Works. The professional liability coverage shall be for a sum of not less than [3% (three per cent)] of the Contract Price and shall be maintained until the end of the Defects Liability Period.

20.2 Notice to the Authority

No later than 15 (fifteen) days after the date of this Agreement, the Contractor shall by notice furnish to the Authority, in reasonable detail, information in respect of the insurances that it proposes to effect and maintain in accordance with this Article 20. Within 15 (fifteen) days of receipt of such notice, the Authority may require the Contractor to effect and maintain such other insurances as may be necessary pursuant hereto, and in the event of any difference or disagreement relating to any such insurance, the Dispute Resolution Procedure shall apply.

20.3 Evidence of Insurance Cover

20.3.1 All insurances obtained by the Contractor in accordance with this Article 20 shall be maintained with insurers on terms consistent with Good Industry Practice. Within 10 (ten) days from the Appointed Date, the Contractor shall furnish to the Authority notarised true copies of the certificate(s) of insurance, copies of insurance policies and premia payment receipts in respect of such insurance, and no such insurance shall be cancelled, modified, or allowed to expire or lapse until the expiration of at least 45 (forty-five) days after notice of such proposed cancellation, modification or non-renewal has been delivered by the Contractor to the Authority. The Contractor shall act in accordance with the directions of the Authority. Provided that the Contractor shall produce to the Authority the insurance policies in force and the receipts for payment of the current premia.

20.3.2 The Contractor shall ensure the adequacy of the insurances at all times in accordance with the provisions of this Agreement.

20.4 Remedy for failure to insure

If the Contractor shall fail to effect and keep in force all insurances for which it is responsible pursuant hereto, the Authority shall have the option to either keep in force any such insurances, and pay such premia and recover the costs thereof from the Contractor, or in the event of computation of a Termination Payment, treat an amount equal to the Insurance Cover as deemed to have been received by the Contractor.

20.5 Waiver of subrogation

All insurance policies in respect of the insurance obtained by the Contractor pursuant to this Article 20 shall include a waiver of any and all rights of subrogation or recovery of the insurers thereunder against, inter alia, the Authority, and its assigns, successors, undertakings and their subsidiaries, Affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.

20.6 Contractor's waiver

The Contractor hereby further releases, assigns and waives any and all rights of subrogation or recovery against, inter alia, the Authority and its assigns, undertakings and their subsidiaries, Affiliates, employees, successors, insurers and underwriters, which the

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Contractor may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Contractor pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

20.7 Cross liabilities

Any such insurance maintained or effected in pursuance of this Article 20 shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Authority as separately insured.

20.8 Accident or injury to workmen

Notwithstanding anything stated in this Agreement, it is hereby expressly agreed between the Parties that the Authority shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or Sub-contractor, save and except as for death or injury resulting from any act, omission or default of the Authority, its agents or servants. The Contractor shall indemnify and keep indemnified the Authority from and against all such claims, proceedings, damages, costs, charges, and expenses whatsoever in respect of the above save and except for those acts, omissions or defaults for which the Authority shall be liable.

20.9 Insurance against accident to workmen

The Contractor shall effect and maintain during the Agreement such insurances as may be required to insure the Contractor's personnel and any other persons employed by it on the Project Highway from and against any liability incurred in pursuance of this Article 20. Provided that for the purposes of this Clause 20.9, the Contractor's personnel/any person employed by the Contractor shall include the Sub-contractor and its personnel. It is further provided that, in respect of any persons employed by any Sub-contractor, the Contractor's obligations to insure as aforesaid under this Clause 20.9 shall be discharged if the Sub-contractor shall have insured against any liability in respect of such persons in such manner that the Authority is indemnified under the policy. The Contractor shall require such Sub-contractor to produce before the Authority, when required, such policy of insurance and the receipt for payment of the current premium within 10 (ten) days of such demand being made by the Authority.

20.10 Application of insurance proceeds

The proceeds from all insurance claims, except for life and injury, shall be applied for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highway and the provisions of this Agreement in respect of construction of works shall apply mutatis mutandis to the works undertaken out of the proceeds of insurance.

20.11 Compliance with policy conditions

Each Party hereby expressly agrees to fully indemnify the other Party from and against all losses and claims arising from its failure to comply with conditions imposed by the insurance policies effected in accordance with this Agreement.

Part V

Force Majeure and Termination

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 21
FORCE MAJEURE

21.1 Force Majeure

As used in this Agreement, the expression “Force Majeure” or “Force Majeure Event” shall mean occurrence in India of any or all of Non-Political Event, Indirect Political Event and Political Event, as defined in Clauses 21.2, 21.3 and 21.4 respectively, if it affects the performance by the Party claiming the benefit of Force Majeure (the “Affected Party”) of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

21.2 Non-Political Event

A Non-Political Event shall mean one or more of the following acts or events:

- (a) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionising radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);
- (a) strikes or boycotts (other than those involving the Contractor, Sub-contractors or their respective employees/representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project Highway for a continuous period of 24 (twenty-four) hours and an aggregate period exceeding 10 (ten) days in an Accounting Year, and not being an Indirect Political Event set forth in Clause 21.3;
- (c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;
- (d) any judgment or order of any court of competent jurisdiction or statutory authority made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Authority;
- (e) the discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

21.3 Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

- (a) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage;
- (b) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (c) any civil commotion, boycott or political agitation which prevents construction of the Project Highway by the Contractor for an aggregate period exceeding 10 (ten) days in an Accounting Year;
- (d) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;
- (e) any Indirect Political Event that causes a Non-Political Event; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

21.4 Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

- (a) Change in Law, only if consequences thereof cannot be dealt with under and in accordance with the provisions of Clause 19.17;
- (b) compulsory acquisition in national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub-Contractors;
- (c) unlawful or unauthorized or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, license, permit, authorization, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, license, authorization, no objection certificate, exemption, consent, approval or permit;
- (d) any failure or delay of a Sub-contractor but only to the extent caused by another Political Event; or
- (e) any event or circumstances of a nature analogous to any of the foregoing.

21.5 Duty to report Force Majeure Event

21.5.1 Upon occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

- (a) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article 21 with evidence in support thereof;
- (b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;
- (c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and
- (d) any other information relevant to the Affected Party's claim.

21.5.2 The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

21.5.3 For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) reports containing information as required by Clause 21.5.1, and such other information as the other Party may reasonably request the Affected Party to provide.

21.6 Effect of Force Majeure Event on the Agreement

21.6.1 Upon the occurrence of any Force Majeure after the Appointed Date, the costs incurred and attributable to such event and directly relating to this Agreement (the “Force Majeure costs”) shall be allocated and paid as follows:

- (a) upon occurrence of a Non-Political Event, the Parties shall bear their respective Force Majeure costs and neither Party shall be required to pay to the other Party any costs thereof;
- (b) upon occurrence of an Indirect Political Event, all Force Majeure costs attributable to such Indirect Political Event, and not exceeding the Insurance Cover for such Indirect Political Event, shall be borne by the Contractor, and to the extent Force Majeure costs exceed such Insurance Cover, one half of such excess amount shall be reimbursed by the Authority to the Contractor for the Force Majeure events; and
- (b) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Authority to the Contractor.
- (d) For the avoidance of doubt, Force Majeure costs may include costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor.

21.6.2 Save and except as expressly provided in this Article 21, neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.

21.6.3 Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be extended on a day for day basis for such period as performance of the Contractor’s obligations is affected on account of the Force Majeure Event or its subsisting effects.

21.7 Termination Notice for Force Majeure Event

21.7.1 If a Force Majeure Event subsists for a period of 60 (sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may in its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this Article 21, and upon issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (fifteen) days time to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

21.8 Termination Payment for Force Majeure Event

21.8.1 In the event of this Agreement being terminated on account of a Non-Political Event, the Termination Payment shall be an amount equal to the sum payable under Clause 23.5.

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

21.8.2 If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

- (a) any sums due and payable under Clause 23.5; and
- (b) the reasonable cost, as determined by the Authority's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;
Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

21.8.3 If Termination is on account of a Political Event, the Authority shall make a Termination Payment to the Contractor in an amount that would be payable under Clause 23.6.2 as if it were an Authority Default.

21.9 Dispute resolution

In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled in accordance with the Dispute Resolution Procedure; provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

21.10 Excuse from performance of obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

- (a) the suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;
- (b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence; and
- (c) when the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume performance of its obligations hereunder.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

**ARTICLE 22
SUSPENSION OF CONTRACTOR'S RIGHTS**

22.1 Suspension upon Contractor Default

Upon occurrence of a Contractor Default, the Authority shall be entitled, without prejudice to its other rights and remedies under this Agreement including its rights of Termination hereunder, to (i) suspend carrying out of the Works or Maintenance or any part thereof, and (ii) carry out such Works or Maintenance itself or authorise any other person to exercise or perform the same on its behalf during such suspension (the “**Suspension**”). Suspension hereunder shall be effective forthwith upon issue of notice by the Authority to the Contractor and may extend up to a period not exceeding 90 (ninety) days from the date of issue of such notice.

22.2 Authority to act on behalf of Contractor

During the period of Suspension hereunder, all rights and liabilities vested in the Contractor in accordance with the provisions of this Agreement shall continue to vest therein and all things done or actions taken, including expenditure incurred by the Authority for discharging the obligations of the Contractor under and in accordance with this Agreement shall be deemed to have been done or taken for and on behalf of the Contractor and the Contractor undertakes to indemnify the Authority for all costs incurred during such period. The Contractor hereby licenses and sub-licences respectively, the Authority or any other person authorized by it under Clause 22.1 to use during Suspension, all Intellectual Property belonging to or licenced to the Contractor with respect to the Project Highway and its design, engineering, construction and maintenance, and which is used or created by the Contractor in performing its obligations under the Agreement.

22.3 Revocation of Suspension

22.3.1 In the event that the Authority shall have rectified or removed the cause of Suspension within a period not exceeding 60 (sixty) days from the date of Suspension, it shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement. For the avoidance of doubt, the Parties expressly agree that the Authority may, in its discretion, revoke the Suspension at any time, whether or not the cause of Suspension has been rectified or removed hereunder.

22.3.2 Upon the Contractor having cured the Contractor Default within a period not exceeding 60 (sixty) days from the date of Suspension, the Authority shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement.

22.4 Termination

22.4.1 At any time during the period of Suspension under this Article 22, the Contractor may by notice require the Authority to revoke the Suspension and issue a Termination Notice. The Authority shall, within 15 (fifteen) days of receipt of such notice, terminate this Agreement under and in accordance with Article 23.

22.4.2 Notwithstanding anything to the contrary contained in this Agreement, in the event that Suspension is not revoked within 90 (ninety) days from the date of Suspension hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual agreement of the Parties and all the provisions of this Agreement shall apply, mutatis mutandis, to such Termination as if a Termination Notice had been issued by the Authority upon occurrence of a Contractor Default.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

**ARTICLE 23
TERMINATION**

23.1 Termination for Contractor Default

23.1.1 Save as otherwise provided in this Agreement, in the event that any of the defaults specified below shall have occurred, and the Contractor fails to cure the default within the Cure Period set forth below, or where no Cure Period is specified, then within a Cure Period of 60 (sixty) days, the Contractor shall be deemed to be in default of this Agreement (the “Contractor Default”), unless the default has occurred solely as a result of any breach of this Agreement by the Authority or due to Force Majeure. The defaults referred to herein shall include:

- (a) the Contractor fails to provide, extend or replenish, as the case may be, the Performance Security in accordance with this Agreement;
- (b) subsequent to the replenishment or furnishing of fresh Performance Security in accordance with Clause 7.3, the Contractor fails to cure, within a Cure Period of 30 (thirty) days, the Contractor Default for which the whole or part of the Performance Security was appropriated;
- (c) the Contractor does not achieve the latest outstanding Project Milestone due in accordance with the provisions of Schedule-J, subject to any Time Extension, and continues to be in default for 45 (forty-five) days;
- (d) the Contractor abandons or manifests intention to abandon the construction or Maintenance of the Project Highway without the prior written consent of the Authority;
- (e) the Contractor fails to proceed with the Works in accordance with the provisions of Clause 10.1 or stops Works and/or the Maintenance for 30 (thirty) days without reflecting the same in the current program and such stoppage has not been authorized by the Authority’s Engineer;
- (f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof;
- (g) failure to complete the Punch List items within the periods stipulated therefor in Clause 12.2.1;
- (h) the Contractor fails to rectify any Defect, the non-rectification of which shall have a Material Adverse Effect on the Project, within the time specified in this Agreement or as directed by the Authority’s Engineer;
- (i) the Contractor subcontracts the Works or any part thereof in violation of this Agreement or assigns any part of the Works or the Maintenance without the prior approval of the Authority;
- (j) the Contractor creates any Encumbrance in breach of this Agreement;
- (k) an execution levied on any of the assets of the Contractor has caused a Material Adverse Effect;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (l) the Contractor is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for the Contractor or for the whole or material part of its assets that has a material bearing on the Project;
- (m) the Contractor has been, or is in the process of being liquidated, dissolved, wound- up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the Authority, a Material Adverse Effect;
- (n) a resolution for winding up of the Contractor is passed, or any petition for winding up of the Contractor is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 (ninety) days of the date thereof or the Contractor is ordered to be wound up by court except for the purpose of amalgamation or reconstruction; provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of the Contractor are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Contractor under this Agreement; and provided that:
 - (i) the amalgamated or reconstructed entity has the capability and experience necessary for the performance of its obligations under this Agreement; and
 - (ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and has a credit worthiness at least as good as that of the Contractor as at the Appointed Date;
- (o) any representation or warranty of the Contractor herein contained which is, as of the date hereof, found to be materially false or the Contractor is at any time hereafter found to be in breach thereof;
- (p) the Contractor submits to the Authority any statement, notice or other document, in written or electronic form, which has a material effect on the Authority’s rights, obligations or interests and which is false in material particulars;
- (q) the Contractor has failed to fulfil any obligation, for which failure Termination has been specified in this Agreement; or
- (r) the Contractor commits a default in complying with any other provision of this Agreement if such a default causes a Material Adverse Effect on the Project or on the Authority.

23.1.2 Without prejudice to any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Contractor Default, the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice to the Contractor; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Contractor of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Contractor to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

23.1.3 After termination of this Agreement for Contractor Default, the Authority may complete the Works and/or arrange for any other entities to do so. The Authority and these entities may then use any Materials, Plant and equipment, Contractor’s documents and other design documents made by or on behalf of the Contractor.

23.2 Termination for Authority Default

23.2.1 In the event that any of the defaults specified below shall have occurred, and the Authority fails to cure such default within a Cure Period of 90 (ninety) days or such longer period as has been expressly provided in this Agreement, the Authority shall be deemed to be in default of this Agreement (the “Authority Default”) unless the default has occurred as a result of any breach of this Agreement by the Contractor or due to Force Majeure. The defaults referred to herein shall include:

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (a) the Authority commits a material default in complying with any of the provisions of this Agreement and such default has a Material Adverse Effect on the Contractor;
- (b) the Authority has failed to make payment of any amount due and payable to the Contractor within the period specified in this Agreement;
- (c) the Authority has failed to provide, within a period of 180 (one hundred and eighty) days from the Appointed Date, the environmental clearances required for construction of the Project Highway;
- (d) the Authority repudiates this Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by this Agreement; or
- (e) the Authority’s Engineer fails to issue the relevant Interim Payment Certificate within 60 (sixty) days after receiving a statement and supporting documents.

23.2.2 Without prejudice to any other right or remedy which the Contractor may have under this Agreement, upon occurrence of an Authority Default, the Contractor shall be entitled to terminate this Agreement by issuing a Termination Notice to the Authority; provided that before issuing the Termination Notice, the Contractor shall by a notice inform the Authority of its intention to issue the Termination Notice and grant 15 (fifteen) days to the Authority to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice. If on the consideration of the Authority’s representation or otherwise, the contractor does not issue the Termination Notice on such 15th day and prefers to continue with the project, it is deemed that the cause of action of the Termination Notice has been condoned by the Contractor. Hence, he forfeits his right to any other remedy on that count.

23.3 Termination for Authority’s convenience

Notwithstanding anything stated hereinabove, the Authority may terminate this Agreement for convenience. The termination shall take effect 30 (thirty) days from the date of notice hereunder.

23.4 Requirements after Termination

Upon Termination of this Agreement in accordance with the terms of this Article 23, the Contractor shall comply with and conform to the following:

- (a) deliver to the Authority all Plant and Materials which shall have become the property of the Authority under this Article 23;
- (b) deliver all relevant records, reports, Intellectual Property and other licences pertaining to the Works, Maintenance, other design documents and in case of Termination occurring after the Provisional Certificate has been issued, the “asbuilt’ Drawings for the Works;
- (c) transfer and/or deliver all Applicable Permits to the extent permissible under Applicable Laws; and
- (d) vacate the Site within 15 (fifteen) days.

23.5 Valuation of Unpaid Works

23.5.1 Within a period of 45 (forty-five) days after Termination under Clause 23.1, 23.2 or 23.3, as

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

the case may be, has taken effect, the Authority’s Engineer shall proceed in accordance with Clause 18.5 to determine as follows the valuation of unpaid Works (the “**Valuation of Unpaid Works**”):

- (a) value of the completed stage of the Works, less payments already made;
- (b) reasonable value of the partially completed stages of works as on the date of Termination, only if such works conform with the Specifications and Standards;
- (c) value of Maintenance, if any, for completed months, less payments already made, and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement; and (ii) all taxes due to be deducted at source.

23.5.2 The Valuation of Unpaid Works shall be communicated to the Authority, with a copy to the Contractor, within a period of 30 (thirty) days from the date of Termination.

23.6 Termination Payment

23.6.1 Upon Termination on account of Contractor’s Default under Clause 23.1, the Authority shall:

- (a) encash and appropriate the Performance Security and Retention Money, or in the event the Contractor has failed to replenish or extend the Performance Security, claim the amount stipulated in Clause 7.1.1, as agreed pre-determined compensation to the Authority for any losses, delays and cost of completing the Works and Maintenance, if any;
- (b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment and interest thereon; and
- (c) pay to the Contractor, by way of Termination Payment, an amount equivalent to the Valuation of Unpaid Works after adjusting any other sums payable or recoverable, as the case may be, in accordance with the provisions of this Agreement.

23.6.2 Upon Termination on account of an Authority Default under Clause 23.2 or for Authority’s convenience under Clause 23.3, the Authority shall:

- (a) return the Performance Security and Retention Money forthwith;
- (b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment; and
- (c) pay to the Contractor, by way of Termination Payment, an amount equal to:
 - (i) Valuation of Unpaid Works;
 - (ii) the reasonable cost, as determined by the Authority’s Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for its use, only if such Plant and Materials are in conformity with the Specifications and Standards;
 - (iii) the reasonable cost of temporary works, as determined by the Authority’s Engineer;
 - (iv) 10% (ten per cent) of the cost of the Works and Maintenance that are not commenced or not completed, and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement, and (ii) all taxes due to be deducted at source.

23.6.3 Termination Payment shall become due and payable to the Contractor within 30 (thirty) days of a demand being made by the Contractor to the Authority with the necessary particulars, and in the event of any delay, the Authority shall pay interest at the Base Rate

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

plus 2% (two percent), calculated at quarterly rests, on the amount of Termination Payment remaining unpaid; provided that such delay shall not exceed 90 (ninety) days. For the avoidance of doubt, it is expressly agreed that Termination Payment shall constitute full discharge by the Authority of its payment obligations in respect thereof hereunder.

- 23.6.4 The Contractor expressly agrees that Termination Payment under this Article 23 shall constitute a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

23.7 Other rights and obligations of the Parties

- Upon Termination for any reason whatsoever
- (a) Property and ownership in all Materials, Plant and Works and the Project Highway shall, as between the Contractor and the Authority, vest in the Authority in whole; provided that the foregoing shall be without prejudice to Clause 23.6.
 - (b) Risk of loss or damage to any Materials, Plant or Works and the care and custody thereof shall pass from the Contractor to the Authority; and
 - (c) the Authority shall be entitled to restrain the Contractor and any person claiming through or under the Agreement from entering upon the Site or any part of the Project except for taking possession of materials, stores, implements, construction plants and equipment of the Contractor, which have not been vested in the Authority in accordance with the provisions of this Agreement.

23.8 Survival of rights

Notwithstanding anything to the contrary contained in this Agreement any Termination pursuant to the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, insurance proceeds, security deposits, and other rights and remedies, which it may have in law or Agreement. All rights and obligations of either Party under this Agreement, including Termination Payments, shall survive the Termination to the extent such survival is necessary for giving effect to such rights and obligations.

Part VI

Other Provisions

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

ARTICLE 24

ASSIGNMENT AND CHARGES

24.1 Restrictions on assignment and charges

This Agreement shall not be assigned by the Contractor to any person, save and except with the prior consent in writing of the Authority, which consent the Authority shall be entitled to decline without assigning any reason.

24.2 Hypothecation of Materials or Plant

Notwithstanding the provisions of Clause 24.1, the Contractor may pledge or hypothecate to its lenders, any Materials or Plant prior to their incorporation in the Works. Further, the Contractor may, by written notice to the Authority, assign its right to receive payments under this Agreement either absolutely or by way of charge, to any person providing financing to the Contractor in connection with the performance of the Contractor's obligations under this Agreement. The Contractor acknowledges that any such assignment by the Contractor shall not relieve the Contractor from any obligations, duty or responsibility under this Agreement.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 25

LIABILITY AND INDEMNITY

25.1 General indemnity

25.1.1 The Contractor will indemnify, defend, save and hold harmless the Authority and its officers, servants, agents, Government Instrumentalities and Government owned and/or controlled entities/enterprises, (the “**Authority Indemnified Persons**”) against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, including any errors or deficiencies in the design documents, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands and claims have arisen due to any negligent act or omission, or breach or default of this Agreement on the part of the Authority Indemnified Persons.

25.2 Indemnity by the Contractor

25.2.1 Without limiting the generality of Clause 25.1, the Contractor shall fully indemnify, hold harmless and defend the Authority and the Authority Indemnified Persons from and against any and all loss and/or damages arising out of or with respect to:

- (a) Failure of the Contractor to comply with Applicable Laws and Applicable Permits;
- (b) Payment of taxes required to be made by the Contractor in respect of the income or other taxes of the Sub-contractors, suppliers and representatives; or
- (c) Non-payment of amounts due as a result of Materials or services furnished to the Contractor or any of its Sub-contractors which are payable by the Contractor or any of its Sub-contractors.

25.2.2 Without limiting the generality of the provisions of this Article 25, the Contractor shall fully indemnify, hold harmless and defend the Authority Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Authority Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Contractor or by the Sub-contractors in performing the Contractor’s obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Contractor shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the revocation or suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Project Highway, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Contractor shall promptly make every reasonable effort to secure for the Authority a license, at no cost to the Authority, authorizing continued use of the infringing work. If the Contractor is unable to secure such license within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process, or modify the same so that it becomes non-infringing.

25.3 Notice and contest of claims

In the event that either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Article 25 (the “**Indemnified Party**”) it shall notify the other Party (the “**Indemnifying Party**”) within 15 (fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

25.4 Defence of claims

- 25.4.1 The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Article 25, the Indemnifying Party shall be entitled, at its option, to assume and control the defense of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defense. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit or proceeding without the prior written consent of the Indemnified Party, unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.
- 25.4.2 If the Indemnifying Party has exercised its rights under Clause 25.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).
- 25.4.3 If the Indemnifying Party exercises its rights under Clause 25.3, the Indemnified Party shall nevertheless have the right to employ its own counsel, and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of the Indemnified Party, when and as incurred, unless:
- (a) the employment of counsel by such party has been authorized in writing by the Indemnifying Party; or
 - (b) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defense of such action; or
 - (c) the Indemnifying Party shall not, in fact, have employed independent counsel reasonably satisfactory to the Indemnified Party, to assume the defense of such action and shall have been so notified by the Indemnified Party; or
 - (d) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:
 - (i) that there may be specific defenses available to it which are different from or additional to those available to the Indemnifying Party; or
 - (ii) that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement:

Provided that if Sub-clauses (b), (c) or (d) of this Clause 25.4.3 shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defence of such claim, demand, action, suit or proceeding on behalf of the Indemnified Party, and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

25.5 No consequential claims

Notwithstanding anything to the contrary contained in this Article 25, the indemnities herein provided shall not include any claim or recovery in respect of any cost, expense, loss or damage of an indirect, incidental or consequential nature, including loss of profit, except as expressly provided in this Agreement.

25.6 Survival on Termination

The provisions of this Article 25 shall survive Termination.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 26
DISPUTE RESOLUTION

26.1 Dispute Resolution

26.1.1 Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the “Dispute”) shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 26.2.

26.1.2 The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

26.2 Conciliation

In the event of any Dispute between the Parties, either Party may call upon the Authority’s Engineer, or such other person as the Parties may mutually agree upon (the “Conciliator”) to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the Engineer-in Chief civil, Govt. Of Odisha of the Authority for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) business day period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause 26.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3.

26.3 Arbitration

26.3.1 Any Dispute which is not resolved amicably by conciliation, as provided in Clause 26.2, shall be finally decided by reference to arbitration by a Board of Arbitrators appointed in accordance with Clause 26.3.2. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the “Rules”), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration Act. The venue of such arbitration shall be [Bhubaneswar, Odisha], and the language of arbitration proceedings shall be English.

26.3.2 There shall be a Board of three arbitrators, of whom each Party shall select one, and the third arbitrator shall be appointed by the two arbitrators so selected and in the event of disagreement between the two arbitrators, the appointment shall be made in accordance with the Rules.

26.3.3 The arbitrators shall make a reasoned award (the “Award”). Any Award made in any arbitration held pursuant to this Article 26 shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.

26.3.4 The Contractor and the Authority agree that an Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

26.3.5 This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder.

26.3.6 In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy-five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120 % (one hundred and twenty per cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

26.4 Adjudication by Regulatory Authority, Tribunal or Commission

In the event of constitution of a statutory regulatory authority, tribunal or commission, as the case may be, with powers to adjudicate upon disputes between the Contractor and the Authority, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 26.3, be adjudicated upon by such regulatory authority, tribunal or commission in accordance with the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly. For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or court of competent jurisdiction, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 27

MISCELLANEOUS

27.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at Bhubaneswar shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

27.2 Waiver of immunity

Each Party unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgment or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgment that may be made or given in connection therewith).

27.3 Delayed payments

The Parties hereto agree that payments due from one Party to the other Party under the provisions of this Agreement shall be made within the period set forth therein, and if no such period is specified, within 30 (thirty) days of receiving a demand along with the necessary particulars. In the event of delay beyond such period, the defaulting Party shall pay interest for the period of delay calculated at a rate equal to Base Rate plus 2 (two) percent, calculated at quarterly rests, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof.

27.4 Waiver

27.4.1 Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement: -

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- (b) shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

27.4.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

27.5 Liability for review of Documents and Drawings

Except to the extent expressly provided in this Agreement:

- (a) no review, comment or approval by the Authority or the Authority’s Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction, or maintenance of the Project Highway nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Contractor from its obligations, duties and liabilities under this Agreement, the Applicable Laws and Applicable Permits; and
- (b) the Authority shall not be liable to the Contractor by reason of any review, comment, approval, observation or inspection referred to in Sub-clause (a) above.

27.6 Exclusion of implied warranties etc.

This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

27.7 Survival

27.7.1 Termination shall:

- (a) not relieve the Contractor or the Authority, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

27.7.2 All obligations surviving Termination shall only survive for a period of 3 (three) years following the date of such Termination.

27.8 Entire Agreement

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn. For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor arising from the Request for Proposals, shall be deemed to form part of this Agreement and treated as such.

27.9 Severability

If for any reason whatever, any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Agreement or otherwise.

27.10 No partnership

This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

27.11 Third parties

This Agreement is intended solely for the benefit of the Parties, and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

27.12 Successors and assigns

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

27.13 Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

- (a) in the case of the Contractor, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address within Odisha may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by facsimile or e-mail to the person as the Contractor may from time to time designate by notice to the Authority;
[***]
- (b) in the case of the Authority, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the Authority with a copy delivered to the Authority Representative or such other person as the Authority may from time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in [Bhubaneswar] it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and
- (c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e-mail, it shall be deemed to have been delivered on the working day following the date of its delivery.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

27.14 Language

All notices required to be given by one Party to the other Party and all other communications, Documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

27.15 Counterparts

This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

27.16 Confidentiality

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Authority.

27.17 Copyright and Intellectual Property rights

27.17.1 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 this Agreement) to give to the Authority 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 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 this Agreement, including replacements of any computers supplied by the Contractor:

27.17.2 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 Authority for purposes other than those permitted under this Clause 27.17.

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

27.18 Limitation of Liability

27.18.1 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 this Agreement, save and except as provided under Articles 23 and 25.

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

27.18.2 The total liability of one Party to the other Party under and in accordance with the provisions of this Agreement, save and except as provided in Articles 23 and 25, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

ARTICLE 28

DEFINITIONS

28.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

“Accounting Year” means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year;

“Advance Payment” shall have the meaning set forth in Clause 19.2;

“Affected Party” shall have the meaning set forth in Clause 21.1;

“Affiliate” means, in relation to either Party {and/or Members}, a person who controls, is controlled by, or is under the common control with such Party {or Member} (as used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise);

“Agreement” means this Agreement, its Recitals, the Schedules hereto and any amendments thereto made in accordance with the provisions contained in this Agreement;

“Applicable Laws” means all laws, brought into force and effect by GOI or the State Government including rules, regulations and notifications made thereunder, and judgments, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement;

“Applicable Permits” means all clearances, licenses, permits, authorizations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction, operation and maintenance of the Project Highway during the subsistence of this Agreement;

“Appointed Date” means that date which is later of the 15th day of the date of this Agreement, the date on which the Contractor has delivered the Performance Security in accordance with the provisions of Article 7 and the date on which the Authority has provided the Right of Way on no less than 90% (Ninety per cent) of the total length of Project Highway;

“Arbitration Act” means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof, as in force from time to time;

“Authority” shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals;

“Authority Default” shall have the meaning set forth in Clause 23.2;

“Authority’s Engineer” shall have the meaning set forth in Clause 18.1;

“Authority Representative” means such person or persons as may be authorized in writing by the Authority to act on its behalf under this Agreement and shall include any person or

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

persons having authority to exercise any rights or perform and fulfil any obligations of the Authority under this Agreement;

“**Bank**” means a bank incorporated in India and having a minimum net worth of ₹. 1,000 crore (Rupees one thousand crore) or any other bank acceptable to the Authority;

“**Base Rate**” means the floor rate of interest announced by the State Bank of India for all its lending operations;

“**Base Date**” means the last date of that calendar month, which date precedes the Bid Due Date by at least 28 (twenty-eight) days;

“**Bid**” means the documents in their entirety comprised in the bid submitted by the [selected bidder/Consortium] in response to the Request for Proposals in accordance with the provisions thereof;

“**Bid Security**” means the bid security provided by the Contractor to the Authority in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security;

“**Change in Law**” means the occurrence of any of the following after the Base Date:

- (a) the enactment of any new Indian law;
- (b) the repeal, modification or re-enactment of any existing Indian law;
- (c) the commencement of any Indian law which has not entered into effect until the Base Date;
- (d) a change in the interpretation or application of any Indian law by a judgment of a court of record which has become final, conclusive and binding, as compared to such interpretation or application by a court of record prior to the Base Date; or
- (e) Deleted;

“**Change of Scope**” shall have the meaning set forth in Article 13;

“**Change of Scope Notice**” shall have the meaning set forth in Clause 13.2.1;

“**Change of Scope Order**” shall have the meaning set forth in Clause 13.2.4;

“**Completion Certificate**” shall have the meaning set forth in Clause 12.4;

{“**Consortium**” means the consortium of entities which have formed a joint venture for implementation of this Project;} \$

“**Construction**” shall have the meaning set forth in Clause 1.2.1 (f);

“**Construction Period**” means the period commencing from the Appointed Date and ending on the date of the Completion Certificate;

“**Contract Price**” means the amount specified in Clause 19.1.1;

“**Contractor**” shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals;

“**Contractor Default**” shall have the meaning set forth in Clause 23.1;

“**Cure Period**” means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and shall:

- (a) commence from the date on which a notice is delivered by one Party to the other Party asking the latter to cure the breach or default specified in such notice;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (b) not relieve any Party from liability to pay Damages or compensation under the provisions of this Agreement; and
- (c) not in any way be extended by any period of Suspension under this Agreement; provided that if the cure of any breach by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority or the Authority’s Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority’s Engineer to accord their approval;

“Damages” shall have the meaning set forth in paragraph (w) of Clause 1.2.1;

“Defect” means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any defect or deficiency which is specified in Schedule-E;

“Defects Liability Period” shall have the meaning set forth in Clause 17.1;

“Dispute” shall have the meaning set forth in Clause 26.1.1;

“Dispute Resolution Procedure” means the procedure for resolution of Disputes set forth in Article 26;

“Drawings” means all of the drawings, calculations and documents pertaining to the Project Highway as set forth in Schedule-I, and shall include ‘as built’ drawings of the Project Highway;

“Document” or **“Documentation”** means documentation in printed or written form, or in tapes, discs, drawings, computer programmes, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio or visual form;

“Emergency” means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project Highway, including Users thereof, or which poses an immediate threat of material damage to any of the Project Assets;

“Encumbrances” means, in relation to the Project Highway, any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations, and shall include any designation of loss payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project Highway, where applicable herein but excluding utilities referred to in Clause 9.1;

“EPC” means engineering, procurement and construction;

“Final Payment Certificate” shall have the meaning set forth in Clause 19.15.1;

“Final Payment Statement” shall have the meaning set forth in Clause 19.13.1;

“Force Majeure” or **“Force Majeure Event”** shall have the meaning ascribed to it in Clause 21.1;

“GAD” or **“General Arrangement Drawings”** shall have the meaning set forth in Clause 4.1.3 (b);

“GOI” or **“Government”** means the Government of India;

“Good Industry Practice” means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement and which would be expected to result in the performance of its obligations by the Contractor in accordance with this Agreement, Applicable Laws and Applicable Permits in reliable, safe, economical and efficient manner;

“Government Instrumentality” means any department, division or sub-division of the Government or the State Government and includes any commission, board, authority, agency or municipal and other local authority or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project Highway or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;

“IRC” means the Indian Roads Congress;

“Indemnified Party” means the Party entitled to the benefit of an indemnity pursuant to Article 25;

“Indemnifying Party” means the Party obligated to indemnify the other Party pursuant to Article 25;

“Indirect Political Event” shall have the meaning set forth in Clause 21.3;

“Insurance Cover” means the aggregate of the maximum sums insured under the insurances taken out by the Contractor pursuant to Article 20, and includes all insurances required to be taken out by the Contractor under Clauses 20.1 and 20.9 but not actually taken, and when used in the context of any act or event, it shall mean the aggregate of the maximum sums insured and payable or deemed to be insured and payable in relation to such act or event;

“Intellectual Property” means all patents, trademarks, service marks, logos, get-up, trade names, internet domain names, rights in designs, blue prints, programs and manuals, drawings, copyright (including rights in computer software), database rights, semiconductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;

“Interim Payment Certificate” or **“IPC”** means the interim payment certificate issued by the Authority’s Engineer for payment to the Contractor in respect of Contractor’s claims for payment raised in accordance with the provisions of this Agreement;

{**“Lead Member”** shall, in the case of a consortium, mean the member of such consortium who shall have the authority to bind the contractor and each member of the Consortium; and shall be deemed to be the Contractor for the purposes of this Agreement; the Lead member shall itself undertake and perform at least 30(Thirty) percent of the total length of the Project Highway.}\$

“LOA” or **“Letter of Acceptance”** means the letter of acceptance referred to in Recital (E);

“Maintenance” means the maintenance of the Project Highway as set forth in Article 14 for the period specified therein;

“Maintenance Inspection Report” shall have the meaning set forth in Clause 15.2.1;

“Maintenance Manual” shall have the meaning ascribed to it in Clause 10.7;

\$This definition may be omitted if the Contractor is not a Consortium.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

“Maintenance Programme” shall have the meaning set forth in Clause 14.3;

“Maintenance Period” shall have the meaning set forth in Clause 14.1.1;

“Maintenance Requirements” shall have the meaning set forth in Clause 14.2;

“Major Bridge” means a bridge having a total length of more than 60 (sixty) metres between the inner faces of the dirt walls as specified in IRC:5-1998;

“Manual” shall mean the Manual of Standards and Specifications for Four Laning of Highways (IRC: SP: 84);

“Material Adverse Effect” means a material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement and which act or event causes a material financial burden or loss to either Party;

“Materials” are all the supplies used by the Contractor for incorporation in the Works or for the maintenance of the Project Highway;

“Monthly Maintenance Statement” shall have the meaning set forth in Clause 19.6.1;

“MORTH” means the Ministry of Road Transport and Highways or any substitute thereof dealing with Highways;

“Non-Political Event” shall have the meaning set forth in Clause 21.2;

“NHIDCL” means the National Highways & Infrastructure Development Corporation Ltd. or any Substitute appointed by MoRT&H;

“Parties” means the parties to this Agreement collectively and “Party” shall mean any of the parties to this Agreement individually;

“Performance Security” shall have the meaning set forth in Clause 7.1;

“Plant” means the apparatus and machinery intended to form or forming part of the Works;

“Political Event” shall have the meaning set forth in Clause 21.4;

“Programme” shall have the meaning set forth in Clause 10.1.3;

“Project” means the construction and maintenance of the Project Highway in accordance with the provisions of this Agreement, and includes all works, services and equipment relating to or in respect of the Scope of the Project;

“Project Assets” means all physical and other assets relating to (a) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over-bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plaza(s), electrical systems, communication systems, rest

areas, relief centres, maintenance depots and administrative offices; and (b) Project Facilities situated on the Site;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

“Project Completion Date” means the date on which the Provisional Certificate is issued and, in the event, no Provisional Certificate is issued, the date on which the Completion Certificate is issued;

“Project Completion Schedule” means the progressive Project Milestones set forth in Schedule-J for completion of the Project Highway on or before the Scheduled Completion Date;

“Project Facilities” means all the amenities and facilities situated on the Site, as described in Schedule-C;

“Project Highway” means the Site comprising **“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan”** and all Project Assets, and its subsequent development and augmentation in accordance with this Agreement;

“Project Milestone” means the project milestone set forth in Schedule-J;

“Proof Consultant” shall have the meaning set forth in Clause 10.2.2;

“Provisional Certificate” shall have the meaning set forth in Clause 12.2;

“Punch List” shall have the meaning set forth in Clause 12.2.1;

“Quality Assurance Plan” or **“QAP”** shall have the meaning set forth in Clause 11.2;

“Re.”, “Rs.” or “Rupees” or “Indian Rupees” means the lawful currency of the Republic of India;

“Request for Proposals” or **“RFP”** shall have the meaning set forth in Recital ‘D’;

“Retention Money” shall have the meaning set forth in Clause 7.5.1;

“Right of Way” means the constructive possession of the Site free from encroachments and encumbrances, together with all way leaves, easements, unrestricted access and other rights of way, howsoever described, necessary for construction and maintenance of the Project Highway in accordance with this Agreement;

“Safety Consultant” shall have the meaning set forth in Clause 10.1.5;

“Scheduled Completion Date” shall be the date set forth in Clause 10.3.1;

“Scope of the Project” shall have the meaning set forth in Clause 2.1;

“Section” means a part of the Project Highway;

“Site” shall have the meaning set forth in Clause 8.1;

“Specifications and Standards” means the specifications and standards relating to the quality, quantity, capacity and other requirements for the Project Highway, as set forth in Schedule-D, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project Highway submitted by the Contractor to, and expressly approved by, the Authority;

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

“Stage Payment Statement” shall have the meaning set forth in Clause 19.4;

“Structures” means an elevated road or a flyover, as the case may be;

“Sub-contractor” means any person or persons to whom a part of the Works or the Maintenance has been subcontracted by the Contractor and the permitted legal successors in title to such person, but not an assignee to such person;

“Suspension” shall have the meaning set forth in Article 22;

“Taxes” means any Indian taxes **excluding GST**, excise duties, customs duties, value added tax, sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, Materials, equipment and services incorporated in and forming part of the Project Highway charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

“Termination” means the expiry or termination of this Agreement;

“Termination Notice” means the communication issued in accordance with this Agreement by one Party to the other Party terminating this Agreement;

“Termination Payment” means the amount payable by either Party to the other upon Termination in accordance with Article 23;

“Terms of Reference” or **“TOR”** shall have the meaning set forth in Clause 18.2.1;

“Tests” means the tests set forth in Schedule-K to determine the completion of Works in accordance with the provisions of this Agreement;

“Time Extension” shall have the meaning set forth in Clause 10.5.1;

“User” means a person who travels or intends to travel on the Project Highway or any part thereof in/on any vehicle;

“Valuation of Unpaid works” shall have the meaning set forth in Clause 23.5.1;

“Works” means all works including survey and investigation, design, engineering, procurement, construction, Plant, Materials, maintenance, temporary works and other things necessary to complete the Project Highway in accordance with this Agreement; and

“WPI” means the wholesale price index for various commodities as published by the Ministry of Commerce and Industry, GOI and shall include any index which substitutes the WPI, and any reference to WPI shall, unless the context otherwise requires, be construed as a reference to the WPI published for the period ending with the preceding month.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

SIGNED, SEALED AND

DELIVERED

For and on behalf of

[THE Chief engineer Roads-I, Odisha.] by:

(Signature)

(Name)

(Designation)

SIGNED, SEALED AND

DELIVERED

For and on behalf of

THE CONTRACTOR by:

(Signature)

(Name)

(Designation)

In the presence of: 1.

2.

{COUNTERSIGNED and accepted by:

Name and particulars of other members of the Consortium}

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedules

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule-A
(See Clauses 2.1 and 8.1)
Site of the Project

1 TheSite

- 1.1. **“Improvement of Phulnakhara-Niali-Madhaba Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan” on EPC Contract** shall include the land, building, structures, and road works as described in Annex-I of this Schedule-A.
- 1.2. The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
- 1.3. An inventory of the Site including the land, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.
- 1.4. The alignment plans of the proposed road are specified in Annex-III. The proposed levels as indicated in the alignment plan for carriageway at the ground level shall be minimum requirement but treated as an approximate assessment. The proposed profile of the project highway is to be done on the basis of actual ground condition and design requirement as per the manual. The contractor shall, however improve/ upgrade the road profile as indicated in Annex-III based on site/ design requirement as specified in schedule B and D.
- 1.5. The status of the environment clearances obtained or awaited is given in Annex-IV.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

**Annex – I
(Schedule-A)**

Site

[Note: Through suitable drawings and description in words, the land, buildings, structures and road works comprising the Site shall be specified briefly but precisely in this Annex-I. All the chainages/ location referred to in Annex-I to Schedule-A shall be existing chainages.]

1. Site:

The Site of the Project Highway comprises the “**Improvement of Phulnakhara-Niali-Madhaba Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan**” under EPC contract. The Project Starts from NH-16 Phulnakhara Chowk at Km 0/000 (Latitude- 20°21'46.69"N & Longitude- 85°53'27.86"E) and ends at Km 35/451 (Latitude- 20° 6'31.21"N & Longitude - 86° 4'48.72"E).

The land, carriageway and structures comprising the Site are described below.

2. Land

The Site of the Project Highway comprises the land (sum total of land already in possession) as described below:

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
0.000	58.00	59.00	117.00
0.025	51.85	21.03	72.88
0.050	26.52	17.68	44.20
0.075	20.73	23.47	44.20
0.100	21.03	23.16	44.19
0.125	24.38	21.95	46.33
0.150	21.03	16.46	37.49
0.175	18.90	17.68	36.58
0.200	19.51	16.15	35.66
0.225	17.37	16.76	34.13
0.250	17.68	18.59	36.27
0.275	14.63	22.56	37.19
0.300	16.15	21.03	37.18
0.325	18.29	18.90	37.19
0.350	18.90	18.29	37.19
0.375	22.25	14.02	36.27
0.400	21.34	14.94	36.28
0.425	21.03	15.24	36.27
0.450	19.20	17.07	36.27
0.475	16.76	19.51	36.27
0.500	14.63	21.03	35.66
0.525	17.98	16.46	34.44
0.550	17.07	17.07	34.14
0.575	17.07	19.20	36.27

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
0.600	17.68	18.59	36.27
0.625	17.37	18.59	35.96
0.650	13.41	24.99	38.40
0.675	13.11	26.21	39.32
0.700	17.07	22.25	39.32
0.725	17.37	22.56	39.93
0.750	16.15	20.42	36.57
0.775	16.15	20.12	36.27
0.800	16.15	20.12	36.27
0.825	15.24	21.03	36.27
0.850	18.29	21.95	40.24
0.875	16.15	20.12	36.27
0.900	14.33	16.76	31.09
0.925	12.19	18.29	30.48
0.950	16.15	18.29	34.44
0.975	16.15	18.29	34.44
1.000	16.15	18.29	34.44
1.025	15.85	16.46	32.31
1.050	16.15	12.19	28.34
1.075	16.15	12.19	28.34
1.100	16.15	12.19	28.34
1.125	16.15	12.19	28.34
1.150	16.15	12.19	28.34
1.175	16.15	12.19	28.34
1.200	16.15	12.19	28.34
1.225	16.15	12.19	28.34
1.250	16.15	14.33	30.48
1.275	15.54	16.76	32.30
1.300	16.15	12.19	28.34
1.325	16.15	13.11	29.26
1.350	14.63	17.98	32.61
1.375	17.37	18.29	35.66
1.400	17.98	18.29	36.27
1.425	18.59	13.72	32.31
1.450	21.03	13.11	34.14
1.475	21.03	13.11	34.14
1.500	17.98	18.29	36.27
1.525	17.98	18.29	36.27
1.550	18.90	17.37	36.27
1.575	18.29	17.98	36.27
1.600	21.64	17.98	39.62
1.625	21.64	14.63	36.27
1.650	20.12	15.24	35.36

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
1.675	19.81	14.33	34.14
1.700	19.81	14.33	34.14
1.725	19.81	14.33	34.14
1.750	23.16	10.06	33.22
1.775	20.12	10.36	30.48
1.800	20.12	10.36	30.48
1.825	15.85	12.19	28.04
1.850	15.85	14.33	30.18
1.875	17.98	12.19	30.17
1.900	18.59	13.72	32.31
1.925	18.59	13.72	32.31
1.950	19.20	10.97	30.17
1.975	19.20	7.01	26.21
2.000	20.42	3.66	24.08
2.025	19.51	3.96	23.47
2.050	17.37	8.23	25.60
2.075	15.85	4.27	20.12
2.100	15.85	4.27	20.12
2.125	15.85	4.57	20.42
2.150	15.85	4.57	20.42
2.175	15.85	4.27	20.12
2.200	15.54	4.57	20.11
2.225	14.33	5.79	20.12
2.250	14.63	5.49	20.12
2.275	14.63	5.49	20.12
2.300	14.63	3.66	18.29
2.325	14.94	6.10	21.04
2.350	16.46	5.49	21.95
2.375	15.85	8.53	24.38
2.400	17.98	10.06	28.04
2.425	17.98	12.19	30.17
2.450	17.98	14.33	32.31
2.475	17.98	14.33	32.31
2.500	17.98	14.33	32.31
2.525	17.98	14.33	32.31
2.550	17.98	15.24	33.22
2.575	17.98	17.37	35.35
2.600	17.98	17.37	35.35
2.625	17.98	18.29	36.27
2.650	17.98	19.20	37.18
2.675	17.98	16.15	34.13
2.700	18.59	17.68	36.27
2.725	16.46	19.81	36.27

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
2.750	16.46	19.81	36.27
2.775	16.46	15.85	32.31
2.800	16.46	9.75	26.21
2.825	16.46	11.58	28.04
2.850	16.46	11.58	28.04
2.875	17.98	8.23	26.21
2.900	17.98	6.40	24.38
2.925	17.98	6.40	24.38
2.950	17.98	6.40	24.38
2.975	19.20	4.27	23.47
3.000	19.20	4.27	23.47
3.025	19.20	3.96	23.16
3.050	19.20	3.96	23.16
3.075	19.20	3.66	22.86
3.100	18.59	4.57	23.16
3.125	18.59	4.57	23.16
3.150	18.59	4.57	23.16
3.175	19.51	4.57	24.08
3.200	19.51	4.57	24.08
3.225	19.51	4.57	24.08
3.250	19.51	4.57	24.08
3.275	17.07	7.01	24.08
3.300	17.07	9.45	26.52
3.325	17.07	9.45	26.52
3.350	18.29	9.14	27.43
3.375	17.98	8.23	26.21
3.400	17.98	6.10	24.08
3.425	17.98	10.06	28.04
3.450	18.59	13.72	32.31
3.475	18.29	14.02	32.31
3.500	18.29	14.94	33.23
3.525	18.29	14.94	33.23
3.550	18.29	14.94	33.23
3.575	18.29	14.94	33.23
3.600	18.29	14.94	33.23
3.625	19.51	14.94	34.45
3.650	19.51	10.97	30.48
3.675	19.51	10.97	30.48
3.700	18.90	9.14	28.04
3.725	18.90	9.14	28.04
3.750	18.59	9.45	28.04
3.775	18.59	9.45	28.04
3.800	18.59	9.45	28.04

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
3.825	18.59	9.45	28.04
3.850	18.90	11.89	30.79
3.875	18.90	14.33	33.23
3.900	20.42	20.73	41.15
3.925	19.51	20.73	40.24
3.950	19.51	16.76	36.27
3.975	18.90	17.37	36.27
4.000	21.03	17.37	38.40
4.025	15.85	20.42	36.27
4.050	15.85	20.42	36.27
4.075	15.85	20.42	36.27
4.100	13.41	28.65	42.06
4.125	16.15	25.91	42.06
4.150	16.76	21.34	38.10
4.175	17.07	30.48	47.55
4.200	14.94	30.48	45.42
4.225	14.94	30.48	45.42
4.250	15.85	14.63	30.48
4.275	12.80	16.76	29.56
4.300	12.80	16.76	29.56
4.325	14.63	14.63	29.26
4.350	14.63	14.63	29.26
4.375	12.80	16.76	29.56
4.400	13.72	16.76	30.48
4.425	12.80	18.90	31.70
4.450	12.80	16.76	29.56
4.475	12.80	18.90	31.70
4.500	12.80	16.76	29.56
4.525	14.63	14.63	29.26
4.550	14.63	14.63	29.26
4.575	14.63	14.63	29.26
4.600	14.63	14.63	29.26
4.625	18.90	14.63	33.53
4.650	21.03	16.76	37.79
4.675	21.03	12.80	33.83
4.700	21.03	16.76	37.79
4.725	18.90	16.76	35.66
4.750	16.76	12.80	29.56
4.775	15.85	12.80	28.65
4.800	15.85	15.85	31.70
4.825	51.85	15.85	67.70
4.850	16.76	14.94	31.70
4.875	16.76	14.94	31.70

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
4.900	18.90	14.94	33.84
4.925	15.24	14.94	30.18
4.950	15.24	15.24	30.48
4.975	12.80	14.63	27.43
5.000	13.72	12.80	26.52
5.025	11.89	12.19	24.08
5.050	8.84	11.28	20.12
5.075	8.84	11.28	20.12
5.100	8.84	11.28	20.12
5.125	8.84	11.28	20.12
5.150	12.80	10.67	23.47
5.175	12.80	10.67	23.47
5.200	12.19	10.67	22.86
5.225	12.19	10.67	22.86
5.250	12.19	10.67	22.86
5.275	12.80	7.62	20.42
5.300	12.80	7.62	20.42
5.325	12.80	7.62	20.42
5.350	16.15	7.62	23.77
5.375	16.15	7.62	23.77
5.400	16.15	7.62	23.77
5.425	11.58	8.53	20.11
5.450	10.67	8.53	19.20
5.475	10.67	8.53	19.20
5.500	10.97	9.14	20.11
5.525	13.41	6.71	20.12
5.550	11.58	8.53	20.11
5.575	11.58	8.53	20.11
5.600	11.58	8.53	20.11
5.625	11.58	8.53	20.11
5.650	14.02	4.57	18.59
5.675	15.24	5.49	20.73
5.700	16.15	5.49	21.64
5.725	16.15	5.49	21.64
5.750	16.15	7.92	24.07
5.775	16.15	7.92	24.07
5.800	16.15	7.92	24.07
5.825	14.94	9.14	24.08
5.850	14.33	9.75	24.08
5.875	18.90	7.01	25.91
5.900	15.85	10.06	25.91
5.925	12.80	15.24	28.04
5.950	12.80	15.24	28.04

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
5.975	15.54	15.54	31.08
6.000	15.54	15.54	31.08
6.025	19.81	13.41	33.22
6.050	18.29	13.41	31.70
6.075	18.29	19.81	38.10
6.100	18.29	20.12	38.41
6.125	18.59	20.12	38.71
6.150	18.29	20.12	38.41
6.175	16.76	17.98	34.74
6.200	17.37	17.37	34.74
6.225	18.90	17.98	36.88
6.250	18.90	17.98	36.88
6.275	18.90	17.98	36.88
6.300	4.88	17.98	22.86
6.325	6.10	17.37	23.47
6.350	6.10	17.98	24.08
6.375	6.10	17.98	24.08
6.400	5.49	17.98	23.47
6.425	5.49	16.76	22.25
6.450	5.49	16.76	22.25
6.475	5.49	15.24	20.73
6.500	5.49	15.24	20.73
6.525	5.49	17.68	23.17
6.550	5.49	12.19	17.68
6.575	5.49	13.72	19.21
6.600	5.49	15.85	21.34
6.625	5.49	15.85	21.34
6.650	5.49	16.46	21.95
6.675	5.49	17.07	22.56
6.700	5.49	16.76	22.25
6.725	7.62	16.76	24.38
6.750	10.67	16.76	27.43
6.775	16.76	16.76	33.52
6.800	16.76	15.85	32.61
6.825	17.98	15.85	33.83
6.850	17.98	15.24	33.22
6.875	17.98	17.98	35.96
6.900	18.90	14.94	33.84
6.925	14.94	16.76	31.70
6.950	14.94	18.59	33.53
6.975	14.94	18.90	33.84
7.000	14.94	18.90	33.84
7.025	14.94	18.90	33.84

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
7.050	14.94	18.90	33.84
7.075	16.76	18.90	35.66
7.100	14.94	18.90	33.84
7.125	21.03	18.90	39.93
7.150	18.90	18.90	37.80
7.175	18.90	18.90	37.80
7.200	16.76	16.76	33.52
7.225	16.76	16.76	33.52
7.250	12.80	16.76	29.56
7.275	10.67	14.94	25.61
7.300	10.67	16.76	27.43
7.325	5.49	16.76	22.25
7.350	5.49	18.90	24.39
7.375	5.49	18.90	24.39
7.400	5.49	18.90	24.39
7.425	5.49	18.90	24.39
7.450	5.49	18.90	24.39
7.475	5.49	18.90	24.39
7.500	5.49	12.80	18.29
7.525	5.49	12.80	18.29
7.550	5.49	12.80	18.29
7.575	5.49	12.80	18.29
7.600	8.84	12.80	21.64
7.625	5.49	14.94	20.43
7.650	5.49	14.94	20.43
7.675	5.49	14.94	20.43
7.700	5.49	12.80	18.29
7.725	5.49	12.80	18.29
7.750	5.49	12.80	18.29
7.775	5.49	14.94	20.43
7.800	5.49	14.94	20.43
7.825	5.49	14.94	20.43
7.850	5.49	14.94	20.43
7.875	8.84	14.94	23.78
7.900	8.84	14.94	23.78
7.925	8.84	14.94	23.78
7.950	11.89	14.94	26.83
7.975	8.84	18.29	27.13
8.000	16.76	18.29	35.05
8.025	12.80	15.85	28.65
8.050	8.84	15.85	24.69
8.075	8.84	16.76	25.60
8.100	8.84	16.76	25.60

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
8.125	5.49	16.76	22.25
8.150	5.49	16.76	22.25
8.175	5.49	16.76	22.25
8.200	5.49	16.76	22.25
8.225	5.49	16.76	22.25
8.250	5.49	15.85	21.34
8.275	5.49	15.85	21.34
8.300	5.49	15.85	21.34
8.325	6.71	15.85	22.56
8.350	6.71	15.85	22.56
8.375	6.71	15.85	22.56
8.400	6.71	15.85	22.56
8.425	6.71	15.85	22.56
8.450	6.71	15.85	22.56
8.475	8.84	15.85	24.69
8.500	6.71	15.85	22.56
8.525	6.71	16.76	23.47
8.550	6.71	16.76	23.47
8.575	6.71	16.76	23.47
8.600	6.71	16.76	23.47
8.625	8.84	16.76	25.60
8.650	8.84	16.76	25.60
8.675	8.84	16.76	25.60
8.700	8.84	16.76	25.60
8.725	10.06	14.94	25.00
8.750	10.06	14.94	25.00
8.775	10.06	14.94	25.00
8.800	10.06	14.94	25.00
8.825	6.71	12.80	19.51
8.850	6.71	12.80	19.51
8.875	5.49	12.80	18.29
8.900	5.49	14.94	20.43
8.925	5.49	14.94	20.43
8.950	5.49	18.90	24.39
8.975	5.49	18.90	24.39
9.000	5.49	18.90	24.39
9.025	5.49	18.90	24.39
9.050	5.49	14.94	20.43
9.075	5.49	0.00	5.49
9.100	5.49	14.94	20.43
9.125	5.49	14.94	20.43
9.150	5.49	14.94	20.43
9.175	6.71	16.76	23.47

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
9.200	6.71	18.29	25.00
9.225	8.84	18.29	27.13
9.250	12.80	18.29	31.09
9.275	12.80	18.29	31.09
9.300	16.76	21.03	37.79
9.325	14.94	18.90	33.84
9.350	10.67	16.76	27.43
9.375	6.71	12.80	19.51
9.400	6.71	10.67	17.38
9.425	6.71	10.67	17.38
9.450	5.49	21.03	26.52
9.475	5.49	21.03	26.52
9.500	5.49	18.90	24.39
9.525	5.49	18.90	24.39
9.550	5.49	18.90	24.39
9.575	5.49	18.90	24.39
9.600	5.49	18.90	24.39
9.625	5.49	18.90	24.39
9.650	5.49	18.90	24.39
9.675	5.49	18.90	24.39
9.700	6.71	16.76	23.47
9.725	16.76	16.76	33.52
9.750	17.98	17.98	35.96
9.775	17.98	17.98	35.96
9.800	17.98	17.98	35.96
9.825	17.98	17.98	35.96
9.850	17.98	17.98	35.96
9.875	17.98	17.98	35.96
9.900	17.98	17.98	35.96
9.925	17.98	17.98	35.96
9.950	17.98	17.98	35.96
9.975	17.98	17.98	35.96
10.000	17.98	17.98	35.96
10.025	17.98	17.98	35.96
10.050	17.98	17.98	35.96
10.075	17.98	17.98	35.96
10.100	17.98	17.98	35.96
10.125	18.90	14.94	33.84
10.150	18.90	14.94	33.84
10.175	18.90	14.94	33.84
10.200	18.90	14.94	33.84
10.225	18.90	14.94	33.84
10.250	18.90	14.94	33.84

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
10.275	18.90	14.94	33.84
10.300	18.90	14.94	33.84
10.325	18.90	14.94	33.84
10.350	18.90	14.94	33.84
10.375	18.90	14.94	33.84
10.400	18.90	14.94	33.84
10.425	19.81	14.94	34.75
10.450	19.81	14.94	34.75
10.475	19.81	14.94	34.75
10.500	19.81	14.94	34.75
10.525	19.81	14.94	34.75
10.550	19.81	14.94	34.75
10.575	19.81	14.94	34.75
10.600	11.89	16.76	28.65
10.625	18.90	10.67	29.57
10.650	18.90	10.67	29.57
10.675	18.90	10.67	29.57
10.700	18.90	10.67	29.57
10.725	18.90	10.67	29.57
10.750	18.90	10.67	29.57
10.775	18.90	10.67	29.57
10.800	21.03	18.90	39.93
10.825	21.03	18.90	39.93
10.850	14.94	18.90	33.84
10.875	14.94	18.90	33.84
10.900	18.90	14.94	33.84
10.925	18.90	14.94	33.84
10.950	18.90	16.76	35.66
10.975	21.03	14.94	35.97
11.000	20.12	20.12	40.24
11.025	20.12	20.12	40.24
11.050	20.12	16.46	36.58
11.075	20.12	20.12	40.24
11.100	20.12	20.12	40.24
11.125	20.12	20.12	40.24
11.150	20.12	8.23	28.35
11.175	20.12	14.33	34.45
11.200	20.12	14.33	34.45
11.225	20.12	14.33	34.45
11.250	20.12	14.33	34.45
11.275	20.12	14.33	34.45
11.300	24.38	24.38	48.76
11.325	24.38	24.38	48.76

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
11.350	24.38	24.38	48.76
11.375	23.47	23.47	46.94
11.400	23.47	23.47	46.94
11.425	23.47	23.47	46.94
11.450	20.12	20.12	40.24
11.475	20.12	19.76	39.88
11.500	20.12	10.06	30.18
11.525	20.12	15.85	35.97
11.550	20.12	15.85	35.97
11.575	20.12	15.85	35.97
11.600	20.12	15.85	35.97
11.625	20.12	61.15	81.27
11.650	19.20	19.20	38.40
11.675	20.12	20.12	40.24
11.700	24.38	15.24	39.62
11.725	25.30	20.12	45.42
11.750	25.30	20.12	45.42
11.775	18.29	21.95	40.24
11.800	20.12	20.12	40.24
11.825	21.95	18.29	40.24
11.850	18.90	18.90	37.80
11.875	18.90	18.90	37.80
11.900	18.90	18.90	37.80
11.925	18.90	18.90	37.80
11.950	17.68	18.90	36.58
11.975	15.85	18.90	34.75
12.000	18.90	18.90	37.80
12.025	21.34	16.76	38.10
12.050	21.34	16.76	38.10
12.075	21.34	16.76	38.10
12.100	21.34	16.76	38.10
12.125	21.34	16.76	38.10
12.150	21.34	16.76	38.10
12.175	16.76	16.76	33.52
12.200	16.76	16.76	33.52
12.225	16.76	14.94	31.70
12.250	6.40	14.94	21.34
12.275	21.34	15.54	36.88
12.300	28.96	14.94	43.90
12.325	31.09	14.94	46.03
12.350	21.34	10.67	32.01
12.375	21.34	14.94	36.28
12.400	21.34	14.94	36.28

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
12.425	21.34	14.94	36.28
12.450	21.34	14.94	36.28
12.475	21.34	14.94	36.28
12.500	21.34	11.89	33.23
12.525	14.94	14.94	29.88
12.550	16.76	16.76	33.52
12.575	16.76	16.76	33.52
12.600	16.76	16.76	33.52
12.625	16.76	16.76	33.52
12.650	16.76	16.76	33.52
12.675	16.76	16.76	33.52
12.700	18.59	14.94	33.53
12.725	21.34	16.76	38.10
12.750	21.34	16.76	38.10
12.775	16.76	16.76	33.52
12.800	18.9	18.9	37.80
12.825	16.76	16.76	33.52
12.850	16.76	16.76	33.52
12.875	16.76	16.76	33.52
12.900	16.76	16.76	33.52
12.925	16.76	16.76	33.52
12.950	18.90	18.9	37.8
12.975	18.90	18.9	37.8
13.000	16.76	16.76	33.52
13.025	16.76	16.76	33.52
13.050	18.90	16.76	35.66
13.075	18.90	16.76	35.66
13.100	18.90	16.76	35.66
13.125	16.76	16.76	33.52
13.150	16.76	16.76	33.52
13.175	14.94	14.94	29.88
13.200	14.94	14.94	29.88
13.225	18.90	18.9	37.8
13.250	18.90	16.76	35.66
13.275	21.03	14.94	35.97
13.300	21.03	16.76	37.79
13.325	16.76	21.03	37.79
13.350	16.76	16.76	33.52
13.375	16.76	21.03	37.79
13.400	16.76	16.76	33.52
13.425	16.76	16.76	33.52
13.450	14.94	16.76	31.70
13.475	16.76	16.76	33.52

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
13.500	14.94	16.76	31.70
13.525	16.76	16.76	33.52
13.550	16.76	14.94	31.70
13.575	16.76	16.76	33.52
13.600	16.76	16.76	33.52
13.625	16.76	16.76	33.52
13.650	16.76	16.76	33.52
13.675	16.76	16.76	33.52
13.700	16.76	16.76	33.52
13.725	21.03	16.76	37.79
13.750	16.76	14.94	31.70
13.775	16.76	14.94	31.70
13.800	16.76	14.94	31.70
13.825	16.76	14.94	31.70
13.850	16.76	16.76	33.52
13.875	12.8	16.76	29.56
13.900	8.84	19.2	28.04
13.925	12.80	22.86	35.66
13.950	12.80	19.2	32.00
13.975	12.80	22.86	35.66
14.000	12.80	16.76	29.56
14.025	12.80	16.76	29.56
14.050	12.80	16.76	29.56
14.075	12.80	12.8	25.60
14.100	22.86	12.8	35.66
14.125	26.52	8.84	35.36
14.150	22.86	12.8	35.66
14.175	16.76	19.2	35.96
14.200	18.90	16.76	35.66
14.225	16.76	16.76	33.52
14.250	19.20	16.76	35.96
14.275	19.20	16.76	35.96
14.300	18.90	16.76	35.66
14.325	18.90	16.76	35.66
14.350	21.03	16.76	37.79
14.375	21.03	16.76	37.79
14.400	21.03	16.78	37.81
14.425	21.03	16.78	37.81
14.450	21.03	16.78	37.81
14.475	21.03	16.78	37.81
14.500	21.03	16.78	37.81
14.525	21.03	16.78	37.81
14.550	16.76	19.2	35.96

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
14.575	14.94	19.2	34.14
14.600	15.24	19.2	34.44
14.625	15.24	16.76	32.00
14.650	16.76	14.94	31.70
14.675	21.03	14.94	35.97
14.700	21.03	16.76	37.79
14.725	18.90	12.8	31.70
14.750	16.76	12.8	29.56
14.775	16.76	12.8	29.56
14.800	21.03	12.8	33.83
14.825	22.86	12.8	35.66
14.850	14.94	16.76	31.70
14.875	19.20	12.8	32.00
14.900	19.20	12.8	32.00
14.925	19.20	12.8	32.00
14.950	14.94	16.76	31.70
14.975	14.94	21.03	35.97
15.000	12.80	16.76	29.56
15.025	16.76	16.76	33.52
15.050	18.90	18.90	37.80
15.075	15.90	18.90	34.80
15.100	18.90	18.90	37.80
15.125	15.85	15.85	31.70
15.150	15.90	14.94	30.84
15.175	18.90	14.94	33.84
15.200	16.76	12.80	29.56
15.225	18.90	14.94	33.84
15.250	18.90	14.94	33.84
15.275	18.90	14.94	33.84
15.300	16.76	15.24	32.00
15.325	16.76	16.76	33.52
15.350	18.90	16.76	35.66
15.375	21.03	16.76	37.79
15.400	21.03	16.76	37.79
15.425	21.03	14.94	35.97
15.450	21.03	14.94	35.97
15.475	18.90	12.80	31.70
15.500	16.76	12.80	29.56
15.525	14.94	14.94	29.88
15.550	14.94	15.24	30.18
15.575	16.76	14.94	31.70
15.600	16.76	16.76	33.52
15.625	16.76	15.94	32.70

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
15.650	15.54	15.94	31.48
15.675	15.54	15.94	31.48
15.700	15.54	15.94	31.48
15.725	16.76	16.76	33.52
15.750	14.94	18.90	33.84
15.775	14.94	18.90	33.84
15.800	14.94	16.76	31.70
15.825	14.94	18.90	33.84
15.850	14.94	18.90	33.84
15.875	14.94	18.90	33.84
15.900	22.86	16.76	39.62
15.925	18.90	18.90	37.80
15.950	18.90	18.90	37.80
15.975	22.86	18.90	41.76
16.000	22.86	18.90	41.76
16.025	22.86	16.76	39.62
16.050	18.90	16.76	35.66
16.075	16.76	16.76	33.52
16.100	16.76	16.76	33.52
16.125	16.76	18.90	35.66
16.150	14.94	14.94	29.88
16.175	16.76	16.76	33.52
16.200	18.90	18.90	37.80
16.225	18.90	16.76	35.66
16.250	18.90	14.94	33.84
16.275	16.76	14.94	31.70
16.300	18.90	14.94	33.84
16.325	16.76	16.76	33.52
16.350	16.76	16.76	33.52
16.375	14.94	16.76	31.70
16.400	12.80	14.94	27.74
16.425	12.80	14.94	27.74
16.450	14.94	16.76	31.70
16.475	14.94	14.94	29.88
16.500	14.94	16.76	31.70
16.525	14.94	14.94	29.88
16.550	14.94	14.94	29.88
16.575	14.94	14.94	29.88
16.600	12.80	12.80	25.60
16.625	16.76	12.80	29.56
16.650	16.76	12.80	29.56
16.675	16.76	12.80	29.56
16.700	16.76	12.80	29.56

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
16.725	16.76	12.80	29.56
16.750	14.94	14.94	29.88
16.775	14.94	14.94	29.88
16.800	16.76	14.94	31.70
16.825	18.90	14.94	33.84
16.850	10.67	14.94	25.61
16.875	10.67	14.94	25.61
16.900	10.67	12.80	23.47
16.925	12.80	14.94	27.74
16.950	14.94	12.80	27.74
16.975	14.94	12.80	27.74
17.000	15.85	14.94	30.79
17.025	14.94	12.80	27.74
17.050	12.80	14.94	27.74
17.075	12.80	14.94	27.74
17.100	12.80	12.80	25.60
17.125	12.80	12.80	25.60
17.150	12.80	12.80	25.60
17.175	12.80	12.80	25.60
17.200	14.94	13.72	28.66
17.225	14.94	14.94	29.88
17.250	14.94	14.94	29.88
17.275	12.80	10.76	23.56
17.300	18.90	14.94	33.84
17.325	14.94	14.94	29.88
17.350	21.03	14.94	35.97
17.375	18.90	14.94	33.84
17.400	17.98	14.94	32.92
17.425	16.76	14.94	31.70
17.450	15.85	16.76	32.61
17.475	16.76	16.76	33.52
17.500	15.85	16.76	32.61
17.525	16.76	16.76	33.52
17.550	16.76	16.76	33.52
17.575	15.85	16.76	32.61
17.600	15.85	16.76	32.61
17.625	16.76	18.90	35.66
17.650	15.85	16.76	32.61
17.675	16.76	18.90	35.66
17.700	21.03	22.86	43.89
17.725	21.03	22.86	43.89
17.750	14.94	29.57	44.51
17.775	14.94	21.03	35.97

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
17.800	16.76	22.86	39.62
17.825	16.76	22.86	39.62
17.850	18.90	26.82	45.72
17.875	21.03	26.82	47.85
17.900	18.90	28.96	47.86
17.925	16.76	26.82	43.58
17.950	18.90	26.82	45.72
17.975	22.86	22.86	45.72
18.000	16.76	24.99	41.75
18.025	14.94	18.90	33.84
18.050	12.80	22.86	35.66
18.075	12.80	14.94	27.74
18.100	10.67	14.94	25.61
18.125	12.80	14.94	27.74
18.150	12.80	12.80	25.60
18.175	14.94	12.80	27.74
18.200	14.94	10.67	25.61
18.225	10.67	12.80	23.47
18.250	6.71	11.89	18.60
18.275	10.67	12.80	23.47
18.300	12.80	10.67	23.47
18.325	12.80	11.89	24.69
18.350	11.89	11.89	23.78
18.375	12.80	12.80	25.60
18.400	14.94	14.94	29.88
18.425	22.86	26.82	49.68
18.450	14.94	14.94	29.88
18.475	14.94	12.80	27.74
18.500	14.94	14.94	29.88
18.525	14.94	14.94	29.88
18.550	14.94	14.94	29.88
18.575	12.80	14.94	27.74
18.600	18.90	18.90	37.80
18.625	13.72	12.80	26.52
18.650	12.80	12.80	25.60
18.675	12.80	12.80	25.60
18.700	12.80	8.84	21.64
18.725	12.80	8.84	21.64
18.750	14.94	10.67	25.61
18.775	14.94	10.67	25.61
18.800	10.67	10.67	21.34
18.825	12.80	7.62	20.42
18.850	10.67	6.71	17.38

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
18.875	10.67	8.82	19.49
18.900	8.84	10.67	19.51
18.925	8.84	10.67	19.51
18.950	7.62	10.67	18.29
18.975	7.62	8.84	16.46
19.000	9.75	15.85	25.60
19.025	9.75	15.85	25.60
19.050	9.75	15.85	25.60
19.075	9.75	15.85	25.60
19.100	14.94	15.94	30.88
19.125	13.72	15.94	29.66
19.150	13.72	15.94	29.66
19.175	13.72	15.94	29.66
19.200	13.72	15.94	29.66
19.225	13.72	15.94	29.66
19.250	13.72	15.94	29.66
19.275	13.72	15.94	29.66
19.300	13.72	15.94	29.66
19.325	13.72	15.94	29.66
19.350	13.72	15.94	29.66
19.375	13.72	15.94	29.66
19.400	14.94	15.94	30.88
19.425	13.72	13.72	27.44
19.450	13.72	13.72	27.44
19.475	13.72	14.94	28.66
19.500	13.72	14.94	28.66
19.525	13.72	14.94	28.66
19.550	13.72	14.94	28.66
19.575	13.72	14.94	28.66
19.600	13.72	14.94	28.66
19.625	13.72	14.94	28.66
19.650	13.72	14.94	28.66
19.675	13.72	14.94	28.66
19.700	13.72	14.94	28.66
19.725	13.72	14.94	28.66
19.750	13.72	14.94	28.66
19.775	13.72	14.94	28.66
19.800	13.72	14.94	28.66
19.825	13.72	14.94	28.66
19.850	13.72	14.94	28.66
19.875	13.72	14.94	28.66
19.900	13.72	14.94	28.66
19.925	13.72	14.94	28.66

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
19.950	13.72	14.94	28.66
19.975	13.72	14.94	28.66
20.000	13.72	14.94	28.66
20.025	13.72	14.94	28.66
20.050	13.72	14.94	28.66
20.075	12.8	12.8	25.60
20.100	12.8	10.67	23.47
20.125	12.8	8.84	21.64
20.150	12.8	12.8	25.60
20.175	12.8	12.8	25.60
20.200	11.89	12.8	24.69
20.225	12.8	11.89	24.69
20.250	11.89	11.89	23.78
20.275	12.8	14.94	27.74
20.300	12.8	16.76	29.56
20.325	10.67	12.8	23.47
20.350	10.67	12.8	23.47
20.375	10.67	14.94	25.61
20.400	8.84	14.94	23.78
20.425	8.84	14.94	23.78
20.450	8.84	14.94	23.78
20.475	8.84	14.94	23.78
20.500	8.84	14.94	23.78
20.525	10.67	14.94	25.61
20.550	10.67	14.94	25.61
20.575	10.67	14.94	25.61
20.600	10.67	14.94	25.61
20.625	10.67	14.94	25.61
20.650	10.67	14.94	25.61
20.675	10.67	14.94	25.61
20.700	16.76	14.94	31.70
20.725	16.76	14.94	31.70
20.750	16.76	14.94	31.70
20.775	16.76	14.94	31.70
20.800	12.8	14.94	27.74
20.825	10.67	14.94	25.61
20.850	18.9	14.94	33.84
20.875	18.9	14.94	33.84
20.900	18.9	14.94	33.84
20.925	14.94	14.94	29.88
20.950	14.94	14.94	29.88
20.975	14.94	14.94	29.88
21.000	14.94	14.94	29.88

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
21.025	14.94	14.94	29.88
21.050	16.76	14.94	31.70
21.075	18.9	14.94	33.84
21.100	12.8	14.94	27.74
21.125	14.94	14.94	29.88
21.150	14.94	12.8	27.74
21.175	14.94	12.8	27.74
21.200	14.94	12.8	27.74
21.225	12.8	12.8	25.60
21.250	12.8	12.8	25.60
21.275	12.8	12.8	25.60
21.300	12.8	12.8	25.60
21.325	12.8	12.8	25.60
21.350	12.8	12.8	25.60
21.375	12.8	12.8	25.60
21.400	12.8	12.8	25.60
21.425	12.8	12.8	25.60
21.450	12.8	12.8	25.60
21.475	12.8	12.8	25.60
21.500	12.8	10.67	23.47
21.525	12.80	10.67	23.47
21.550	12.80	10.67	23.47
21.575	12.80	10.67	23.47
21.600	12.80	10.67	23.47
21.625	12.80	10.67	23.47
21.650	12.80	10.67	23.47
21.675	12.80	10.67	23.47
21.700	12.80	12.80	25.60
21.725	12.80	12.80	25.60
21.750	12.80	12.80	25.60
21.775	12.80	12.80	25.60
21.800	10.67	10.67	21.34
21.825	10.67	10.67	21.34
21.850	10.67	10.67	21.34
21.875	10.67	10.67	21.34
21.900	10.67	10.67	21.34
21.925	10.67	10.67	21.34
21.950	10.67	10.67	21.34
21.975	10.67	10.67	21.34
22.000	12.80	14.94	27.74
22.025	12.80	14.94	27.74
22.050	12.80	14.94	27.74
22.075	12.80	14.94	27.74

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
22.100	12.80	14.94	27.74
22.125	12.80	14.94	27.74
22.150	10.67	16.76	27.43
22.175	10.67	14.94	25.61
22.200	15.85	12.80	28.65
22.225	14.94	14.94	29.88
22.250	14.94	12.80	27.74
22.275	12.80	12.80	25.60
22.300	12.80	14.94	27.74
22.325	12.80	14.94	27.74
22.350	14.94	14.94	29.88
22.375	12.8	14.94	27.74
22.400	12.8	14.94	27.74
22.425	12.8	14.94	27.74
22.450	12.8	14.94	27.74
22.475	12.8	14.94	27.74
22.500	12.8	14.94	27.74
22.525	13.72	14.94	28.66
22.550	13.72	14.94	28.66
22.575	13.72	14.94	28.66
22.600	13.72	14.02	27.74
22.625	13.72	14.02	27.74
22.650	13.72	14.02	27.74
22.675	13.72	14.02	27.74
22.700	13.72	14.02	27.74
22.725	9.14	14.94	24.08
22.750	9.14	14.94	24.08
22.775	9.14	14.94	24.08
22.800	9.14	14.94	24.08
22.825	10.67	15.24	25.91
22.850	10.67	15.24	25.91
22.875	10.67	15.24	25.91
22.900	12.19	17.98	30.17
22.925	8.84	16.76	25.60
22.950	8.84	16.76	25.60
22.975	8.84	16.76	25.60
23.000	10.67	14.94	25.61
23.025	10.67	14.94	25.61
23.050	10.67	14.94	25.61
23.075	10.67	14.94	25.61
23.100	10.67	14.94	25.61
23.125	10.67	16.76	27.43
23.150	10.67	16.76	27.43

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
23.175	10.67	18.90	29.57
23.200	6.71	21.03	27.74
23.225	6.71	18.90	25.61
23.250	8.84	16.76	25.60
23.275	8.84	12.80	21.64
23.300	12.80	14.94	27.74
23.325	14.94	12.80	27.74
23.350	10.67	16.76	27.43
23.375	6.71	17.95	24.66
23.400	6.71	12.80	19.51
23.425	6.71	12.80	19.51
23.450	7.92	18.29	26.21
23.475	12.19	18.29	30.48
23.500	16.76	16.15	32.91
23.525	16.15	16.15	32.3
23.550	16.15	16.15	32.3
23.575	14.02	12.80	26.82
23.600	16.76	14.94	31.7
23.625	16.76	10.06	26.82
23.650	14.02	10.06	24.08
23.675	14.02	10.06	24.08
23.700	13.11	13.11	26.22
23.725	13.72	13.72	27.44
23.750	13.72	13.72	27.44
23.775	14.94	14.02	28.96
23.800	14.94	12.19	27.13
23.825	20.12	12.19	32.31
23.850	20.12	14.02	34.14
23.875	14.02	12.8	26.82
23.900	14.02	14.94	28.96
23.925	16.15	14.02	30.17
23.950	13.1	14.02	27.12
23.975	14.02	13.1	27.12
24.000	14.02	12.19	26.21
24.025	14.02	14.02	28.04
24.050	16.15	12.19	28.34
24.075	14.02	14.02	28.04
24.100	16.15	10.06	26.21
24.125	14.02	14.02	28.04
24.150	16.15	14.02	30.17
24.175	14.02	14.02	28.04
24.200	16.15	16.15	32.30
24.225	16.15	16.15	32.30

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
24.250	16.15	16.15	32.30
24.275	16.15	16.15	32.3
24.300	16.15	12.19	28.34
24.325	14.02	14.02	28.04
24.350	14.02	14.02	28.04
24.375	14.02	14.02	28.04
24.400	14.02	14.02	28.04
24.425	14.02	14.02	28.04
24.450	14.02	26.27	40.29
24.475	14.02	38.40	52.42
24.500	14.02	32.31	46.33
24.525	14.02	30.17	44.19
24.550	14.02	16.15	30.17
24.575	13.19	16.15	29.34
24.600	28.04	32.31	60.35
24.625	28.04	24.08	52.12
24.650	20.12	26.21	46.33
24.675	16.15	16.15	32.30
24.700	14.02	24.08	38.10
24.725	12.19	24.08	36.27
24.750	16.15	20.12	36.27
24.775	18.29	16.15	34.44
24.800	18.29	16.15	34.44
24.825	16.15	15.15	31.3
24.850	16.15	14.02	30.17
24.875	16.15	14.02	30.17
24.900	16.15	16.15	32.3
24.925	16.15	12.19	28.34
24.950	12.19	12.19	24.38
24.975	16.46	14.02	30.48
25.000	16.46	16.76	33.22
25.025	16.46	14.02	30.48
25.050	23.16	16.15	39.31
25.075	16.46	14.02	30.48
25.100	24.08	16.15	40.23
25.125	24.08	16.15	40.23
25.150	20.12	16.15	36.27
25.175	24.08	16.15	40.23
25.200	22.25	18.29	40.54
25.225	14.02	19.81	33.83
25.250	20.42	19.81	40.23
25.275	24.08	20.12	44.2
25.300	21.34	18.29	39.63

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
25.325	16.15	17.07	33.22
25.350	16.15	17.07	33.22
25.375	16.15	17.07	33.22
25.400	22.86	22.25	45.11
25.425	14.02	26.21	40.23
25.450	21.34	20.12	41.46
25.475	14.02	24.13	38.15
25.500	20.42	18.29	38.71
25.525	20.12	18.24	38.36
25.550	27.43	27.43	54.86
25.575	10.06	20.12	30.18
25.600	22.56	14.02	36.58
25.625	10.06	32.3	42.36
25.650	10.06	5.49	15.55
25.675	16.15	24.38	40.53
25.700	23.16	5.49	28.65
25.725	20.12	5.49	25.61
25.750	20.12	5.49	25.61
25.775	20.12	5.49	25.61
25.800	20.12	5.49	25.61
25.825	20.12	5.49	25.61
25.850	23.16	5.49	28.65
25.875	20.11	9.14	29.25
25.900	20.12	5.49	25.61
25.925	24.38	23.16	47.54
25.950	20.12	5.49	25.61
25.975	26.21	24.38	50.59
26.000	20.12	5.49	25.61
26.025	14.02	5.49	19.51
26.050	16.15	5.49	21.64
26.075	14.02	5.49	19.51
26.100	14.02	5.49	19.51
26.125	14.02	5.49	19.51
26.150	14.02	5.49	19.51
26.175	18.28	14.02	32.3
26.200	16.15	14.02	30.17
26.225	14.02	14.02	28.04
26.250	16.15	16.15	32.3
26.275	15.24	15.24	30.48
26.300	15.24	15.24	30.48
26.325	14.25	14.07	28.32
26.350	14.02	15.24	29.26
26.375	15.24	15.24	30.48

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
26.400	16.15	16.15	32.3
26.425	16.15	12.19	28.34
26.450	21.34	16.15	37.49
26.475	16.15	12.19	28.34
26.500	16.15	16.15	32.3
26.525	13.72	12.19	25.91
26.550	14.02	14.02	28.04
26.575	13.72	12.19	25.91
26.600	13.72	13.72	27.44
26.625	13.72	12.19	25.91
26.650	13.11	12.19	25.3
26.675	13.72	12.19	25.91
26.700	14.02	12.19	26.21
26.725	13.72	12.19	25.91
26.750	15.24	12.19	27.43
26.775	13.72	10.97	24.69
26.800	15.24	15.24	30.48
26.825	15.24	10.97	26.21
26.850	13.11	13.11	26.22
26.875	15.24	13.1	28.34
26.900	15.24	12.19	27.43
26.925	14.02	14.02	28.04
26.950	12.19	16.15	28.34
26.975	14.02	16.15	30.17
27.000	13.11	18.29	31.4
27.025	20.12	13.11	33.23
27.050	20.12	18.29	38.41
27.075	20.12	12.19	32.31
27.100	10.97	17.07	28.04
27.125	10.97	14.02	24.99
27.150	12.19	15.24	27.43
27.175	14.02	18.28	32.3
27.200	15.24	14.02	29.26
27.225	12.19	18.28	30.47
27.250	12.19	10.06	22.25
27.275	14.02	18.28	32.3
27.300	12.19	7.01	19.2
27.325	12.19	16.15	28.34
27.350	13.11	3.96	17.07
27.375	12.19	16.15	28.34
27.400	16.76	16.76	33.52
27.425	13.11	14.02	27.13
27.450	18.29	14.02	32.31

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
27.475	13.11	13.11	26.22
27.500	15.24	13.11	28.35
27.525	13.11	13.11	26.22
27.550	14.02	14.02	28.04
27.575	13.11	13.11	26.22
27.600	14.02	14.02	28.04
27.625	15.24	17.68	32.92
27.650	13.11	15.24	28.35
27.675	18.28	18.28	36.56
27.700	16.76	17.68	34.44
27.725	15.24	15.24	30.48
27.750	14.94	18.9	33.84
27.775	16.24	15.24	31.48
27.800	16.15	17.07	33.22
27.825	14.02	14.02	28.04
27.850	14.94	20.73	35.67
27.875	14.02	14.02	28.04
27.900	16.15	21.03	37.18
27.925	14.02	14.02	28.04
27.950	14.02	20.12	34.14
27.975	14.02	14.07	28.09
28.000	14.02	18.29	32.31
28.025	14.02	14.02	28.04
28.050	16.15	35.36	51.51
28.075	13.11	13.11	26.22
28.100	14.02	27.13	41.15
28.125	14.02	14.02	28.04
28.150	17.07	17.07	34.14
28.175	14.02	15.02	29.04
28.200	17.07	17.07	34.14
28.225	14.02	16.15	30.17
28.250	17.07	16.15	33.22
28.275	14.02	16.15	30.17
28.300	15.24	23.16	38.4
28.325	16.15	17.07	33.22
28.350	13.11	17.07	30.18
28.375	14.02	17.07	31.09
28.400	15.24	15.24	30.48
28.425	14.02	18.28	32.3
28.450	16.15	14.02	30.17
28.475	16.15	30.18	46.33
28.500	5.49	16.46	21.95
28.525	18.28	20.11	38.39

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
28.550	5.49	16.46	21.95
28.575	17.06	17.06	34.12
28.600	7.92	14.02	21.94
28.625	17.06	17.06	34.12
28.650	16.15	12.19	28.34
28.675	17.06	17.06	34.12
28.700	16.15	12.19	28.34
28.725	10.06	20.11	30.17
28.750	12.19	12.11	24.30
28.775	14.02	10.06	24.08
28.800	10.06	10.06	20.12
28.825	14.02	10.06	24.08
28.850	10.06	10.06	20.12
28.875	14.02	14.02	28.04
28.900	10.06	7.92	17.98
28.925	6.40	9.14	15.54
28.950	10.06	10.06	20.12
28.975	6.10	6.10	12.20
29.000	10.06	10.06	20.12
29.025	10.06	10.06	20.12
29.050	10.06	16.15	26.21
29.075	10.06	10.06	20.12
29.100	14.02	18.29	32.31
29.125	14.02	18.29	32.31
29.150	12.19	14.02	26.21
29.175	12.19	14.02	26.21
29.200	16.15	12.19	28.34
29.225	16.15	12.19	28.34
29.250	16.15	16.16	32.31
29.275	16.15	16.16	32.31
29.300	12.19	16.15	28.34
29.316	12.19	14.32	26.51
29.325	14.02	12.19	26.21
29.350	10.97	15.24	26.21
29.375	12.19	13.11	25.3
29.400	10.06	15.24	25.3
29.425	10.97	15.24	26.21
29.450	10.06	10.15	20.21
29.475	12.19	15.85	28.04
29.500	10.97	14.94	25.91
29.525	10.97	14.94	25.91
29.550	10.06	15.54	25.60
29.575	10.06	15.54	25.60

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
29.600	10.97	15.24	26.21
29.625	10.97	15.24	26.21
29.650	14.02	14.94	28.96
29.675	14.02	14.94	28.96
29.700	14.94	15.85	30.79
29.725	14.94	15.85	30.79
29.750	14.94	15.54	30.48
29.775	14.94	15.54	30.48
29.800	14.94	15.24	30.18
29.825	14.94	15.24	30.18
29.850	14.94	15.24	30.18
29.875	14.94	19.20	34.14
29.900	14.94	17.37	32.31
29.925	14.94	17.37	32.31
29.950	11.28	21.03	32.31
29.975	12.19	20.12	32.31
30.000	13.11	19.20	32.31
30.025	18.90	13.41	32.31
30.050	18.90	15.24	34.14
30.075	19.20	14.94	34.14
30.100	19.51	12.80	32.31
30.125	19.51	12.80	32.31
30.150	18.59	13.72	32.31
30.175	18.90	13.41	32.31
30.200	18.90	13.41	32.31
30.225	20.42	11.89	32.31
30.250	18.29	7.92	26.21
30.275	19.20	10.36	29.56
30.300	18.29	9.75	28.04
30.325	15.54	11.28	26.82
30.350	17.98	8.02	26.00
30.375	17.98	6.10	24.08
30.400	16.46	13.54	30.00
30.425	14.02	11.98	26.00
30.450	14.02	20.12	34.14
30.475	14.33	16.15	30.48
30.500	15.85	18.29	34.14
30.525	16.46	17.68	34.14
30.550	16.46	17.68	34.14
30.575	15.24	20.73	35.97
30.600	16.15	16.15	32.30
30.625	16.60	17.54	34.14
30.650	19.51	14.63	34.14

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
30.675	20.12	14.02	34.14
30.700	21.03	9.97	31.00
30.725	21.03	9.97	31.00
30.750	21.95	10.05	32.00
30.775	22.56	9.75	32.31
30.800	18.29	14.02	32.31
30.825	17.07	3.96	21.03
30.850	17.37	4.57	21.94
30.875	17.37	4.57	21.94
30.900	5.18	4.57	9.75
30.925	19.20	14.94	34.14
30.950	19.20	14.94	34.14
30.975	15.24	17.98	33.22
31.000	16.76	15.54	32.30
31.025	16.76	15.54	32.30
31.050	12.19	12.19	24.38
31.075	12.00	12.00	24.00
31.100	17.07	14.93	32.00
31.125	17.00	17.00	34.00
31.150	16.15	16.15	32.30
31.175	16.15	16.15	32.30
31.200	17.07	17.07	34.14
31.225	17.00	17.00	34.00
31.250	17.98	16.02	34.00
31.275	16.00	16.00	32.00
31.300	12.00	12.00	24.00
31.325	12.00	12.00	24.00
31.350	13.00	13.00	26.00
31.375	13.00	13.00	26.00
31.400	13.72	13.72	27.44
31.425	15.00	13.00	28.00
31.450	15.00	13.00	28.00
31.475	14.00	14.00	28.00
31.500	15.00	16.00	31.00
31.525	16.00	16.00	32.00
31.550	17.00	15.00	32.00
31.575	16.00	16.00	32.00
31.600	18.00	16.00	34.00
31.625	18.00	16.00	34.00
31.650	18.00	18.00	36.00
31.675	18.00	18.00	36.00
31.700	17.68	17.32	35.00
31.725	17.00	19.00	36.00

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
31.750	15.00	19.00	34.00
31.775	15.00	19.00	34.00
31.800	15.00	19.00	34.00
31.825	15.00	19.00	34.00
31.850	15.00	19.00	34.00
31.875	15.00	19.00	34.00
31.900	14.00	19.00	33.00
31.925	15.00	19.00	34.00
31.950	15.00	19.00	34.00
31.975	14.00	12.00	26.00
32.000	14.00	12.00	26.00
32.025	13.00	12.00	25.00
32.050	14.00	15.00	29.00
32.075	17.00	17.00	34.00
32.100	17.98	16.02	34.00
32.125	17.00	17.00	34.00
32.150	17.98	16.02	34.00
32.175	0.00	0.00	34.00
32.200	14.02	14.02	28.04
32.225	17.00	17.00	34.00
32.250	17.00	17.00	34.00
32.275	17.00	17.00	34.00
32.300	17.00	19.27	36.27
32.325	17.00	17.00	34.00
32.350	17.98	18.29	36.27
32.375	0.00	0.00	0.00
32.400	17.98	18.29	36.27
32.425	18.00	18.00	36.00
32.450	17.98	18.29	36.27
32.475	17.50	17.50	35.00
32.500	17.00	17.00	34.00
32.525	17.00	17.00	34.00
32.550	17.98	18.29	36.27
32.575	9.50	9.50	19.00
32.600	20.12	20.12	40.24
32.625	20.12	20.12	40.24
32.650	11.00	11.00	22.00
32.675	11.00	11.00	22.00
32.700	11.00	11.00	22.00
32.725	11.00	11.00	22.00
32.750	11.00	11.00	22.00
32.775	11.00	11.00	22.00
32.800			

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
32.825	9.00	9.00	18.00
32.850	9.00	9.00	18.00
32.875	9.00	9.00	18.00
32.900	19.20	19.20	38.40
32.925	9.00	9.00	18.00
32.950	19.20	19.20	38.40
32.975	9.00	9.00	18.00
33.000	9.00	9.00	18.00
33.025	9.00	9.00	18.00
33.050	19.20	19.20	38.40
33.075	9.00	9.00	18.00
33.100	19.20	19.20	38.40
33.125	0.00	0.00	0.00
33.150	9.00	9.00	18.00
33.175	9.00	9.00	18.00
33.200	19.20	19.20	38.40
33.225	19.20	19.20	38.40
33.250	24.08	24.08	48.16
33.275	24.08	24.08	48.16
33.300	24.08	24.08	48.16
33.325	24.08	24.08	48.16
33.350	6.00	6.00	12.00
33.375	6.00	6.00	12.00
33.400	26.21	26.21	52.42
33.425	8.25	8.25	16.5
33.450	21.95	22.25	44.2
33.475	21.95	22.25	44.2
33.500	17.07	17.07	34.14
33.525	17.07	17.07	34.14
33.550	17.07	17.07	34.14
33.575	17.07	17.07	34.14
33.600	17.98	18.29	36.27
33.625	17.98	18.29	36.27
33.650	10.06	10.06	20.12
33.675	10.06	10.06	20.12
33.700	10.06	10.06	20.12
33.725	10.06	10.06	20.12
33.750	7.92	7.92	15.84
33.775	7.92	7.92	15.84
33.800	7.92	7.92	15.84
33.825	0	7.5	7.5
33.850	8.23	8.23	16.46
33.875	8.23	8.23	16.46

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
33.900	8.00	8.00	16.00
33.925	8.50	8.50	17.00
33.950	11.00	9.50	20.50
33.975	10.00	10.00	20.00
34.000	9.15	9.14	18.29
34.025	9.15	9.14	18.29
34.050	8.23	8.23	16.46
34.075	8.23	8.23	16.46
34.100	9.75	9.75	19.50
34.125	9.75	9.75	19.50
34.150	10.06	10.06	20.12
34.175	10.06	10.06	20.12
34.200	13.11	13.11	26.22
34.225	13.11	13.11	26.22
34.250	7.92	8.23	16.15
34.275	7.92	8.23	16.15
34.300	9.14	9.14	18.28
34.325	9.14	9.14	18.28
34.350	10.06	10.06	20.12
34.375	10.06	10.06	20.12
34.400	7.92	8.23	16.15
34.425	7.92	8.23	16.15
34.450	7.92	8.23	16.15
34.475	7.92	8.23	16.15
34.500	7.00	7.62	14.62
34.525	7.10	8.40	15.50
34.550	7.62	7.62	15.24
34.575	7.50	7.50	15.00
34.600	7.62	7.62	15.24
34.625	7.50	7.50	15.00
34.650	7.50	7.50	15.00
34.675	10.00	7.50	17.50
34.700	7.92	8.23	16.15
34.725	20.00	14.00	34.00
34.750	20.00	14.00	34.00
34.775	20.00	14.00	34.00
34.800	7.92	8.23	16.15
34.825	7.92	8.23	16.15
34.850	20.12	20.12	40.24
34.875	20.12	20.12	40.24
34.900	20.12	12.19	32.31
34.925	20.12	12.19	32.31
34.950	20.12	14.02	34.14

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Chainage	Available ROW in Meters		Total
	L.H.S	R.H.S	
34.975	20.12	14.02	34.14
35.000	20.12	16.15	36.27
35.025	20.12	16.15	36.27
35.050	14.02	7.92	21.94
35.075	14.02	7.92	21.94
35.100	14.02	7.92	21.94
35.125	14.02	7.92	21.94
35.150	20.12	7.92	28.04
35.175	20.12	7.92	28.04
35.200	16.15	10.06	26.21
35.225	16.15	10.06	26.21
35.250	20.12	7.92	28.04
35.275	20.12	0.00	20.12
35.300	20.12	12.19	32.31
35.325	20.12	12.19	32.31
35.350	18.29	14.02	32.31
35.375	18.00	14.00	32.00
35.400	14.02	16.15	30.17
35.425	14.02	16.15	30.17
35.450	20.12	14.02	34.14
35.475	20.12	14.02	34.14
35.500	20.12	16.15	36.27

3. Carriageway.

- The present Carriage way of the project Highway is mostly in 2-Lane and Partly developed to 4-Lane.

Sl No	Design Chainage		Type of Carriageway	Carriageway		
	From	To		Type of Pavement	Width (m)	Condition
1.	0/000	3/500	4-Lane Carriageway	Flexible	7.50 m width on both sides with 1.0 m (avg.) centre Median	Good
2.	3/500	35/451	2-Lane Carriageway	Flexible	7.50 m width 2-Lane carriage way	Partly damaged

4. Major Bridges

The Site includes the following Major Bridges:

Sl. No.	Design Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			
Nill							

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

5. Roadover-bridges (ROB)/Roadunder-bridges (RUB)

The Site includes the following ROB (road over railway line)/RUB (road under railway line):

Sl. No.	Design Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/ RUB
		Foundation	Superstructure			
Null						

6. Gradeseparators

The Site includes the following grade separators:

S. No.	Design Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
Nil					

7. Minor bridges

The Site includes the following minor bridges:

Sl. No.	Design Chainage(km)	Type of Structure			No. of Spans with span length(m)	Width (m)
		Foundation	Sub-structure	Superstructure		
1	0.346	Open	RCC BOX Type	RCC SLAB	2 X 5.0	17.00
2	17.795	Pile	Pier	RCC T-GIRDER	3 X 17.5	8.00
3	23.342	Open	Pier	RCC SLAB	2 X 3.6	7.96
4	24.540	Open	Pier	RCC SLAB	3 X 5.0	8.80

8. Railway levelcrossings

The Site includes the following railway level crossings:

S. No.	Location (Existing km)	Remarks
NIL		

9. Underpasses (vehicular, non vehicular) The Site

includes the following underpasses:

S. No.	Chainage (km)	Type of Structure	No. of Spans with span length (m)	Width (m)
Nil				

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

10. Culverts

The Site has the following culverts:

Sl No	Design Chainage (KM)	Type of culvert	Span (m)	Overall width (m)
1	3.795	SLAB	1 X 1.7	14.15
2	4.060	SLAB	1 X 4.0	12.24
3	5.295	HUME PIPE	1 X 0.6	22.37
4	5.650	SLAB	4 X 1.2	8.65
5	7.992	SLAB	1X1.70	10.72
6	8.780	SLAB	1 X 1.5	12.70
7	9.533	RCC BOX	1 X 1.0	10.52
8	10.803	RCC BOX	1 X 1.0	10.22
9	10.983	RCC BOX	1 X 1.1	10.70
10	11.833	SLAB	1 X 1.0	10.40
11	13.290	SLAB	1 X 1.3	11.25
12	13.985	SLAB	1 X 1.3	17.36
13	14.152	SLAB	1 X 1.3	13.18
14	14.953	HPC	1 x 1.1	13.91
15	15.040	Slab	1 X 4.0	13.58
16	16.325	Slab	1 x 1	10.90
17	16.695	Slab	1 x 1	11.00
18	16.890	RCC BOX	1 X 2	12.00
19	18.700	RCC BOX	1 X 1.1	11.80
20	24.175	HPC	1 X 0.3	7.50
21	24.715	HPC	1 X1.0	11.00
22	24.740	RCC SLAB	1 X 3.0	12.00
23	25.938	RCC SLAB	2 X 2.5	12.00
24	26.383	RCC SLAB	1 X 4.0	12.00
25	26.910	RCC SLAB	1 X 5.0	11.39
26	27.630	RCC SLAB	2 X 2.1	10.82
27	27.850	RCC SLAB	1 X 2.8	13.50
28	28.072	RCC SLAB	2 X 3.0	11.20
29	28.622	SLAB	1 X 2.0	11.14
30	29.115	SLAB	1 X 2.0	11.45
31	29.660	RCC SLAB	1 X 3.0	11.30
32	29.825	RCC SLAB	1 X 2.0	7.35
33	30.850	SYPHON (HP)	1 X 1.2	16.00
34	33.160	RCC SLAB	1 X 1.5	11.10
35	33.803	HPC	1 X 1.1	14.60

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

11. Busbays

The details of Bus bays on the site are as follows

Sl No	Design Chainage (km)	Length(m)	Left Hand side	Right Hand side	Remarks
NIL					

12. Truck Lay byes

The details of truck lay byes are as follows:

Sl No	Chainage (km)	Length(m)	Left Hand side	Right Hand side
NIL				

13. Road side Drains

The details of road side lined drains are listed as below:

Sl no	Design Chainage		Side	Type	
	From Km	To Km		Masonry/cc (Pucca)	Earthen (Kutcha)
NIL					

14. Major Junctions

The details of major junctions are as follows:

Sl no	Design Chainage (KM)	At-Grade	Grade Separated	Category of cross road			
				NH	SH	MDR	Others
1	0.000	At Grade	NA	NH 16			
2	16.890	At grade (4 Leg)	NA				ODR (To NIRTAR, Olatpur)

(NH: National Highway, SH: State Highway, MDR: Major District Road)

15. Minor Junctions

The details of minor Junctions are as follow:

(i) At Grade BT Junction

Sl No.	Chainage	Type	Side	Leads to
1	850	T	Left	Delhi Public School
2	1770	T	Right	Synergy College

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No.	Chainage	Type	Side	Leads to
3	2370	T	Right	
4	3070	T	Right	Jaipur
5	4070	X	Both	Aradiapada, Atala Road
6	4470	T	Left	Mandaria
7	5170	Y	Left	Manderia Patna
8	7360	T	Left	Kuranga Pradhan
9	10000	T	Right	
10	11260	T	Right	Chitalpur
11	14130	T	Left	Jharpada
12	14690	Y	Left	Damdarpur village
13	15020	T	Right	Dalton Industries
14	15960	T	Right	Pratap pur
15	16900	T	Right	Olatpur
16	17210	Y	Right	Panda Sahi
17	17405	Y	Right	Panda Sahi
18	18160	T	Left	Gobindpur
19	16930	Staggered	Left	Cheda Village
20	16960		Right	Jaydev Pitha
21	20430	T	Left	Tadikana
22	20500	T	Right	Adaspur
23	20740	T	Right	Medical
24	21890	T	Right	Omfed Factory
25	23320	Y	Right	Sasana Kantapada
26	23460	T	Left	Bilasuni
27	24730	T	Right	Kapileshwarpur
28	26390	T	Left	Mahanga
29	26820	T	Left	Tihuri
30	27570	T	Right	Amankuda
31	27870	Y	Left	Khulisha
32	28810	T	Right	Khandiadanda
33	29340	Y	Left	
34	29850	T	Right	Banamalipur
35	30260	T	Right	Niali College
36	32220	T	Right	Dina Singh Patana
37	34280	T	Right	Sahanajpur
38	34490	T	Right	Sahanajpur
39	34670	T	Right	Sahanajpur
40	35140	Y	Right	Thakura Patna
41	35260	Y	Left	Balikuda
42	600	T	Left	Saraswati Sishu Mandir

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(ii) At Grade CC Junction

Sl No.	Chainage	Type	Side	Leads to
1	590	Staggered	Right	Saraswati shishu vidya mandir
2	600		Left	Nakhra Durga puja mandap
3	990	Staggered	Right	Nakhra Village
4	1010		Left	Gopalpur
5	1080	T	Left	Nakharagad
6	1850	T	Left	Anantapur
7	2350	T	Left	Anantapur
8	2490	T	Right	TCI, Gati Express
9	3350	T	Left	Brahmakumari
10	3540	T	Left	East college cafeteria
11	6600	X	Both	Baliana, Kushkanta Village
12	6850	T	Right	Brahmanjhrilo
13	6900	X	Both	Brahmanjhrilo college, Kushkanta
14	7500	T	Left	Kurang Pradhan
15	7740	T	Left	Kuranga Basti
16	8020	Staggered	Left	Balisahi Village
17	8030		Right	Kuranga Village
18	8130	Staggered	Right	Kuranga Village
19	8140		Left	Connect to Kuranga and Balisahi
20	8270	T	Left	Kuranga Basti
21	8370	Y	Right	Bhigarpur
22	8660	X	Both	Kuranga Pradhan
23	9020	Staggered	Right	Panchayat Office
24	9040		Left	Kuranga Sashana
25	9160	T	Left	Nadiagurudi
26	9510	T	Left	Nadiagurudi
27	9780	T	Right	Jagannath Temple
28	10100	T	Right	Indiragram
29	11220	T	Left	Baikuntha Puri
30	11810	T	Left	Sundaragram High school
31	11850	Y	Left	Sundaragram
32	12620	T	Left	Sundaragram
33	13480	T	Right	Deuli
34	13720	T	Left	Radha Krishna Temple
35	13890	T	Left	Bagalapur
36	14020	T	Left	Bagalapur
37	14040	T	Left	Bagalapur
38	15010	T	Left	Kantapada
39	15520	T	Left	Kantapada Village
40	15830	T	Left	Kantapada Village
41	16900	T	Right	Bairoi
42	18420	T	Right	Ichhapur
43	18710	T	Right	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No.	Chainage	Type	Side	Leads to
44	20090	T	Left	Guradha
45	21790	T	Right	Banamalipur
46	22290	T	Left	Maujpur Village
47	22970	T	Right	Saleibedpur
48	24230	Y	Right	Gobindapatana
49	24720	T	Left	kalighai High School
50	25030	T	Left	Panchayat Office
51	26480	Staggered	Right	Kantapara Village
52	26500		Left	Kantapara Village
53	28790	Y	Left	Khandiadanda
54	28860	T	Left	
55	29100	T	Left	Swain Sai
56	29850	Y	Left	Nuagaon
57	30200	Y	Left	Radha Kanta Matha
58	30260	Y	Left	Radha Kanta Matha
59	30470	T	Left	
60	30790	T	Left	Mahanga
61	30860	Y	Left	Mahanga
62	30930	T	Right	Sovanesvara Temple
63	31220	Staggered	Left	Jagatsinghpur
64	31260		Right	Narisho Village
65	31420	Staggered	Left	Majhikhanda
66	31430		Right	Narisho Village
67	31710	T	Left	Sethy sahi
68	31870	X	Both	Kalyan Mandap, Kantapada main road
69	31970	Y	Left	Kalyan Mandap
70	32010	X	Both	Fish Market
71	32300	T	Right	
72	32370	Staggered	Left	Bahagana
73	32410		Right	Veterinary Hospital
74	32660	T	Left	Kuanra Sahi
75	33020	T	Left	Haladibasanta Village
76	33370	T	Left	Binchipur
77	34130	T	Right	Pump
78	34210	T	Left	Jallarpur
79	34470	Y	Left	Jallarpur
80	34670	T	Left	Jallarpur
81	35340	Staggered	Right	Behera Sahi
82	35370		Left	Gopinathpur
83	35440	Staggered	Right	Behera Sahi
84	35450		Left	Gopinathpur

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

16. Bypasses

The details of existing road sections proposed to be bypassed are as follows:

Sl no	Name of Bypass (Town)	Existing Chainage (km) from Km to Km	Length (in km)
NIL			

17. Details of any other Structure

Sl no	Existing Chainage (km)	Type of Structure	Height(m)	Remarks
NIL				

18. Other structures. Nil

[Provide details of other structures, if any.]

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annexure-I to Schedule-A

(I) Existing Utility details: -

The site includes the following electrical utilities: -

(i) Extra High-Tension Line (EHT Line)

Sl No.	Chainage		Length (in Km)				Crossing				Remarks
	From	To	400KV	220KV	132KV	66KV	400KV	220KV	132KV	66KV	
	0/000	35/451	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	

2) High Tension/Low Tension Lines (HT/LT Lines)

Sl. No	Chainage		Length (in Km)			Crossing (UG Cable)			Transformer		Remarks	
	From	To	33KV	11 KV	LT	33 KV	11 KV	LT	Nos	Cap.		
01	0/000	5/100	3.50	1.76	0.88	0.09	Nil	Nil	9.00	Kva	Nos	Phulnakhara Section
										25	3	
										63	3	
										250	2	
										500	1	
										Total	9	
02	5/100	16/890	9.80	7.30	7.60	0.56	2.80	Nil	22.00	Kva	Nos	Adaspur Section
										16	3	
										25	5	
										63	7	
										100	4	
										250	1	
										500	2	
										Total	22	
03	16/890	32/300	0.22	4.70	5.60	1.34	1.40	Nil	12.00	Kva	Nos	Niali-1 Section
										25	4	
										63	5	
										100	1	
										500	2	
										Total	12	
04	32/300	35/451	Nil	4.52	2.43	0.49	0.42	Nil	06.00	Kva	Nos	Niali-2 Section
										25	1	
										63	2	
										100	1	
										250	2	
										Total	6	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

The dates on which the Authority shall provide Right of Way of Construction Zone to the Contractor on different stretches of the Site are stated below:

Sl No	Design Chainage (Km)		Length (Km)	Proposed ROW(m)	Remarks
	From	To			
1	0.000	1950	1.950	29.50	Full Right of way for 90 % of length shall be handed over on the appointed date. Balance ROW shall be handed over within 150 days from the appointed date.
2	1950	3550	1.600	17.50	
3	3550	3760	0.210	23.00	
4	3760	3900	0.140	23.00	
5	3900	5200	1.300	21.50	
6	5200	6100	0.900	23.00	
7	6100	6800	0.700	21.50	
8	6800	7250	0.450	23.00	
9	7250	7475	0.225	23.00	
10	7475	8600	1.125	17.50	
11	8600	8950	0.350	23.00	
12	8950	9860	0.910	23.00	
13	9860	10100	0.240	23.00	
14	10100	10400	0.300	23.00	
15	10400	10870	0.470	23.00	
16	10870	11000	0.130	23.00	
17	11000	11300	0.300	23.00	
18	11300	11600	0.300	23.00	
19	11600	12100	0.500	23.00	
20	12100	12240	0.140	23.00	
21	12240	13500	1.260	23.00	
22	13500	17100	3.600	21.50	
23	17100	17300	0.200	23.00	
24	17300	17650	0.350	23.00	
25	17650	17950	0.300	23.00	
26	17950	18700	0.750	23.00	
27	18700	19800	1.100	23.00	
28	19800	21300	1.500	21.50	
29	21300	21700	0.400	21.50	
30	21700	21970	0.270	21.50	
31	21970	23850	1.880	23.00	
32	23850	24370	0.520	23.00	
33	24370	24700	0.330	23.00	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SI No	Design Chainage (Km)		Length (Km)	Proposed ROW(m)	Remarks
	From	To			
34	24700	24900	0.200	23.00	
35	24900	25000	0.100	23.00	
36	25000	25100	0.100	23.00	
37	25100	25300	0.200	23.00	
38	25300	25500	0.200	23.00	
39	25500	26900	1.400	23.00	
40	26900	27200	0.300	23.00	
41	27200	27900	0.700	23.00	
42	27900	28200	0.300	23.00	
43	28200	28725	0.525	23.00	
44	28725	29300	0.575	17.50	
45	29300	29800	0.500	23.00	
46	29800	32515	2.715	29.50	
47	32515	33125	0.610	21.50	
48	33125	34500	1.375	17.50	
49	34500	34725	0.225	17.50	
50	34725	34900	0.175	23.00	
51	34900	35200	0.300	23.00	
52	35200	35451	0.251	21.50	

The dates specified herein shall in no case be beyond 150 (One Hundred Fifty) after the appointed date.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex-III

(Schedule-A)

Alignment Plans

The existing alignment of the Project Highway shall be modified as per the enclosed alignment plan indicated below:

- (i) The proposed alignment of the project road is enclosed in plan. The proposed profile of the Project Highway & cross road as indicated in this Annex shall be followed by the contractor with minimum FRL limit indicated in the alignment plan. The contractor shall however, improve/ upgrade the road profile as indicated in Schedule B and based on the site/ design requirement. Any increase in FRL shall not constitute of Change of Scope.
- (ii) Traffic signage plan of the project highway showing location of traffic signs is enclosed. The contractor shall however, improve/ upgrade upon the traffic signage plan as indicated in Annex-III based on site/ design requirement as per relevant specifications/ IRC Codes/ Manual.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex- IV

(Schedule - A)

Environment Clearance

As per notification of Ministry of Environment and Forests (MOEF), S.O. 2559(E) dtd 22/08/2013, the project will not attract Environmental Clearance.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - B

(See Clause 2.1)

Development of the Project Highway.

1. Development of the Project Highway.

The Development of the Project Highway shall include design and construction of the project highway as described in Schedule B and in Schedule C.

2. Four Lane with Paved Shoulder.

Four Lane with paved shoulder shall include the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C

3. Specifications and Standards

- 4.** The Project Highway **“Improvement of Phulnakhara-Niali-Madhaba Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan” on EPC Contract**, shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex – I

(Schedule-B)

Description of Project

“Improvement of Phulnakhara-Niali-Madhaba Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan” on EPC Contract. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for [Four Laning of Project highway and culverts and Minor Bridges (IRC: SP: 84)], referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars, all other essential project specific details, as required, should be provided in order to define the Scope of the Project clearly and precisely.]

1. **(i)** The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for [plain/rolling] terrain to the extent land is available.

(ii) Width of Carriageway

- o **TCS-1:** The main carriageway of the project road shall be 4 lanes. The width of the carriageway shall be 2 x 7.5m including kerb shyness with 0.5m center median, service road width shall be 2 x 5.5m, 0.5m separator between main carriageway and service road on both side & RCC Drain of width 1.0m shall be provided on both sides as per attached TCS.
- o **TCS-2, 2(A) & 5:** The main carriageway of the project road shall be 4 lanes. The width of the carriageway shall be 2 x 7.5m including kerb shyness with 1.5m center median, earthen shoulder of 1.0 m on both sides as per attached TCS.
- o **TCS-3 & 3(A):** The main carriageway of the project road shall be 4 lanes. The width of the carriageway shall be 2 x 7.5m including kerb shyness with 1.5m center median, 1.5 m paved shoulder & RCC Drain of 1.0m on both sides as per attached TCS.
- o **TCS-4:** The main carriageway of the project road shall be 4 lanes. The width of the carriageway shall be 2 x 7.5m including kerb shyness with 0.5m center median, RCC Drain of 1.0 m on both sides as per attached TCS.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- o **TCS-6:** The main carriageway of the project road shall be 4 lanes. The width of the carriageway shall be 2 x 7.5m including kerb shyness with 0.5m (avg.) center median, RCC Drain of 1.0 m on both sides as per attached TCS.
- o **TCS-7:** The main carriageway of the project road shall be 4 lanes. The width of the carriageway shall be 2 x 7.5m including kerb shyness with 0.5m center median, service road width shall be 2 x 5.5m, 0.5m separator between main carriageway and service road on both side & RCC Drain of width 1.0m shall be provided on both sides as per attached TCS.

2. Geometric Design and General Features

(i) General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual.

(ii) Design speed

The minimum design speed shall be minimum **80 km** per hour for plain/rolling terrain.

Improvement of the existing road geometrics.

Sl No	Chainage (km)		Length (km)	Remarks
	From	To		
1	0.000	35.451	35.451	To be Improved

(iii) Right of Way

[Refer to paragraph 2.3 of the Manual].

Details of the Right of Way are given in Annex II of Schedule-A.

(iv) Type of shoulders/ Raised Footpath

[Refer to paragraph 2.6.2 of the Manual and specify]

- a. In open country side of the embankment, Earthen shoulder of 1.00 mtr shall be provided with selected materials having effective CBR not less than 8% on either side of the road carriage way as per attached **TCS-2, 2(A) & 5.**
- b. In open country side of the embankment, paved shoulder of 1.5 shall be provided on either side of the road carriage way as per attached **TCS-3 & 3(A).**
- c. **Median**

0.5m width median in **TCS-1, 4 & 6**, 1.5m width median in **TCS-2, 2(A), 3, 3(A) & 5** shall be provided between carriageways

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

d. Lateral and vertical clearances at underpasses

Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per the provision of relevant Manual.

Lateral clearance: The width of the opening at the underpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks
Nil			

e. Lateral and vertical clearances at overpasses.

➤ Lateral and vertical clearances at overpasses shall be as per the provision of relevant Manual.

➤ Lateral clearance: The width of the opening at the overpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks
NIL			

f. Service roads

Service roads shall be constructed at the locations and for the lengths as indicated below:

Sl. No.	Design chainage	Side of main carriageway	Width of service road	Length (km) of service road
1	0/000 to 1/950	Both side	5.50 m	1.950
2	29/800 to 32/515			2.715
TOTAL				4.665 km

Note: Minimum length of service road is excluding the length of taper. Appropriate taper/ entry and exit arrangement shall be provided as per IRC manuals and guidelines. No additional payment or COS shall be provided for taper length

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

g. Grade separated structures.

(a) Grade separated structures shall be provided as per provision of the relevant Manual. The requisite particulars are given-below:

Sl. No.	Chainage		Proposed Length (m)	Tentative Number and length of spans(m)	Proposed structure type	Remarks, if any
	Start chainage	End chainage				
Nil						

Note: Minimum length of grade separated structure is mentioned in above table. Actual length of the grade separated structure shall be prepared by the Contractor based on site requirements and as per geometric standards specified in Schedule B and D.

Any change in length of grade separated structure in Schedule B shall not constitute a change of scope.

(b) In the case of grade separated structures, the type of structure and the level of the Project Highway and the cross roads shall be as follows: [Refer to the provision of relevant Manual and specify the type of vehicular under pass/ overpass structure and whether the cross road is to be carried at the existing level, raised or lowered]

Sl. No.	Location	Type of structure Length (m)	Cross road at			Remarks, if any
			Existing Level	Raised Level	Lowered Level	
NIL						

a. Cattle and pedestrian underpass/overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

Sl. No.	Location	Opening/ span	Type of crossing
Nil			

h. Typical cross-sections of the Project Highway:

Sl No	Design Chainage (Km)		Length (Km)	TCS
	From	To		
1	0	1950	1.950	TCS-1
2	1950	3550	1.600	TCS-6
3	3550	3760	0.210	TCS-2
4	3760	3900	0.140	TCS-2A
5	3900	5200	1.300	TCS-3

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No	Design Chainage (Km)		Length (Km)	TCS
	From	To		
6	5200	6100	0.900	TCS-2
7	6100	6800	0.700	TCS-3A
8	6800	7250	0.450	TCS-2
9	7250	7475	0.225	TCS-2A
10	7475	8600	1.125	TCS-4
11	8600	8950	0.350	TCS-2
12	8950	9860	0.910	TCS-2A
13	9860	10100	0.240	TCS-2
14	10100	10400	0.300	TCS-2A
15	10400	10870	0.470	TCS-2
16	10870	11000	0.130	TCS-2A
17	11000	11300	0.300	TCS-2
18	11300	11600	0.300	TCS-2A
19	11600	12100	0.500	TCS-2
20	12100	12240	0.140	TCS-2A
21	12240	13500	1.260	TCS-2
22	13500	17100	3.600	TCS-3
23	17100	17300	0.200	TCS-2A
24	17300	17650	0.350	TCS-2
25	17650	17950	0.300	TCS-2A
26	17950	18700	0.750	TCS-2
27	18700	19800	1.100	TCS-2A
28	19800	21300	1.500	TCS-3
29	21300	21700	0.400	TCS-3A
30	21700	21970	0.270	TCS-3
31	21970	23850	1.880	TCS-2
32	23850	24370	0.520	TCS-2A
33	24370	24700	0.330	TCS-5
34	24700	24900	0.200	TCS-2A
35	24900	25000	0.100	TCS-2
36	25000	25100	0.100	TCS-2A
37	25100	25300	0.200	TCS-2
38	25300	25500	0.200	TCS-2A
39	25500	26900	1.400	TCS-2
40	26900	27200	0.300	TCS-2A
41	27200	27900	0.700	TCS-2
42	27900	28200	0.300	TCS-2A
43	28200	28725	0.525	TCS-2
44	28725	29300	0.575	TCS-4
45	29300	29800	0.500	TCS-2A

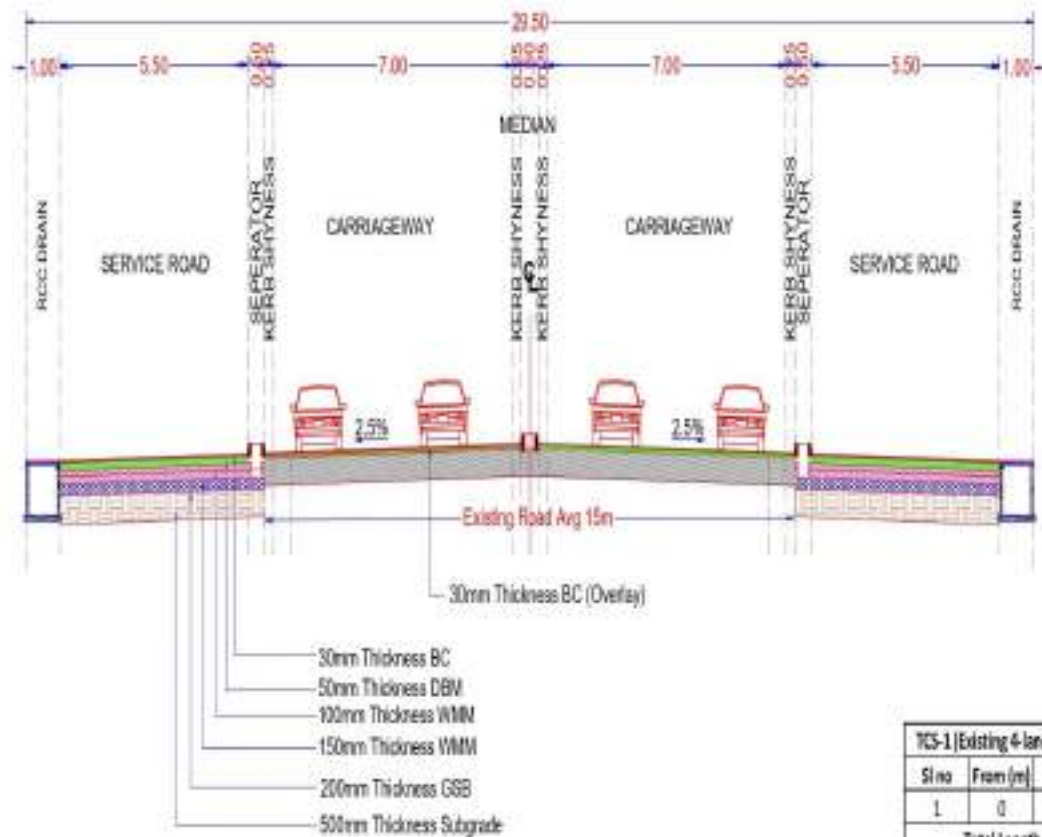
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SI No	Design Chainage (Km)		Length (Km)	TCS
	From	To		
46	29800	32515	2.715	TCS-7
47	32515	33125	0.610	TCS-3
48	33125	34500	1.375	TCS-4
49	34500	34725	0.225	TCS-4
50	34725	34900	0.175	TCS-2
51	34900	35200	0.300	TCS-2A
52	35200	35451	0.251	TCS-3

Note:

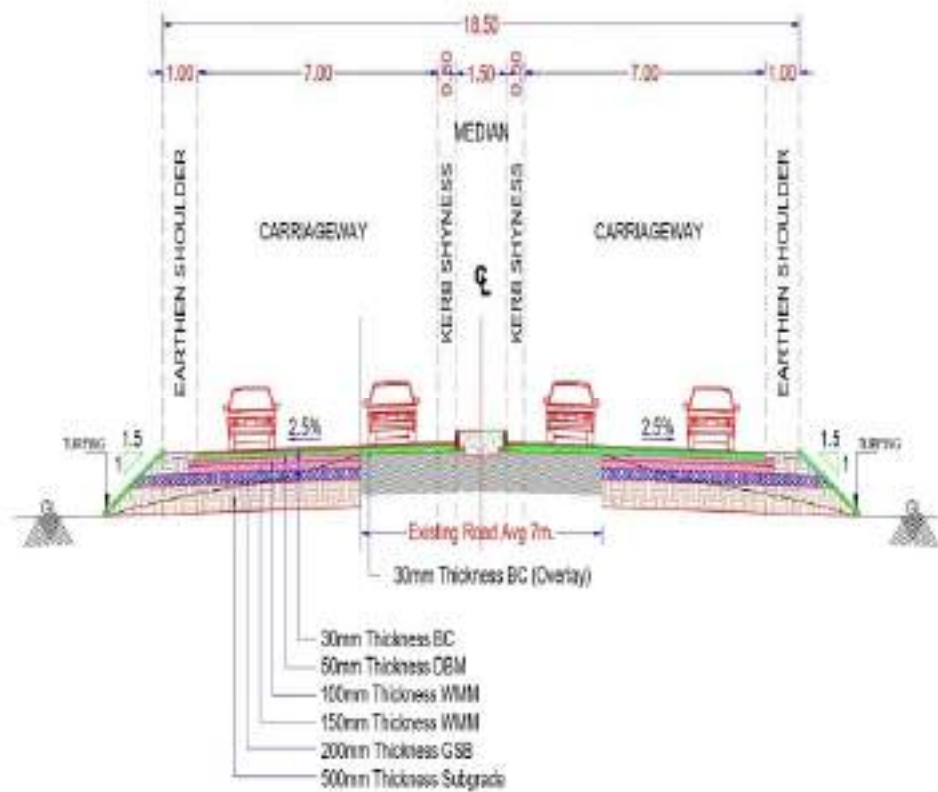
- a. The width of the widening/ proposed carriageway width shown in typical cross sections is minimum. Additional carriageway width wherever required for auxiliary lanes at entry/ exit shall be provided.*
- b. TCS schedule given above shall be treated as approximate assessment. Actual length of the TCS schedule shall be prepared by the Contractor based on detailed investigations, site requirements and detailed design of geometry. Any variation in length of the respective TCS specified in schedule B shall not constitute a change of scope, save and except any variation in design length arising out of a change of scope expressly undertaken in accordance with the provisions of Article 16.*
- c. The pavement thickness or overlay thickness mentioned in the TCS shown below are tentative. The overlay and crust thickness shall be designed by the Contractor based on soil investigation, geometry design and pavement design.*
- d. Utility corridor shall be provided underneath the parking/ service road.*

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



TYPICAL CROSS SECTION-1(EXISTING 4LANE BUILTUP WITH SERVICE ROAD PORTION)

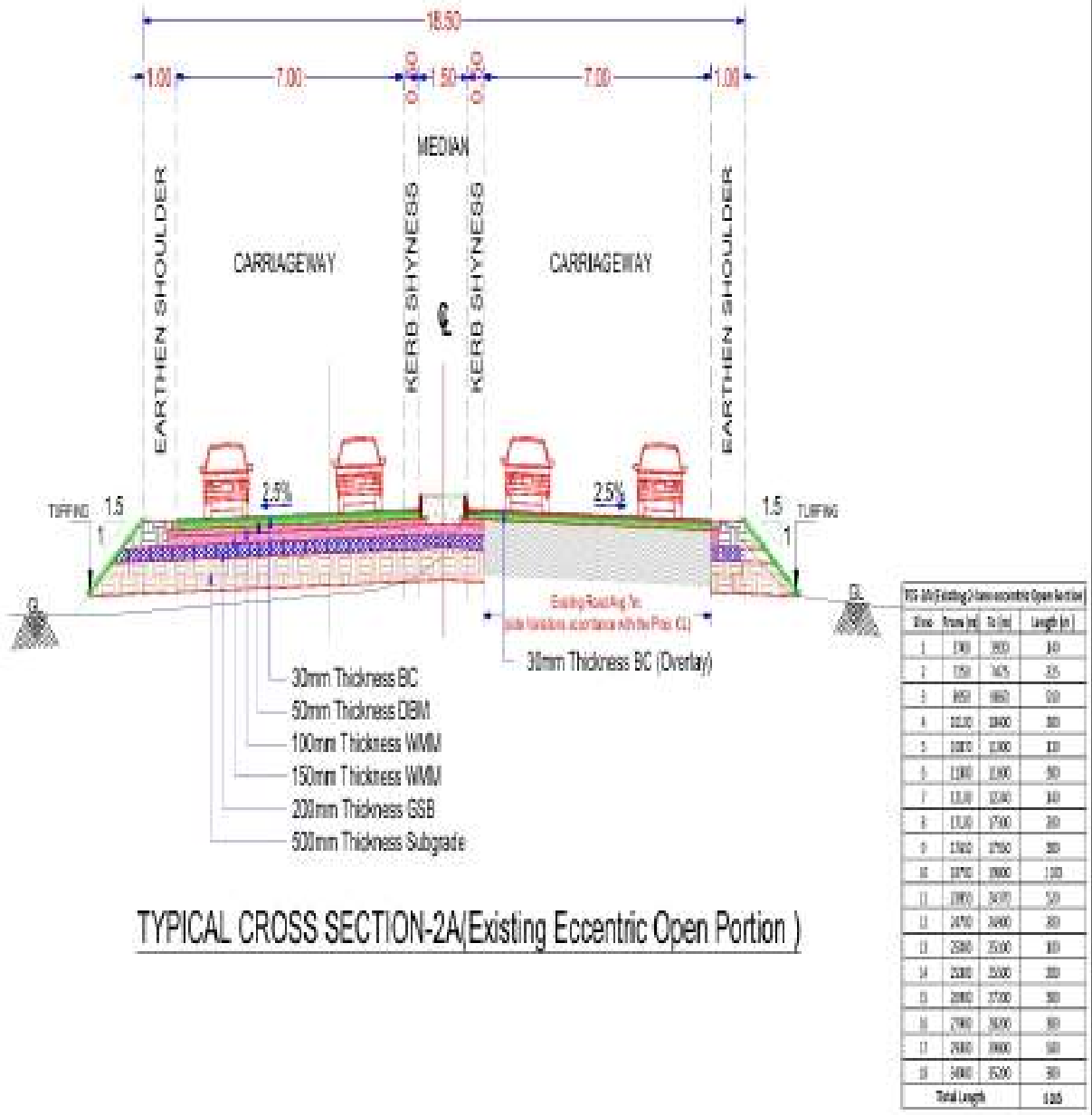
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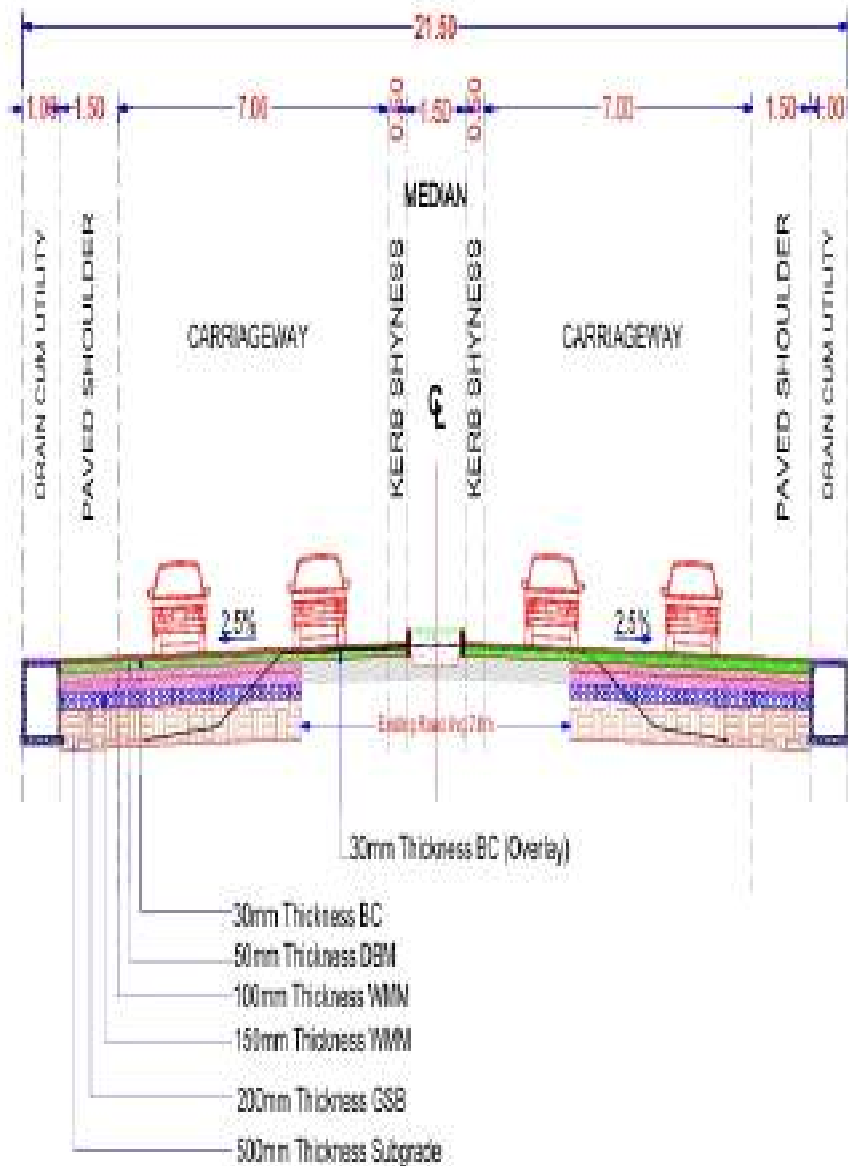
TYPICAL CROSS SECTION-2(Existing 2-lane concentric Open Section)

PCV (Existing 2-lane concentric Open Section)			
Sl. No.	From (m)	To (m)	Length (m)
1	0.00	200	200
2	200	400	200
3	400	600	200
4	600	800	200
5	800	1000	200
6	1000	1200	200
7	1200	1400	200
8	1400	1600	200
9	1600	1800	200
10	1800	2000	200
11	2000	2200	200
12	2200	2400	200
13	2400	2600	200
14	2600	2800	200
15	2800	3000	200
16	3000	3200	200
17	3200	3400	200
18	3400	3600	200
Total length			1800

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



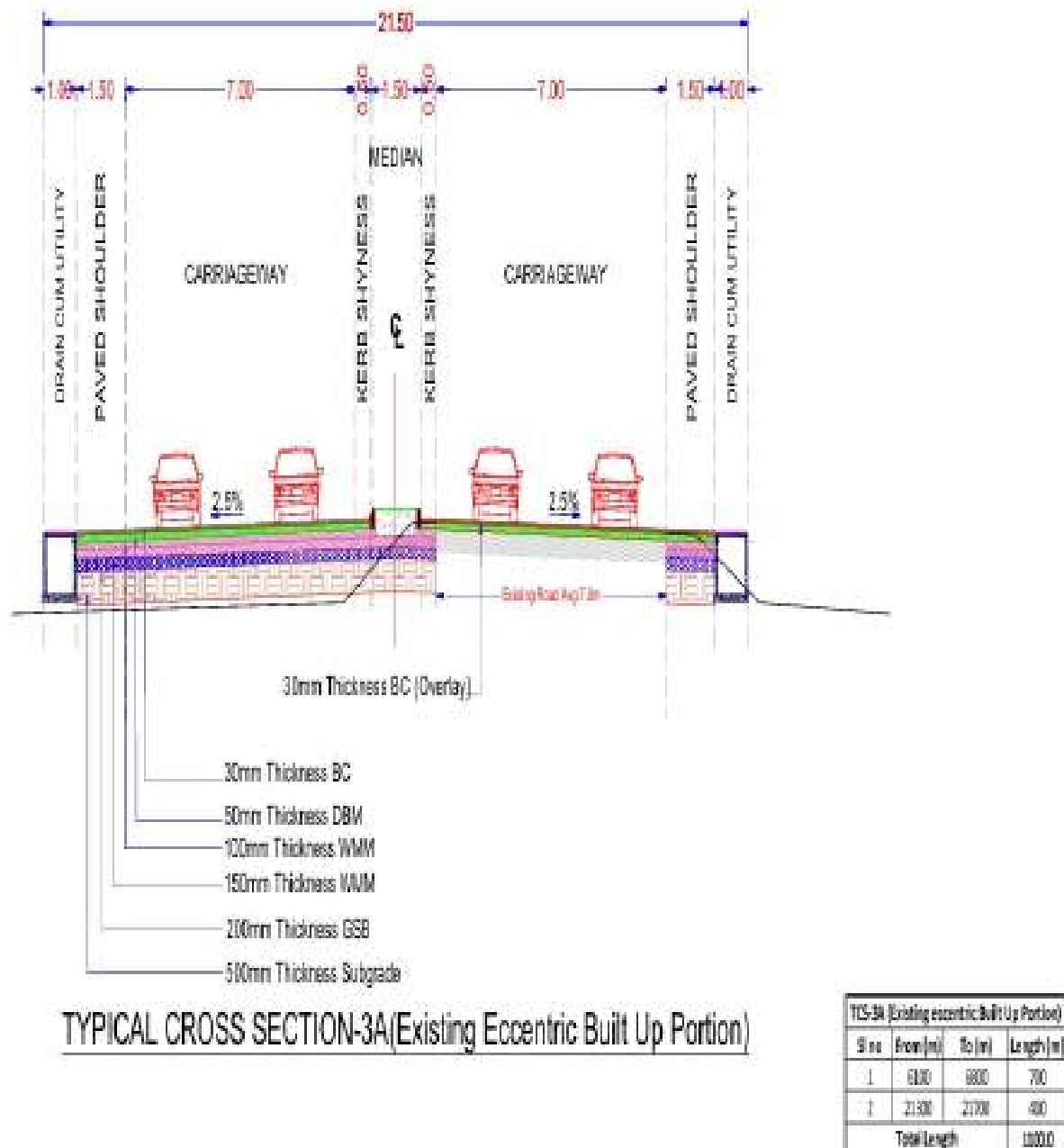
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



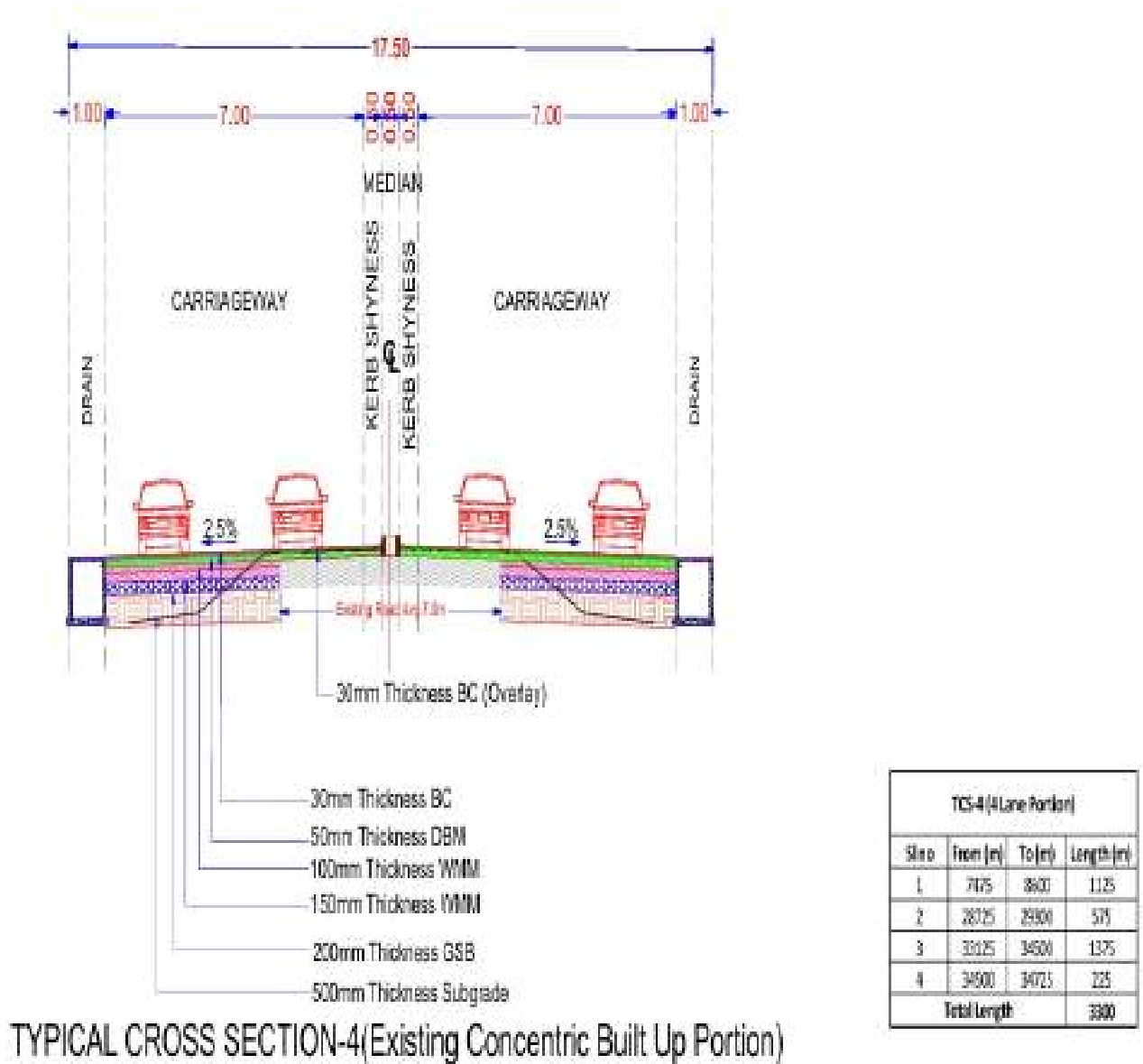
TYPICAL CROSS SECTION-3(Existing Concentric Built Up Portion)

XCS-3 (Existing concentric Built Up Portion)			
Sl.no	From (m)	To (m)	Length (m)
1	150	120	130
2	1200	1710	1620
3	1900	2130	150
4	2140	2170	20
5	2515	3025	610
6	3500	3545	25
Total Length			2525

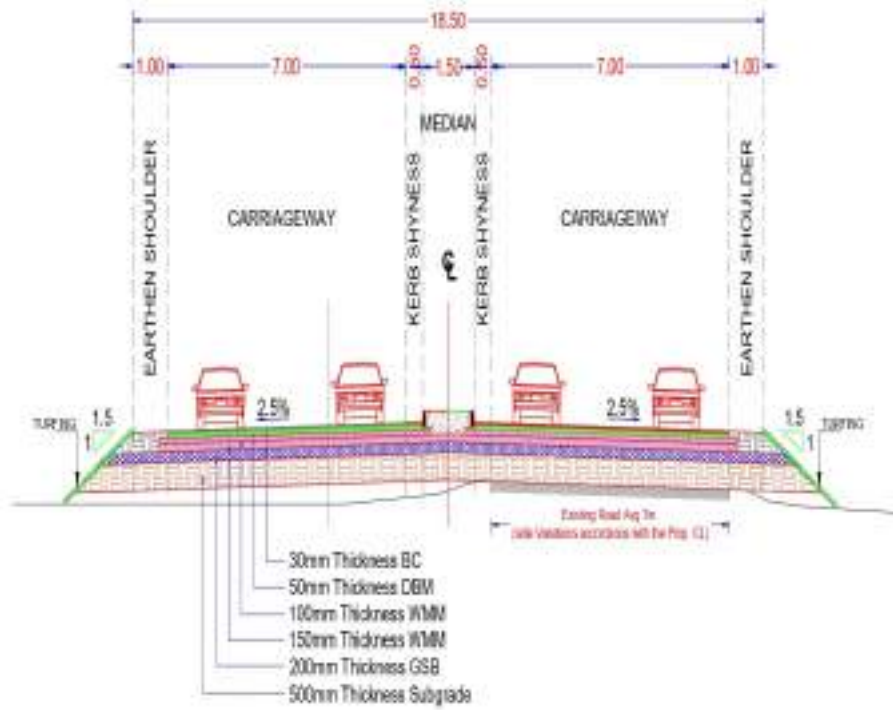
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



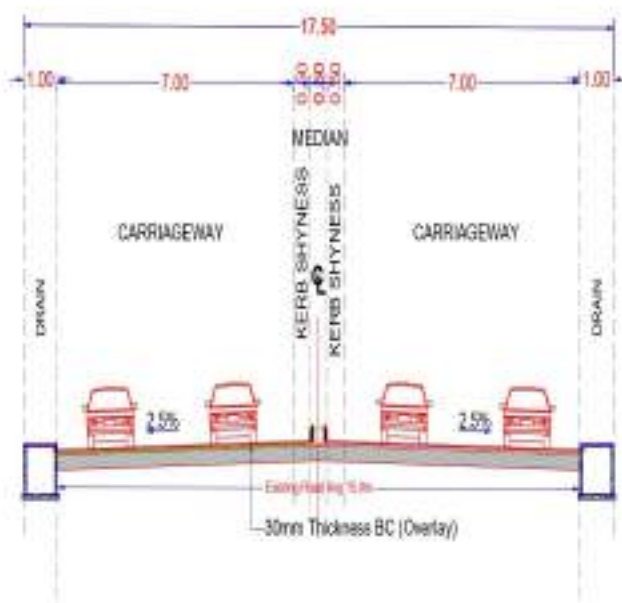
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



TYPICAL CROSS SECTION-5(Raising Portion)

RCS-5 (Raising Two Lane Eccentric Open Section)			
Raising Portion			
Sl. No.	From (m)	To (m)	Length (m)
1	14770	14790	20
Total Length			20

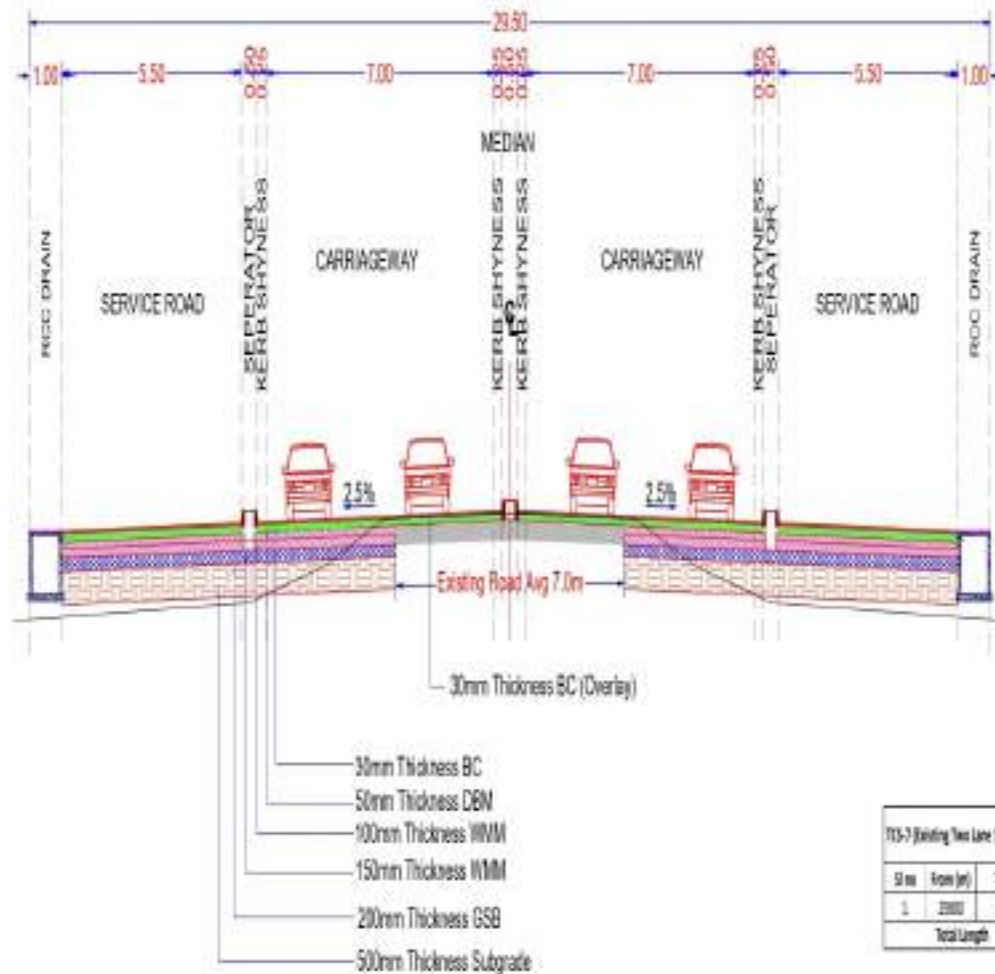
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



TYPICAL CROSS SECTION-6(Existing Concentric Built Up Portion)

TCS-6 (Existing Four Lane Section, Built Up Portion)			
S.No.	From (m)	To (m)	Length (m)
1.	2950	3250	300
Total Length			3000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”



TYPICAL CROSS SECTION-7 (EXISTING 2LANE BUILTUP WITH SERVICE ROAD PORTION)

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

3. Intersections and Grade Separators with Ramps

All intersections and grade separators shall be as per Section 3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

Properly designed intersections shall be provided at the locations given in the tables below:

Sl No	Design chainage	Type of interse ction	Cross road type	Cross road leading to		remarks
				LHS	RHS	
Nil						

(i) **Grade separated intersections:**

(ii)

	Design chainage	Type of intersection	road type	Cross road leading to		remarks
Nil						

4. Road Embankment and Cut Section

Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of the Manual and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

5. Pavement Design

5.1 Pavement design shall be carried out in accordance with the provision of relevant Manual.

The Carriage way and Paved Shoulder shall have the following minimum Crust composition for flexible pavement as given below.

Sl. No	Composition of Crust	Thickness	Remarks
1	Bituminous concrete.	30 mm	
2	Dense Bituminous macadam	50 mm	
3	Wet Mix Macadam	250 mm	
4	Granular Sub Base	200 mm	
Design life 20 years for Sub base and base course and 7 years for Bituminous Course			

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

5.2 Type of pavement:

[Pavement shall be carried out in accordance with paragraph 5.1 of the Manual and state specific requirement, of providing flexible pavement.]

5.3 Design Requirements:

[Pavement design shall be as per paragraph 5.4, 5.9 and 5.10 of the Manual. The proposed crust composition mentioned in typical cross –sections are the minimum.

5.3.1 Design period and strategy: Flexible pavement for new pavement or for widening and strengthening shall be designed for a minimum design period of 20 years but BT layers have been provisioned for stage construction of 7 years.

5.3.2 Design Traffic:

The Traffic study is to be ascertained by the contractor.

5.4 Reconstruction/New construction of stretches.

[Refer to the paragraph 5.9.7 of the relevant Manual and specify the stretches, if any, to be re constructed

The following stretches of the new road shall be new constructed. These shall be designed as new pavement.

SI No	Stretch From (Km)	To (Km)	Length (Km)	Reconst. /Newconst.	Pavement
1	24/370	24/700	0.330	Re Construction	Flexible

6. Roadside Drainage

Drainage system including surface and subsurface drains for the road section of shall be provided with provision of concrete drains as per attached **TCS-1, TCS-3, TCS-3 (A), TCS-4, TCS-6 and TCS-7**. The minimum length of footpath cum drain should be as per following:

RCC Cover drain of 1 m has been proposed in the following locations:

SI No	Chainage		Total Length (km)	Remarks
	From	To		
1	0	1950	1.950	TCS-1(BHS)
2	3900	5200	1.300	TCS-3(BHS)
3	13500	17100	3.600	TCS-3(BHS)
4	19800	21300	1.500	TCS-3(BHS)
5	21700	21970	0.270	TCS-3(BHS)
6	32515	33125	0.610	TCS-3(BHS)
7	35200	35451	0.251	TCS-3(BHS)
8	6100	6800	0.700	TCS-3A(BHS)

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No	Chainage		Total Length (km)	Remarks
	From	To		
9	21300	21700	0.400	TCS-3A(BHS)
10	7475	8600	1.125	TCS-4(BHS)
11	28725	29300	0.575	TCS-4(BHS)
12	33125	34500	1.375	TCS-4(BHS)
13	34500	34725	0.225	TCS-4(BHS)
14	1950	3550	1.600	TCS-6(BHS)
15	29800	32515	2.715	TCS-7(BHS)

7. Design of Structures (Refer GAD)

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with the provision of relevant Manual and shall conform to the cross-sectional features and other details specified therein.

Width of the carriageway of new bridge and structures shall be as per the Indicative GAD attached.

7.1.2 Width of the carriageway of major bridges and structures shall be as follows:

Sl. No.	Design chainage	Type of proposed structure.	Proposed carriageway width	Proposed total width(m)
Nil				

N.B: -These are indicative chainages as per the plan attached. The exact location, & Chainage may vary as per actual site condition during execution as per decision of the Engineer. The numbers indicated above are minimum and additional numbers if necessary are to be provided by the contractor within the contract price. No change of scope to be allowed on this account

7.1.3 Width of the carriageway of **new major bridges** and structures shall be as follows:

Sl No	Design Chainage	Proposed Span	Type of proposed structure.	Width (Mtr.)	Proposal
Nil					

7.2 The Structures shall be designed to carry utility services specified in tablebelow:

[Refer to the provision of relevant Manual and provide details]

Sl No	Chainage (Km)	Span arrangement	Type of Structures	Proposal
Nill				

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

7.3 Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in section 7 of the relevant Manual.

8 Culverts

8.1 Reconstruction of existing culverts:

The existing culverts at the following locations shall be re-constructed as new culverts:

Sl No	Design Chainage	No. of Spans with span length (m)	Type of structure.	Width	Proposal
1	3.795	1 X 2.0	RCC BOX	18.5	Reconstruction
2	4.060	1 X 4.0	RCC BOX	19.5	Reconstruction
3	5.295	1 X 2.0	RCC BOX	18.5	Reconstruction
4	5.650	1 x 4.0	RCC BOX	18.5	Reconstruction
5	7.992	1 X 2.0	RCC BOX	15.5	Reconstruction
6	8.780	1 X 2.0	RCC BOX	18.5	Reconstruction
7	9.533	1 X 2.0	RCC BOX	18.5	Reconstruction
8	10.803	1 X 2.0	RCC BOX	18.5	Reconstruction
9	10.983	1 X 2.0	RCC BOX	18.5	Reconstruction
10	11.833	1 X 2.0	RCC BOX	18.5	Reconstruction
11	13.290	1 X 2.0	RCC BOX	18.5	Reconstruction
12	13.985	1 X 2.0	RCC BOX	19.5	Reconstruction
13	14.152	1 X 2.0	RCC BOX	19.5	Reconstruction
14	14.953	1 X 2.0	RCC BOX	19.5	Reconstruction
15	15.040	1 X 4.0	RCC BOX	19.5	Reconstruction
16	16.325	1 X 2.0	RCC BOX	19.5	Reconstruction
17	16.695	1 X 2.0	RCC BOX	19.5	Reconstruction
18	18.700	1 X 2.0	RCC BOX	18.5	Reconstruction
19	24.175	1 X 2.0	RCC BOX	18.5	Reconstruction
20	24.715	1 X 2.0	RCC BOX	18.5	Reconstruction
21	24.740	1 X 3.0	RCC BOX	18.5	Reconstruction
22	25.938	1 X 6.0	RCC BOX	18.5	Reconstruction
23	26.383	1 X 4.0	RCC BOX	18.5	Reconstruction
24	26.910	1 X 6.0	RCC BOX	18.5	Reconstruction
25	27.630	1 X 4.0	RCC BOX	18.5	Reconstruction
26	27.850	1 X 3.0	RCC BOX	18.5	Reconstruction
27	28.072	1 X 6.0	RCC BOX	18.5	Reconstruction
28	28.622	1 X 2.0	RCC BOX	18.5	Reconstruction
29	29.115	1 X 2.0	RCC BOX	15.5	Reconstruction

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No	Design Chainage	No. of Spans with span length (m)	Type of structure.	Width	Proposal
30	29.660	1 X 3.0	RCC BOX	18.5	Reconstruction
31	29.825	1 X 2.0	RCC BOX	27.5	Reconstruction
32	30.850	1 X 2.0	RCC BOX	27.5	Reconstruction
33	33.160	1 X 2.0	RCC BOX	15.5	Reconstruction
34	33.803	1 X 2.0	RCC BOX	15.5	Reconstruction

N.B:-These are indicative chainages as per the plan attached. The exact location, & Chainage may vary as per actual site condition during execution as per decision of the Engineer. The numbers indicated above are minimum and additional numbers if necessary are to be provided by the contractor within the contract price. No change of scope to be allowed on this account.

8.2 Widening of existing culverts:

All existing culverts which are not to be reconstructed shall be widened to the roadway width of the Project Highway as per the typical cross section given in section 7 of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

Sl no	Existing Chainage (km)	Design Chainage (Km)	Existing type of structure	Proposed type of Structure	Existing span (m)	Proposed Span (m)
Nil						

N.B:-These are indicative chainages as per the plan attached. The exact location, & Chainage may vary as per actual site condition during execution as per decision of the Engineer. The numbers indicated above are minimum and additional numbers if necessary are to be provided by the contractor within the contract price. No change of scope to be allowed on this account.

8.3 Additional new culverts shall be constructed as per the particulars given in the table below:

Sl No	Design Chainage	Proposed Span	Type of proposed structure.	Width	Proposal
1	0.665	1 X 2.0	RCC BOX	27.5	New construction
2	1.115	1 X 2.0	RCC BOX	27.5	New construction
3	1.405	1 X 2.0	RCC BOX	27.5	New construction
4	1.655	1 X 2.0	RCC BOX	27.5	New construction
5	2.045	1 X 2.0	RCC BOX	15.5	New construction
6	2.605	1 X 2.0	RCC BOX	15.5	New construction
7	3.075	1 X 2.0	RCC BOX	27.5	New construction
8	3.445	1 X 2.0	RCC BOX	27.5	New construction
9	4.375	1 X 2.0	RCC BOX	19.5	New construction

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No	Design Chainage	Proposed Span	Type of proposed structure.	Width	Proposal
10	4.605	1 X 2.0	RCC BOX	19.5	New construction
11	4.945	1 X 2.0	RCC BOX	19.5	New construction
12	6.035	1 X 2.0	RCC BOX	18.5	New construction
13	6.295	1 X 2.0	RCC BOX	19.5	New construction
14	6.645	1 X 2.0	RCC BOX	19.5	New construction
15	7.027	1 X 2.0	RCC BOX	18.5	New construction
16	7.387	1 X 2.0	RCC BOX	18.5	New construction
17	7.797	1 X 2.0	RCC BOX	15.5	New construction
18	8.297	1 X 2.0	RCC BOX	15.5	New construction
19	9.237	1 X 2.0	RCC BOX	18.5	New construction
20	10.073	1 X 2.0	RCC BOX	18.5	New construction
21	10.368	1 X 2.0	RCC BOX	18.5	New construction
22	10.598	1 X 2.0	RCC BOX	18.5	New construction
23	11.347	1 X 2.0	RCC BOX	18.5	New construction
24	11.557	1 X 2.0	RCC BOX	18.5	New construction
25	12.007	1 X 2.0	RCC BOX	18.5	New construction
26	12.335	1 X 2.0	RCC BOX	18.5	New construction
27	12.695	1 X 2.0	RCC BOX	18.5	New construction
28	12.985	1 X 2.0	RCC BOX	18.5	New construction
29	13.695	1 X 2.0	RCC BOX	19.5	New construction
30	14.355	1 X 2.0	RCC BOX	19.5	New construction
31	14.665	1 X 2.0	RCC BOX	19.5	New construction
32	15.205	1 X 2.0	RCC BOX	19.5	New construction
33	15.835	1 X 2.0	RCC BOX	19.5	New construction
34	16.165	1 X 2.0	RCC BOX	19.5	New construction
35	16.535	1 X 2.0	RCC BOX	19.5	New construction
36	16.922	1 X 2.0	RCC BOX	19.5	New construction
37	20.105	1 X 2.0	RCC BOX	19.5	New construction
38	20.522	1 X 2.0	RCC BOX	19.5	New construction
39	23.672	1 X 2.0	RCC BOX	18.5	New construction
40	24.003	1 X 2.0	RCC BOX	18.5	New construction
41	25.030	1 X 2.0	RCC BOX	18.5	New construction
42	25.420	1 X 2.0	RCC BOX	18.5	New construction
43	25.670	1 X 2.0	RCC BOX	18.5	New construction
44	26.100	1 X 2.0	RCC BOX	18.5	New construction
45	26.328	1 X 2.0	RCC BOX	18.5	New construction

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl No	Design Chainage	Proposed Span	Type of proposed structure.	Width	Proposal
46	26.710	1 X 2.0	RCC BOX	18.5	New construction
47	27.217	1 X 2.0	RCC BOX	18.5	New construction
48	27.435	1 X 2.0	RCC BOX	18.5	New construction
49	28.265	1 X 2.0	RCC BOX	18.5	New construction
50	28.475	1 X 2.0	RCC BOX	18.5	New construction
51	29.335	1 X 2.0	RCC BOX	18.5	New construction
52	29.535	1 X 2.0	RCC BOX	18.5	New construction
53	31.145	1 X 2.0	RCC BOX	27.5	New construction
54	32.355	1 X 2.0	RCC BOX	27.5	New construction
55	33.415	1 X 2.0	RCC BOX	15.5	New construction

8.4 Culverts to dismantle:

Sl No	Design Chainage	Proposed Span	Type of proposed structure.	Width	Proposal
1	16.890				Dismantled

8.5 Repairs/ replacement of railings/ parapets, flooring and protection works of the existing culvert shall be undertaken as follows:

Sl no	Location at km	Type of repair required
Nil		

9. Bridges

9.1 Existing bridges to be reconstruction/widening

Sl No	Design Chainage	No. of Spans with span length (m) c/c	Type of structure.	Width (m)	Proposal
1	0.346	2 x 5.0	RCC BOX	2 X 6.0	Widening (BHS) (In Skew).
2	17.795	3 X 18.90	RCC T-girder	12.0	Widening (LHS)
3	23.342	1 X 8.42	RCC Slab	2 X 12.0	Reconstruction (skew angle 8 ⁰)
4	24.540	3 X 10.42	RCC Slab	2 X 12.0	Reconstruction (skew angle 15 ⁰)

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

The following narrow bridges shall be widened: **Not applicable.**

Effective drainage system for bridge decks shall be provided as specified in paragraph 7.2.1 of manual.

Floor protection works shall be as specified in the relevant IRC CODES and Specifications

9.2 The railings of existing bridges shall be replaced by crash barriers at the following locations:

[Refer to the provision of relevant Manual and provide details:]

Sl. No.	Location at km	Remarks
Nil		

9.3 Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

[Refer to the provision of relevant Manual and provide details]

Sl. No.	Location at km	Remarks
Nil		

9.4 Drainage system for bridge decks.

An effective drainage system for bridge decks shall be provided as specified in the provision of relevant Manual.

9.5 **Structures in marine environment** - Not Applicable

10. Rail-road bridges. Not applicable

10.1 Road under-bridges; - Nil

11. Grade separated structures. Not applicable.

12. Repairs and strengthening of bridges and structures. Not applicable.

[Refer to the provision of relevant Manual and provide details]

12.1 Bridges- N A

12.2 Underpasses and other structures

Sl.No.	Location of Structure (km)	Nature and extent of repairs /strengthening to be carried out
Nil		

13. Traffic Control Devices and Road Safety Works

(i) Traffic control devices and road safety works shall be provided in accordance with section 9 of the provision of relevant Manual.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(ii) Specifications of the reflective sheeting. [Refer to the provision of relevant Manual]

14. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with the provision of relevant Manual.

(ii) Overhead traffic signs: location and size. **Not applicable**
[Refer to the provision of relevant Manual and provide details]

15. Compulsory Afforestation. Nil

[Refer to the provision of relevant Manual and specify the number of trees which are required to be planted by the contractor as compensatory afforestation.]

16. Hazardous Location

17. The safety barriers shall also be provided at the hazardous locations as per section 9 of the manual. A total length of 1308.96 mtr of W beam crash barrier shall be proposed at high embankment locations.

18. W beam crash barriers are to be provided at the following locations:

SI No	Design Chainage		Length	Side	Remarks
	From	To			
1	11000	11170	0.170	Right	
2	17630	18060	0.430	Left	
3	22710	23120	0.410	Right	
4	24460	24580	0.120	Right	
5	24630	24790	0.160	Right	
6	25290	25440	0.150	Right	

N.B: The exact location, & Chainage may be adopted as per actual site condition during execution as per decision of the Engineer. The length indicated above are minimum and additional length if necessary are to be provided by the contractor within the contract price. No change of scope to be allowed on this account.

19. Protection Work

The following protection works shall be carried out by the agency as per standard and specification of the manual.

Sl no	Design chainage	Length(m)	Remarks
1	Stone Pitching & Toe wall	4513.12	Location and chainage shall be decided by the Authority Engineer at the time of execution as per site requirement

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2	RCC Retaining Wall: -2m height above GL	1920.72	Location and chainage shall be decided by the Authority Engineer at the time of execution as per site requirement.
3	Turfing with live sods as per attached drawing.	2 x 16652.36	Turfing with live sods shall be provided on the slope of embankment from toe to shoulder as per attached TCS.

N.B These are indicative length. as per the plan attached. The exact locations may vary as per actual site condition during execution as per decision of the Engineer. The length and height indicated above are minimum and additional if necessary are to be provided by the contractor within the contract price. No change of scope to be allowed on this account.

19.1 Special requirements of hilly roads

Not Applicable

20. Change of Scope

The length of Structures and bridges specified hereinabove shall be treated as the minimum assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(Schedule B-1)

The shifting of utilities shall be carried out by the Contractor and the cost of the same shall be as per schedule-H.

The details of utilities are as follows:

SL No.	Type of Utility	Unit	Quantity	Location/stretch LHS/RHS)
A	Electrical Utilities			
A1	Electric Pole (PSC)	Nos	467	LHS/RHS
A2	Electric Pole (JOIST/WPB)	Nos	757	LHS/RHS
A3	55 mm ² AAAC Conductor	Km	19.77	LHS/RHS
A4	80/100 mm ² AAAC Conductor	Km	54.46	LHS/RHS
A5	148/232 mm ² AAAC Conductor	Km	48.48	LHS/RHS
A6	LT AB Cable	Km	17.58	LHS/RHS
A7	Transformer	Nos	49	LHS/RHS

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(Annexure-I to schedule B1)

Utility Shifting:

Shifting of obstructing existing utilities indicated in Schedule A to an appropriate location in accordance with the standards and specifications of concerned Utility Owning Department is part of the scope of work of the Contractor/Concessionaire*. The bidders may visit the site and assess the quantum of shifting of utilities for the projects before submission of their bid. Copy of utility relocation plan is enclosed. The specifications of concerned Utility Owning Department shall be applicable and followed.

Notes:

(a) The type/ spacing/ size/ specifications of poles/ towers/ lines/ cables to be used in shifting work shall be as per the guidelines of utility owning department and it is to be agreed solely between the Contractor / Concessionaire* and the utility owning department. No change of scope shall be admissible and no cost shall be paid for using different type/ spacing/ size/ specifications in shifted work in comparison to those in the existing work or for making any overhead crossings to underground as per requirement of utility owning department and/or construction of project highway. The Contractor/Concessionaire* shall carry out joint inspection with utility owning department and get the estimates from the utility owning department. The assistance of the Authority is limited to giving forwarding letter on the proposal of Contractor/Concessionaire* to utility owning department whenever asked by the Contractor/Concessionaire*. The decision/ approval of utility owning department shall be binding on the Contractor/Concessionaire*.

(b) The supervision charges at the rates/ charges applicable of the utility owning department shall be paid directly by the Authority to the Utility Owning department as and when Contractor/Concessionaire* furnishes demand of Utility Owning Department along with a copy of estimated cost given by the later.

(c) The dismantled material/scrap of existing Utility to be shifted/ dismantled shall belong to the Contractor/ Concessionaire* who would be free to dispose-off the dismantled material as deemed fit by them unless the Contractor /Concessionaire*is required to deposit the dismantled material to utility owning department as per the norm and practice and in that case the amount of credit for dismantled material may be availed by the Contractor/Concessionaire* as per estimate agreed between them.

(d) The utilities shall be handed over after shifting work is completed to Utility Owning Department to their entire satisfaction. The maintenance liability shall rest with the Utility Owning Department after handing over process is complete as far as utility shifting works are concerned.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(i) Electrical Utilities

The site includes the following electrical utilities for shifting and reconstruction: -

(a) **Shifting of line & S/S /Electrical Infrastructure due to construction of Improvement of Phulnakhara-Niali-Madhava Road under **Phulnakhara Section** (SLD No-1).**

Sl. No	Description of materials	Unit	Qty.
1	SLD No-1 for PHULNAKHARA Section: - 33 KV DP Without Isolator (148 Sq MM) WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	4.0000
2	Top Channel (GI) 100X50X6mm, 9.56 KG/Mtr., each Channel (GI) length 3.25 mtr., 2 no's Channel (GI) required =(2x9.56x3.25)	KG	124.2800
3	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
4	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.96 Mtr., 5 no's Channel(GI) required =(5x7.14x1.96)	KG	139.9440
5	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.432 mtr., 4 nos Angle(GI) required = (4*4.5*3.432)	KG	123.5520
6	Danger Plate, 2 no's.	EA	4.0000
7	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
8	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	4.0000
9	H.T. Stay set (Complete)	SET	4.0000
10	H.T. Stay Insulator Type-C (2 No's.)	EA	8.0000
11	7/8 SWG Stay Wire 15kg /stay	KG	60.0000
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	2.0000
13	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	23.6000
14	GI barbed wire anticlimbing device 3 Kg. Per support	KG	12.0000
15	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144
16	33KV pin insulator polymer	EA	6.0000
17	H W fitting(B&S) 90KN,4 Bolt	EA	12.0000
18	Disc insulator (B&S) 90 KN polymer	EA	12.0000
19	Wedge connector for 148 sq.mm AAA conductor	EA	12.0000
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	KG	24.5220
21	POLYCARBONATE BIRD GUARD	EA	18.0000
22	Black Paint (GIS Numbering & Zebra Stripping)	L	2.0000
23	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
24	33 KV DP With Isolator (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	8.0000
25	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel (GI) length 4.3 mtr., 2 no's Channel (GI) required =(2x9.56x4.3)	KG	328.8640
26	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	15.8592
27	Insulator Support Channel (GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel (GI) length 4.3 Mtr., 1 no's Channel (GI) required =(1x7.14x4.3)	KG	122.8080
28	Isolator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 2 no's Channel(GI) required =(2x7.14x4.3)	KG	245.6160
29	Double Pole Belting Channel (GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel (GI) length 4.3 Mtr., 4 no's Channel (GI) required =(4x7.14x4.3)	KG	491.2320
30	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 4.927 mtr., 4 nos Angle(GI) required = (4*4.5*4.927)	KG	354.7440
31	Isolator Operating Down Pipe Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(1x7.14x0.8)	KG	22.8480
32	Down Pipe Diagonal Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.388mtr., 1 nos Angle(GI) required = (1*4.5*0.388)	KG	6.9840
33	Down Pipe Base Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.34mtr., 1 nos Angle(GI) required = (1*4.5*0.340)	KG	6.1200
34	Isolator Support Side Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.5 mtr., 2 no's Channel(GI) required =(2x9.56x0.5)	KG	38.2400
35	Danger Plate, 2 no's.	EA	8.0000
36	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	2.4072
37	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	8.0000
38	H.T. Stay set (Complete)	SET	8.0000
39	H.T. Stay Insulator Type-C (2 No's.)	EA	16.0000
40	7/8 SWG Stay Wire 15kg /stay	KG	120.0000
41	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	8.0000
42	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	226.5600
43	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
44	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	9.6288
45	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12.0000
46	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	EA	4.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
47	33KV pin insulator polymer	EA	12.0000
48	H W fitting(B&S) 90KN,4 Bolt	EA	24.0000
49	Disc insulator (B&S) 90 KN polymer	EA	24.0000
50	Wedge connector for 148 sq.mm AAA conductor	EA	24.0000
51	Paddle clamp for wedge connector of 148 sq.mm AAA conductor	EA	24.0000
52	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	KG	88.6000
53	POLYCARBONATE BIRD GUARD	EA	36.0000
54	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
55	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000
56	33 kv Cut Point with 180 Deg Cut Angle (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	4.0000
57	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 2 No's of Channel(GI) = (2x 9.56x1.7)	KG	130.0160
58	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	21.1456
59	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 2 No's of Channel(GI) = (2x 9.56x0.306)	KG	23.4029
60	Danger Plate, 1 no's.	EA	4.0000
61	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	1.2036
62	GI barbed wire anticlimbing device 3 Kg. Per support	KG	12.0000
63	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	4.8144
64	33KV pin insulator polymer	EA	12.0000
65	H W fitting(B&S)90KN,4 Bolt	EA	24.0000
66	Disc insulator (B&S)90 KN polymer	EA	24.0000
67	Earthing of Support (Coil Type)	EA	4.0000
68	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.0480
69	Wedge connector for 148 sq.mm AAA conductor	EA	24.0000
70	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	KG	19.5160
71	POLYCARBONATE BIRD GUARD	EA	36.0000
72	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
73	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
74	33 kv Cut Point with 90 Deg Cut Angle (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	10.0000
75	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 4 No's of Channel(GI) = (4x 9.56x1.7)	KG	650.0800
76	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	105.7280
77	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 4 No's of Channel(GI) = (4x 9.56x0.306)	KG	117.0144
78	Danger Plate, 1 no's.	EA	10.0000
79	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	3.0090
80	GI barbed wire anticlimbing device 3 Kg. Per support	KG	30.0000
81	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	12.0360
82	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	EA	40.0000
83	H W fitting(B&S)90KN,4 Bolt	EA	60.0000
84	Disc insulator (B&S)90 KN polymer	EA	60.0000
85	Earthing of Support (Coil Type)	EA	10.0000
86	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.6200
87	Wedge connector for 148 sq.mm AAA conductor	EA	60.0000
88	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	10.0000
89	H.T. Stay set (Complete)	SET	10.0000
90	H.T. Stay Insulator Type-C (2 No's.)	EA	10.0000
91	7/8 SWG Stay Wire 15kg /stay	KG	150.0000
92	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	KG	113.1000
93	POLYCARBONATE BIRD GUARD	EA	100.0000
94	Black Paint(GIS Numbering & Zebra Stripping)	L	10.0000
95	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	20.0000
96	33 kv Pin Point (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	53.0000
97	33 KV V cross Arm (GI) 22Kg each	EA	53.0000
98	Top bracket 100x50x6mm GI Channel(GI) (2kg each)	EA	53.0000
99	Danger Plate, 1 no's.	EA	53.0000
100	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	15.9477
101	GI barbed wire anticlimbing device 3 Kg. Per support	KG	159.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
102	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	63.7908
103	33KV pin insulator polymer	EA	159.0000
104	Earthing of Support (Coil Type)	EA	53.0000
105	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	13.8860
106	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	76.8500
107	148 sq.mm AAA conductor	KM	9.0200
108	Crimping type Midspan Compression Joint for 148 sq.mm AAA conductor	EA	6.0000
109	POLYCARBONATE BIRD GUARD	EA	159.0000
110	Black Paint(GIS Numbering & Zebra Stripping)	L	53.0000
111	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	106.0000
112	Civil and Services Works (148 Sq MM) :- Fixing of complete 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.Note:- Excavation of earth will be done of size 500X500X1500 mm.	EA	22.0000
113	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX2200mm) = 0.55Cu.mtr(Per Pole)	M3	43.4500
114	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	8.8875
115	Provide necessary civil material for construction of Earthing chamber, excavation & installation of including earthing pipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	10.0000
116	33kV 3C, 400sqmm UG Cable :- Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 20kA)	Mtr	1280.0000
117	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	EA	8.0000
118	Supply of materials for High Density Polyethelene (HDPE) pipe 200mm diameter, PE 80- PN8 for laying of 33kV UG cable	Mtr	996.0000
119	Laying, Commissioning & Testing of 33kV, 3Core, 400sqmm, XLPE insulation (extruded type) UG cable by open trench method.	M	1060.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
120	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	EA	8.0000
121	Installation, Laying, Commissioning & Testing of 33kV, 3Core, 400sqmm, XLPE U/G cable by HDD method with HDPE pipe (200mm dia, PN8 PE80) including supply of HDPE Pipe.	M	220.0000
122	Earth work excavation of soil	M3	420.0000
123	Earth work excavation of hard rock	M3	180.0000
124	Back filling with excavated soil outside and above the trench	M3	600.0000
125	DP Without AB Switch :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	6.0000
126	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 2.3 mtr., 2 no's Channel(GI) required =(2x9.56x2.3)	KG	131.9280
127	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	11.8944
128	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.66 Mtr., 4 no's Channel(GI) required =(7.14x1.66x4)	KG	142.2288
129	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 2.671 mtr., 4 nos Angle(GI) required = (4.5x2.671x4)	KG	144.2340
130	Danger Plate, 2 no's.	EA	6.0000
131	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.8054
132	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	6.0000
133	H.T. Stay set (Complete)	SET	6.0000
134	H.T. Stay Insulator Type-C	EA	6.0000
135	7/10 SWG Stay Wire 15kg /stay	KG	90.0000
136	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	3.0000
137	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	35.4000
138	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	18.0000
139	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	7.2216
140	11 KV pin insulator polymer	EA	9.0000
141	H W fitting(B&S) 70KN, 3Bolt	EA	18.0000
142	Disc insulator (B&S) 70 KN polymer	EA	18.0000
143	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	18.0000
144	POLYCARBONATE BIRD GUARD	EA	27.0000
145	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	KG	36.7830
146	Black Paint(GIS Numbering & Zebra Stripping)	L	3.0000
147	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	6.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
148	DP With AB Switch :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	38.0000
149	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3 mtr., 2 no's Channel(GI) required =(2x9.56x3)	KG	1089.8400
150	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	75.3312
151	AB switch Mounting Channel(GI) 75X40X4.8mm, 7.14KG/Mtr, each Channel(GI) length 3 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	813.9600
152	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	127.1480
153	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	108.5280
154	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 4 no's Channel(GI) required =(7.14x3x4)	KG	1627.9200
155	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 4 nos Angle(GI) required = (4.5x3.512x4)	KG	1201.1040
156	Danger Plate, 2 no's.	EA	38.0000
157	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	11.4342
158	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	38.0000
159	H.T. Stay set (Complete)	SET	38.0000
160	H.T. Stay Insulator Type-C	EA	38.0000
161	7/10 SWG Stay Wire 15kg /stay	KG	570.0000
162	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	38.0000
163	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	919.2200
164	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	114.0000
165	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	45.7368
166	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	57.0000
167	AB Switch (11KV,400A.3pole,50Hz)	SET	19.0000
168	11 KV pin insulator polymer	EA	57.0000
169	H W fitting(B&S) 70KN, 3Bolt	EA	114.0000
170	Disc insulator (B&S) 70 KN polymer	EA	114.0000
171	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	114.0000
172	Paddle clamp for wedge connector of 100 sq.mm AAA conductor	EA	114.0000
173	POLYCARBONATE BIRD GUARD	EA	171.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
174	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	KG	260.6420
175	Black Paint(GIS Numbering & Zebra Stripping)	L	19.0000
176	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	38.0000
177	11 KV Cut Point with 180 Degree Angle :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	1.0000
178	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 2 no's Channel(GI) required =(2x9.56x1.2)	KG	22.9440
179	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	5.2864
180	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 2 no's Channel(GI) required =(2x9.56x0.306)	KG	5.8507
181	Danger Plate, 1 no's.	EA	1.0000
182	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.3009
183	GI barbed wire anticlimbing device 3 Kg. Per support	KG	3.0000
184	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	1.2036
185	11 KV pin insulator polymer	EA	3.0000
186	H W fitting(B&S) 70KN, 3Bolt	EA	6.0000
187	Disc insulator (B&S) 70 KN polymer	EA	6.0000
188	Earthing of Support (Coil Type)	EA	1.0000
189	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	0.2620
190	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	6.0000
191	POLYCARBONATE BIRD GUARD	EA	9.0000
192	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	KG	3.5500
193	Black Paint(GIS Numbering & Zebra Stripping)	L	0.5000
194	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
195	11 KV Cut Point with 90 Degree Angle :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	9.0000
196	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel (GI) length 1.2 mtr., 4 no's Channel (GI) required = (4x9.56x1.2)	KG	412.9920
197	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	95.1552
198	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required = (4x9.56x0.306)	KG	105.3130

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
199	Danger Plate, 1 no's.	EA	9.0000
200	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.7081
201	GI barbed wire anticlimbing device 3 Kg. Per support	KG	27.0000
202	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	10.8324
203	11 KV pin insulator polymer	EA	36.0000
204	H W fitting(B&S) 70KN, 3Bolt	EA	54.0000
205	Disc insulator (B&S) 70 KN polymer	EA	54.0000
206	Earthing of Support (Coil Type)	EA	9.0000
207	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.3580
208	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	54.0000
209	POLYCARBONATE BIRD GUARD	EA	90.0000
210	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	18.0000
211	H.T. Stay set (Complete)	SET	18.0000
212	H.T. Stay Insulator Type-C	EA	18.0000
213	7/10 SWG Stay Wire 15kg /stay	KG	270.0000
214	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	66.8970
215	Black Paint(GIS Numbering & Zebra Stripping)	L	4.5000
216	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	18.0000
217	11 KV Line :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	13.0000
218	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	13.0000
219	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	13.0000
220	Danger Plate, 1 no's. for each pole	EA	13.0000
221	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	3.9117
222	GI barbed wire anticlimbing device 3 Kg. Per support	KG	39.0000
223	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	15.6468
224	11 KV pin insulator polymer, 3 Nos. required for each support	EA	39.0000
225	Earthing of Support (Coil Type)	EA	13.0000
226	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	3.4060
227	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	18.8500
228	100 sq.mm AAA conductor	KM	4.0200
229	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	3.0000
230	Black Paint(GIS Numbering & Zebra Stripping)	L	13.0000

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Sl. No	Description of materials	Unit	Qty.
231	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	26.0000
232	POLYCARBONATE BIRD GUARD	EA	39.0000
233	Civil and Services Works :- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	62.0000
234	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr (Per Pole)	M3	30.1500
235	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	7.5375
236	Provide necessary civil material for construction of Earthing chamber, excavation & installation of incuding earthingpipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	41.0000
237	11 KV 3C, 120sqmm UG Cable :- Supply of 11kV, 3Core, 120sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 11.3kA and SC rating of Armour in kA- 12kA)	Mtr	920.0000
238	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 120sqmm, HT UG Cable kits	EA	40.0000
239	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 11kV, 3Core, 120sqmm, aluminium UG cable kits	EA	40.0000
240	Installation, Laying, Commissioning & Testing of 11kV, 3Core, 120sqmm, XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	M	920.0000
241	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	320.0000
242	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	15.0000
243	25 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	6.0000
244	9 Mtr. long 300 Kg. PSC Pole	EA	3.0000
245	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	6.0000
246	EYE hook for XLPE Aerial bunched Cable	EA	6.0000
247	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	6.0000
248	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	64.2600

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
249	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	172.0800
250	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	11.8944
251	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	128.5200
252	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	20.0760
253	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	17.1360
254	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	128.5200
255	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	34.7004
256	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	34.6140
257	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	172.0800
258	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	29.5404
259	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	81.0000
260	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	15.6600
261	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	27.0000
262	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	464.4480
263	LT Distribution Box with MCCB, Aluminium Busbar of single Bay with kit kat fuse for 25 KVA S/S	EA	3.0000
264	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	150.0000
265	4 Cx 35 mm ² LT XLPE Cable(Armoured) - FOR 25 KVA Trf.	M	45.0000
266	4 Cx 35 mm ² LT XLPE Cable(Armoured) - From LTDB to PSC Pole	M	120.0000
267	AB Switch(11KV,200A.3pole,50Hz)	SET	3.0000
268	H.G.Fuse(11KV.200A.3Pole)	SET	3.0000
269	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	18.0000
270	POLYCARBONATE BIRD GUARD	EA	18.0000
271	Disc insulator (B&S)70 KN polymer	EA	9.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
272	H W fitting (B&S)70KN(3bolted)	EA	9.0000
273	Lightning Arrester(12KV,10KA) Station Class 2	EA	9.0000
274	11KV pin insulator polymer	EA	9.0000
275	HT stay set complete	SET	6.0000
276	HT stay Clamp (1.9Kg/pair)	EA	6.0000
277	HT stay insulator TYPE-C	EA	6.0000
278	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	90.0000
279	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	21.0000
280	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	75.0000
281	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	18.0000
282	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	7.2216
283	Danger plate 11kv	EA	6.0000
284	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.8054
285	Name plate	EA	3.0000
286	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	6.0000
287	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	3.0000
288	Civil and Services Works for 25 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	2.7000
289	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.6780
290	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	4.5000
291	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	6.0000
292	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	21.0000
293	Laying of 4 Cx 35 mm ² LT XLPE Cable	M	165.0000
294	SITC and Erection of GI Fencing with Gate	RM	48.0000
295	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.1250
296	Supply of AL Lugs suitable for 35 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	48.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
297	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 16-35sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	9.0000
298	63 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	6.0000
299	9 Mtr. long 300 Kg. PSC Pole	EA	3.0000
300	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	6.0000
301	EYE hook for XLPE Aerial bunched Cable	EA	6.0000
302	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	6.0000
303	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	64.2600
304	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	172.0800
305	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	11.8944
306	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	128.5200
307	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	128.5200
308	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	20.0760
309	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	17.1360
310	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	128.5200
311	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	34.7004
312	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	34.6140
313	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	172.0800
314	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	29.5404
315	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	81.0000
316	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	15.6600
317	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	27.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
318	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	464.4480
319	LT Distribution Box with MCCB, Aluminium Busbar of single Bay with kit kat fuse for 63 KVA S/S	EA	3.0000
320	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	150.0000
321	4 Cx 95 mm ² LT XLPE Cable(Armoured) - FOR 63 KVA Trf.	M	45.0000
322	4 Cx 95 mm ² LT XLPE Cable(Armoured) - From LTDB to Pole	M	120.0000
323	AB Switch(11KV,200A.3pole,50Hz)	SET	3.0000
324	H.G.Fuse(11KV.200A.3Pole)	SET	3.0000
325	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	18.0000
326	POLYCARBONATE BIRD GUARD	EA	18.0000
327	Disc insulator (B&S)70 KN polymer	EA	9.0000
328	H W fitting (B&S)70KN(3bolted)	EA	9.0000
329	Lightning Arrester(12KV,10KA) Station Class 2	EA	9.0000
330	11KV pin insulator polymer	EA	9.0000
331	HT stay set complete	SET	6.0000
332	HT stay Clamp (1.9Kg/pair)	EA	6.0000
333	HT stay insulator TYPE-C	EA	6.0000
334	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	90.0000
335	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	21.0000
336	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	75.0000
337	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	18.0000
338	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	7.2216
339	Danger plate 11kv	EA	6.0000
340	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.8054
341	Name plate	EA	3.0000
342	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	6.0000
343	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	3.0000
344	Civil and Services Works for 63 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	2.7000
345	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.6780
346	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	4.5000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
347	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	6.0000
348	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	21.0000
349	Laying of 4 Cx 95 mm ² LT XLPE Cable	M	165.0000
350	SITC and Erection of GI Fencing with Gate	RM	48.0000
351	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.1250
352	Supply of AL Lugs suitable for 35 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	72.0000
353	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 16-35sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	9.0000
354	WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
355	9 Mtr. long 300 Kg. PSC Pole	EA	2.0000
356	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	6.0000
357	EYE hook for XLPE Aerial bunched Cable	EA	6.0000
358	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	6.0000
359	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 6 No's.) (Each 6x1.000x7.14= 42.84 Kg)	KG	85.6800
360	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	114.7200
361	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
362	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
363	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
364	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	13.3840
365	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	11.4240

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
366	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
367	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	23.1336
368	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	23.0760
369	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	85.6800
370	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 2 nos Angle(GI) required = (4.5x3.512x2)	KG	63.2160
371	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	309.6320
372	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	100.0000
373	1 Cx 400 mm ² LT XLPE Cable(Un-Armoured)	M	240.0000
374	LT Cable Supporting Channel(GI) 100 X 50 X 6 MM GI Channel(GI) (2000 mm long)(9.56 Kg./Mtr., 2 No's.) (Each 2x2x9.56= 28.56 Kg)	KG	76.4800
375	LT Cable Supproting Angle(GI), 50x50x6mm.GI 4.5Kg./mtr., each Angle(GI) length 2 mtr., 4 nos Angle(GI) required = (4.5x4x2)	KG	72.0000
376	Supply of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured - Aluminium UG cable from LTDB to Pole	M	120.0000
377	AB Switch(11KV,200A.3pole,50Hz)	SET	2.0000
378	H.G.Fuse(11KV.200A.3Pole)	SET	2.0000
379	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
380	POLYCARBONATE BIRD GUARD	EA	12.0000
381	Disc insulator (B&S)70 KN polymer	EA	6.0000
382	H W fitting (B&S)70KN(3bolted)	EA	6.0000
383	Lightning Arrester(12KV,10KA) Station Class 2	EA	6.0000
384	11KV pin insulator polymer	EA	6.0000
385	HT stay set complete	SET	4.0000
386	HT stay Clamp (1.9Kg/pair)	EA	4.0000
387	HT stay insulator TYPE-C	EA	4.0000
388	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	60.0000
389	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	14.0000
390	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	50.0000
391	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	12.0000
392	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144

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Sl. No	Description of materials	Unit	Qty.
393	Danger plate 11kv	EA	4.0000
394	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
395	Name plate	EA	2.0000
396	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
397	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	2.0000
398	Civil and Services Works for 250 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	1.8000
399	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.4520
400	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3.5X2.5X0.1)= 0.875 Cu. mtr.	M3	1.7500
401	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	4.0000
402	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	14.0000
403	LTDB Plinth	EA	2.0000
404	DTR Plinth	EA	2.0000
405	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	120.0000
406	Laying of 1.1kV cable from 400 to 1000sqmm	M	240.0000
407	SITC and Erection of GI Fencing with Gate	RM	36.0000
408	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.5000
409	Supply of AL Lugs suitable for 400 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	32.0000
410	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	48.0000
411	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 1C 300-1000 sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	16.0000
412	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL	EA	6.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
	Spec and approved make dowells.		
413	500 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
414	9 Mtr. long 300 Kg. PSC Pole	EA	1.0000
415	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	2.0000
416	EYE hook for XLPE Aerial bunched Cable	EA	2.0000
417	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	2.0000
418	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 6 No's.) (Each 6x1.000x7.14= 42.84 Kg)	KG	42.8400
419	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
420	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
421	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
422	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
423	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	6.6920
424	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	5.7120
425	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
426	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	11.5668
427	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	11.5380
428	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	42.8400
429	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 2 nos Angle(GI) required = (4.5x3.512x2)	KG	31.6080
430	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	154.8160

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
431	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	50.0000
432	1 Cx 400 mm ² LT XLPE Cable(Un-Armoured)	M	180.0000
433	LT Cable Supporting Channel (GI) 100 X 50 X 6 MM GI Channel (GI) (2000 mm long) (9.56 Kg. /Mtr., 2 No's.) (Each 2x2x9.56= 28.56 Kg)	KG	38.2400
434	LT Cable Supproting Angle(GI), 50x50x6mm.GI 4.5Kg./mtr., each Angle(GI) length 2 mtr., 4 nos Angle(GI) required = (4.5x4x2)	KG	36.0000
435	Supply of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured - Aluminium UG cable from LTDB to Pole	M	80.0000
436	AB Switch(11KV,200A.3pole,50Hz)	SET	1.0000
437	H.G.Fuse(11KV.200A.3Pole)	SET	1.0000
438	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	6.0000
439	POLYCARBONATE BIRD GUARD	EA	6.0000
440	Disc insulator (B&S)70 KN polymer	EA	3.0000
441	H W fitting (B&S)70KN(3bolted)	EA	3.0000
442	Lightning Arrester(12KV,10KA) Station Class 2	EA	3.0000
443	11KV pin insulator polymer	EA	3.0000
444	HT stay set complete	SET	2.0000
445	HT stay Clamp (1.9Kg/pair)	EA	2.0000
446	HT stay insulator TYPE-C	EA	2.0000
447	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	30.0000
448	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	7.0000
449	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	25.0000
450	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	6.0000
451	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
452	Danger plate 11kv	EA	2.0000
453	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
454	Name plate	EA	1.0000
455	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
456	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	1.0000
457	Civil and Services Works for 500 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	0.9000
458	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.2260
459	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3.5X3.5X0.1)= 1.225 Cu. mtr.	M3	1.2250

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
460	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	2.0000
461	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	7.0000
462	LTDB Plinth	EA	1.0000
463	DTR Plinth upto 1000 KVA	EA	1.0000
464	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	80.0000
465	Laying of 1.1kV cable from 400 to 1000sqmm	M	180.0000
466	SITC and Erection of GI Fencing with Gate	RM	20.0000
467	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	0.3750
468	Supply of AL Lugs suitable for 400 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	24.0000
469	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	32.0000
470	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 1C 300-1000 sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly. Supply to be done as per TPCODL Spec and approved make dowells.	EA	12.0000
471	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	4.0000
472	LT Line :- 9 Mtr. long 300 Kg. PSC Pole	EA	22.0000
473	WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	7.0000
474	LT Stay set Complete	SET	9.0000
475	7/12 SWG GI stay wire, Grade -2	KG	108.0000
476	LT stay Clamp (1.40Kg/pair)	EA	9.0000
477	LT Stay insulator	EA	9.0000
478	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	39.0000
479	EYE hook for XLPE Aerial bunched Cable	EA	18.0000
480	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	18.0000
481	Suspension Clamp with EYE hook for ABC	PAA	21.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

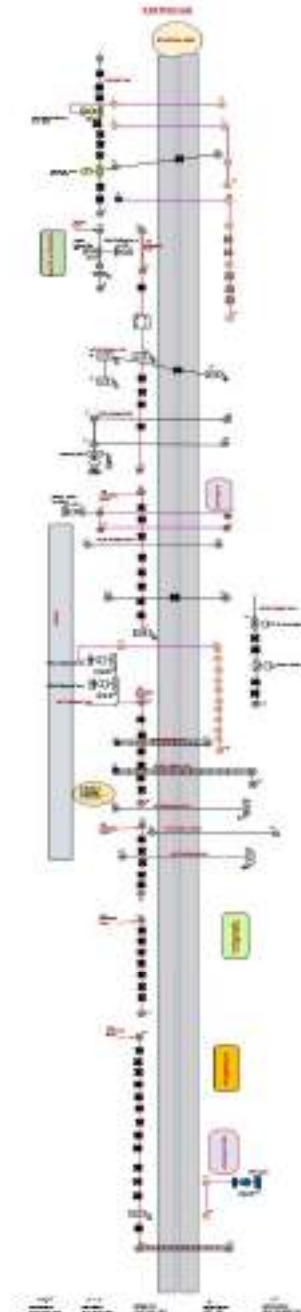
Sl. No	Description of materials	Unit	Qty.
482	4C×95 mm ² (P)+1C×95 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	693.0000
483	Insulated piercing connector.Type-A-main 50 to 150 sq.mm & Tap-50 to 150 sq.mm	Each	24.0000
484	GI Pipe Earthing (each 5th pole to earth)	EA	4.0000
485	Coil Earthing	EA	25.0000
486	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	7.6000
487	Danger plate (LT)	EA	29.0000
488	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	8.7300
489	GI barbed wire anticlimbing device 3 Kg. Per support	KG	87.0000
490	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	34.9000
491	GI Nut , Bolt & Washer of different sizes (0.5 Kg/ Pole)	KG	14.5000
492	Black Paint(GIS Numbering & Zebra Stripping)	Ltr	29.0000
493	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	Ltr	58.0000
494	Civil and Services Works (LT line): - Fixing of complete LT line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvaton including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	9.0000
495	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	2.0790
496	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr (Per Pole)	M3	0.7910
497	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1550mm) = 0.375Cu.mtr(Per Pole)	Cu.mtr	8.2500
498	Construction Earthing chamber including installation of earthing pipe making earthing chamber including excavation, soil treatment with bentonide powder, calculation of earth resistance, including, installation of 3 Mtr GI pipe 40/50 mm including welding of GI flat around pipe.	No	4.0000
499	LT 4C, 300 sqmm UG Cable :- Length of 1.1kV, 4Core, 300 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	500.0000
500	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr	500.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Sl. No	Description of materials	Unit	Qty.
501	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 240-300sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	24.0000
502	Dismantling :- Dismantling of 11/13 Mtr. Joist/WPB Pole- 150X150 mm/ 160X160 mm	EA	87.0000
503	Dismantling of 09/11 Mtr. Joist/WPB Pole- 116X100mm	EA	33.0000
504	Dismantling of 9/8 Mtr. PCC/Joist Pole	EA	32.0000
505	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 25KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	3.0000
506	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 63KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	3.0000
507	Dismantling of existing 11/0.4kV, 33/0.4KV, 250kVA Three Phase Distribution Transformer including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	2.0000
508	Dismantling of existing 11/0.4kV, 33/0.4KV, 500kVA Three Phase Distribution Transformer including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	1.0000
509	Dismantling of ACSR/AAAC 80/100 mm ² from overhead line	Mtr	5280.0000
510	Dismantling of ACSR/AAAC 148/232mm ² from overhead line	Mtr	10500.0000
511	Dismantling of varous size of LT AB Cable	Mtr	880.0000
512	Dismantling of varous size of XLPE/PVC power Cable (up to 1000sqmm) with of all sizes(1C/3C/4C) upto 33KV	Mtr	90.0000

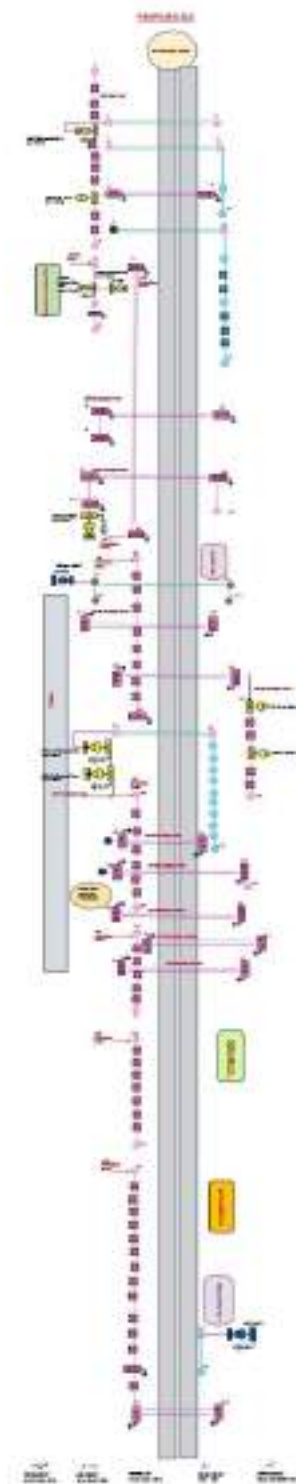
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Existing SLD-1 of Phulnakhara Section



“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Proposed SLD-1 of Phulnakhara Section



“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(b) Shifting of line & S/S /Electrical Infrastructure due to construction of Improvement of Phulnakhara-Niali-Madhaba Road under Adaspur Section (SLD No-1 to 5).

513	SLD No: - 1 to 5 for ADASPUR SECTION: - DP Without AB Switch (100 Sq MM AAAC):- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	6.0000
514	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 2.3 mtr., 2 no's Channel(GI) required =(2x9.56x2.3)	KG	131.9280
515	Fish Plate (GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	11.8944
516	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.66 Mtr., 4 no's Channel(GI) required =(7.14x1.66x4)	KG	142.2288
517	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 2.671 mtr., 4 nos Angle(GI) required = (4.5x2.671x4)	KG	144.2340
518	Danger Plate, 2 no's.	EA	6.0000
519	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.8054
520	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	6.0000
521	H.T. Stay set (Complete)	SET	6.0000
522	H.T. Stay Insulator Type-C	EA	6.0000
523	7/10 SWG Stay Wire 15kg /stay	KG	90.0000
524	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	3.0000
525	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	35.4000
526	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	18.0000
527	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	7.2216
528	11 KV pin insulator polymer	EA	9.0000
529	H W fitting(B&S) 70KN, 3Bolt	EA	18.0000
530	Disc insulator (B&S) 70 KN polymer	EA	18.0000
531	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	18.0000
532	POLYCARBONATE BIRD GUARD	EA	27.0000
533	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	KG	36.7830
534	Black Paint(GIS Numbering & Zebra Stripping)	L	3.0000
535	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	6.0000
536	DP With AB Switch (100 Sq MM AAAC):- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	64.0000
537	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3 mtr., 2 no's Channel(GI) required =(2x9.56x3)	KG	1835.5200

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

538	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	126.8736
539	AB switch Mounting Channel(GI) 75X40X4.8mm, 7.14KG/Mtr, each Channel(GI) length 3 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	1370.8800
540	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	214.1440
541	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	182.7840
542	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 4 no's Channel(GI) required =(7.14x3x4)	KG	2741.7600
543	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 4 nos Angle(GI) required = (4.5x3.512x4)	KG	2022.9120
544	Danger Plate, 2 no's.	EA	64.0000
545	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	19.2576
546	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	64.0000
547	H.T. Stay set (Complete)	SET	64.0000
548	H.T. Stay Insulator Type-C	EA	64.0000
549	7/10 SWG Stay Wire 15kg /stay	KG	960.0000
550	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	64.0000
551	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	1548.1600
552	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	192.0000
553	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	77.0304
554	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	96.0000
555	AB Switch (11KV,400A.3pole,50Hz)	SET	32.0000
556	11 KV pin insulator polymer	EA	96.0000
557	H W fitting(B&S) 70KN, 3Bolt	EA	192.0000
558	Disc insulator (B&S) 70 KN polymer	EA	192.0000
559	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	192.0000
560	Paddle clamp for wedge connector of 100 sq.mm AAA conductor	EA	192.0000
561	POLYCARBONATE BIRD GUARD	EA	288.0000
562	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	KG	438.9760
563	Black Paint(GIS Numbering & Zebra Stripping)	L	32.0000
564	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	64.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

565	11 KV Cut Point with 180 Degree Angle (100 Sq MM AAAC):- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	8.0000
566	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 2 no's Channel(GI) required =(2x9.56x1.2)	KG	183.5520
567	Fish Plate (GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	42.2912
568	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 2 no's Channel(GI) required =(2x9.56x0.306)	KG	46.8058
569	Danger Plate, 1 no's.	EA	8.0000
570	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.4072
571	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
572	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	9.6288
573	11 KV pin insulator polymer	EA	24.0000
574	H W fitting(B&S) 70KN, 3Bolt	EA	48.0000
575	Disc insulator (B&S) 70 KN polymer	EA	48.0000
576	Earthing of Support (Coil Type)	EA	8.0000
577	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.0960
578	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	48.0000
579	POLYCARBONATE BIRD GUARD	EA	72.0000
580	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	KG	28.4000
581	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
582	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000
583	11 KV Cut Point with 90 Degree Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	10.0000
584	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 4 no's Channel(GI) required =(4x9.56x1.2)	KG	458.8800
585	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	105.7280
586	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required =(4x9.56x0.306)	KG	117.0144
587	Danger Plate, 1 no's.	EA	10.0000
588	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	3.0090
589	GI barbed wire anticlimbing device 3 Kg. Per support	KG	30.0000
590	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's =	KG	12.0360

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

	(4x0.59x0.510)		
591	11 KV pin insulator polymer	EA	40.0000
592	H W fitting(B&S) 70KN, 3Bolt	EA	60.0000
593	Disc insulator (B&S) 70 KN polymer	EA	60.0000
594	Earthing of Support (Coil Type)	EA	10.0000
595	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.6200
596	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	60.0000
597	POLYCARBONATE BIRD GUARD	EA	100.0000
598	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	20.0000
599	H.T. Stay set (Complete)	SET	20.0000
600	H.T. Stay Insulator Type-C	EA	20.0000
601	7/10 SWG Stay Wire 15kg /stay	KG	300.0000
602	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	74.3300
603	Black Paint(GIS Numbering & Zebra Stripping)	L	5.0000
604	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	20.0000
605	11 KV Line (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	48.0000
606	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	48.0000
607	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	48.0000
608	Danger Plate, 1 no's. for each pole	EA	48.0000
609	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	14.4432
610	GI barbed wire anticlimbing device 3 Kg. Per support	KG	144.0000
611	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	57.7728
612	11 KV pin insulator polymer, 3 Nos. required for each support	EA	144.0000
613	Earthing of Support (Coil Type)	EA	48.0000
614	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr. - 2 Mtr. For connecting pole with Coil earthing	KG	12.5760
615	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	69.6000
616	100 sq.mm AAA conductor	KM	12.4836
617	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	0.0000
618	Black Paint(GIS Numbering & Zebra Stripping)	L	48.0000
619	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	96.0000
620	POLYCARBONATE BIRD GUARD	EA	144.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

621	Civil and Services Works (100 Sq MM AAAC) :- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excavation including excavation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	90.0000
622	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr(Per Pole)	M3	61.2000
623	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	15.3000
624	Provide necessary civil material for construction of Earthing chamber, excavation & installation of including earthing pipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat (GI). The work to be executed as per TPCODL drawing & design	EA	67.0000
625	DP Without AB Switch (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
626	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 2.3 mtr., 2 no's Channel(GI) required =(2x9.56x2.3)	KG	87.9520
627	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
628	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.66 Mtr., 4 no's Channel(GI) required =(7.14x1.66x4)	KG	94.8192
629	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 2.671 mtr., 4 nos Angle(GI) required = (4.5x2.671x4)	KG	96.1560
630	Danger Plate, 2 no's.	EA	4.0000
631	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
632	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	4.0000
633	H.T. Stay set (Complete)	SET	4.0000
634	H.T. Stay Insulator Type-C	EA	4.0000
635	7/10 SWG Stay Wire 15kg /stay	KG	60.0000
636	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	2.0000
637	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	23.6000
638	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	12.0000
639	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144
640	11 KV pin insulator polymer	EA	6.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

641	H W fitting(B&S) 70KN, 3Bolt	EA	12.0000
642	Disc insulator (B&S) 70 KN polymer	EA	12.0000
643	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
644	POLYCARBONATE BIRD GUARD	EA	18.0000
645	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	KG	24.5220
646	Black Paint(GIS Numbering & Zebra Stripping)	L	2.0000
647	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
648	DP With AB Switch (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	48.0000
649	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3 mtr., 2 no's Channel(GI) required =(2x9.56x3)	KG	1376.6400
650	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	95.1552
651	AB switch Mounting Channel(GI) 75X40X4.8mm, 7.14KG/Mtr, each Channel(GI) length 3 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	1028.1600
652	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	160.6080
653	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	137.0880
654	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 4 no's Channel(GI) required =(7.14x3x4)	KG	2056.3200
655	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 4 nos Angle(GI) required = (4.5x3.512x4)	KG	1517.1840
656	Danger Plate, 2 no's.	EA	48.0000
657	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	14.4432
658	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	48.0000
659	H.T. Stay set (Complete)	SET	48.0000
660	H.T. Stay Insulator Type-C	EA	48.0000
661	7/10 SWG Stay Wire 15kg /stay	KG	720.0000
662	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	48.0000
663	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	1161.1200
664	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	144.0000
665	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	57.7728
666	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	72.0000
667	AB Switch (11KV,400A.3pole,50Hz)	SET	24.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

668	11 KV pin insulator polymer	EA	72.0000
669	H W fitting(B&S) 70KN, 3Bolt	EA	144.0000
670	Disc insulator (B&S) 70 KN polymer	EA	144.0000
671	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	144.0000
672	POLYCARBONATE BIRD GUARD	EA	216.0000
673	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	KG	329.2320
674	Black Paint(GIS Numbering & Zebra Stripping)	L	24.0000
675	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	48.0000
676	11 KV Cut Point with 180 Degree Angle (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	6.0000
677	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 2 no's Channel(GI) required =(2x9.56x1.2)	KG	137.6640
678	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	31.7184
679	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 2 no's Channel(GI) required =(2x9.56x0.306)	KG	35.1043
680	Danger Plate, 1 no's.	EA	6.0000
681	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	1.8054
682	GI barbed wire anticlimbing device 3 Kg. Per support	KG	18.0000
683	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	7.2216
684	11 KV pin insulator polymer	EA	18.0000
685	H W fitting(B&S) 70KN, 3Bolt	EA	36.0000
686	Disc insulator (B&S) 70 KN polymer	EA	36.0000
687	Earthing of Support (Coil Type)	EA	6.0000
688	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.5720
689	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	36.0000
690	POLYCARBONATE BIRD GUARD	EA	54.0000
691	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	KG	21.3000
692	Black Paint(GIS Numbering & Zebra Stripping)	L	3.0000
693	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	12.0000
694	11 KV Cut Point with 90 Degree Angle (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	8.0000
695	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 4 no's Channel(GI) required =(4x9.56x1.2)	KG	367.1040

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

696	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	84.5824
697	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required =(4x9.56x0.306)	KG	93.6115
698	Danger Plate, 1 no's.	EA	8.0000
699	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.4072
700	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
701	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	9.6288
702	11 KV pin insulator polymer	EA	32.0000
703	H W fitting(B&S) 70KN, 3Bolt	EA	48.0000
704	Disc insulator (B&S) 70 KN polymer	EA	48.0000
705	Earthing of Support (Coil Type)	EA	8.0000
706	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.0960
707	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	48.0000
708	POLYCARBONATE BIRD GUARD	EA	80.0000
709	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	16.0000
710	H.T. Stay set (Complete)	SET	16.0000
711	H.T. Stay Insulator Type-C	EA	16.0000
712	7/10 SWG Stay Wire 15kg /stay	KG	240.0000
713	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	59.4640
714	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
715	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000
716	11 KV Line (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	38.0000
717	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	38.0000
718	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	38.0000
719	Danger Plate, 1 no's. for each pole	EA	38.0000
720	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	11.4342
721	GI barbed wire anticlimbing device 3 Kg. Per support	KG	114.0000
722	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	45.7368
723	11 KV pin insulator polymer, 3 Nos. required for each support	EA	114.0000
724	Earthing of Support (Coil Type)	EA	38.0000
725	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	9.9560
726	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	55.1000
727	55 sq.mm AAA conductor	KM	9.6099

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

728	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	0.0000
729	Black Paint(GIS Numbering & Zebra Stripping)	L	38.0000
730	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	76.0000
731	POLYCARBONATE BIRD GUARD	EA	114.0000
732	Civil and Services Works (55 Sq MM AAAC) :- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	68.0000
733	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr(Per Pole)	M3	46.8000
734	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	11.7000
735	Provide necessary civil material for construction of Earthing chamber, excavation & installation of incuding earthingpipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	50.0000
736	11 KV 3C, 400sqmm UG Cable :- Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	M	3870.0000
737	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG Cable kits	EA	6.0000
738	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, HT UG Cable kits	EA	64.0000
739	Supply of materials for High Density Polyethelene (HDPE) pipe 200mm diameter, PE 80- PN8 for laying of 11kV UG cable	M	1088.0000
740	Laying, Commissioning & Testing of 11kV, 3Core, 400sqmm, XLPE insulation (extruted type) UG cable by open trench method.	M	1600.0000
741	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits	EA	70.0000
742	Installation, Laying, Commissioning & Testing of 11kV, 3Core, 400sqmm, XLPE U/G cable by HDD method with HDPE pipe (200mm dia, PN8 PE80) including suply of HDPE Pipe.	M	2270.0000
743	Laying of 200mm dia PE 80-PN8, HDPE pipe inside open trench.	M	1088.0000
744	Earth work excavation of soil	M3	380.8000
745	Earth work excavation of hard rock	M3	163.2000
746	Back filling with excavated soil outside and above the trench	M3	544.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

747	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	KM	0.0200
748	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	512.0000
749	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	65.0000
750	11 KV 3C, 300 sqmm UG Cable :- Supply of 11kV, 3Core, 300sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 28.3kA and SC rating of Armour in kA- 15kA)	Mtr	1800.0000
751	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, HT UG Cable kits	EA	48.0000
752	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits	EA	48.0000
753	Installation, Laying, Commissioning & Testing of 11kV, 3Core, 300sqmm, XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	M	1800.0000
754	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	384.0000
755	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	30.0000
756	33 KV DP Without Isolator (100 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	8.0000
757	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3.25 mtr., 2 no's Channel(GI) required =(2x9.56x3.25)	KG	248.5600
758	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	15.8592
759	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.96 Mtr., 5 no's Channel(GI) required =(5x7.14x1.96)	KG	279.8880
760	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.432 mtr., 4 nos Angle(GI) required = (4*4.5*3.432)	KG	247.1040
761	Danger Plate, 2 no's.	EA	8.0000
762	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	2.4072
763	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	8.0000
764	H.T. Stay set (Complete)	SET	8.0000
765	H.T. Stay Insulator Type-C (2 No's.)	EA	16.0000
766	7/8 SWG Stay Wire 15kg /stay	KG	120.0000
767	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	4.0000
768	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising) = 5x2.36	KG	47.2000
769	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
770	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	9.6288
771	33KV pin insulator polymer	EA	12.0000
772	H W fitting(B&S) 90KN,4 Bolt	EA	24.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

773	Disc insulator (B&S) 90 KN polymer	EA	24.0000
774	Wedge connector for 100 sq.mm AAA conductor	EA	24.0000
775	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	KG	49.0440
776	POLYCARBONATE BIRD GUARD	EA	36.0000
777	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
778	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000
779	33 KV DP With Isolator (100 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	24.0000
780	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 4.3 mtr., 2 no's Channel(GI) required =(2x9.56x4.3)	KG	986.5920
781	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	47.5776
782	Insulator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 1 no's Channel(GI) required =(1x7.14x4.3)	KG	368.4240
783	Isolator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 2 no's Channel(GI) required =(2x7.14x4.3)	KG	736.8480
784	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 4 no's Channel(GI) required =(4x7.14x4.3)	KG	1473.6960
785	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 4.927 mtr., 4 nos Angle(GI) required = (4*4.5*4.927)	KG	1064.2320
786	Isolator Operating Down Pipe Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(1x7.14x0.8)	KG	68.5440
787	Down Pipe Diagonal Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.388mtr., 1 nos Angle(GI) required = (1*4.5*0.388)	KG	20.9520
788	Down Pipe Base Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.34mtr., 1 nos Angle(GI) required = (1*4.5*0.340)	KG	18.3600
789	Isolator Support Side Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.5 mtr., 2 no's Channel(GI) required =(2x9.56x0.5)	KG	114.7200
790	Danger Plate, 2 no's.	EA	24.0000
791	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	7.2216
792	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	24.0000
793	H.T. Stay set (Complete)	SET	24.0000
794	H.T. Stay Insulator Type-C (2 No's.)	EA	48.0000
795	7/8 SWG Stay Wire 15kg /stay	KG	360.0000
796	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	24.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

797	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	679.6800
798	GI barbed wire anticlimbing device 3 Kg. Per support	KG	72.0000
799	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	28.8864
800	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	36.0000
801	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	EA	12.0000
802	33KV pin insulator polymer	EA	36.0000
803	H W fitting(B&S) 90KN,4 Bolt	EA	72.0000
804	Disc insulator (B&S) 90 KN polymer	EA	72.0000
805	Wedge connector for 100 sq.mm AAA conductor	EA	72.0000
806	Paddle clamp for wedge connector of 100 sq.mm AAA conductor	EA	72.0000
807	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	KG	265.8000
808	POLYCARBONATE BIRD GUARD	EA	108.0000
809	Black Paint(GIS Numbering & Zebra Stripping)	L	12.0000
810	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	24.0000
811	33 kv Cut Point with 180 Deg Cut Angle (100 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	8.0000
812	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 2 No's of Channel(GI) = (2x 9.56x1.7)	KG	260.0320
813	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	42.2912
814	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 2 No's of Channel(GI) = (2x 9.56x0.306)	KG	46.8058
815	Danger Plate, 1 no's.	EA	8.0000
816	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.4072
817	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
818	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	9.6288
819	33KV pin insulator polymer	EA	24.0000
820	H W fitting(B&S)90KN,4 Bolt	EA	48.0000
821	Disc insulator (B&S)90 KN polymer	EA	48.0000
822	Earthing of Support (Coil Type)	EA	8.0000
823	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.0960
824	Wedge connector for 100 sq.mm AAA conductor	EA	48.0000
825	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	KG	39.0320

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

826	POLYCARBONATE BIRD GUARD	EA	72.0000
827	Black Paint(GIS Numbering & Zebra Stripping)	L	8.0000
828	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000
829	33 kv Cut Point with 90 Deg Cut Angle (100 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	10.0000
830	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 4 No's of Channel(GI) = (4x 9.56x1.7)	KG	650.0800
831	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	105.7280
832	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 4 No's of Channel(GI) = (4x 9.56x0.306)	KG	117.0144
833	Danger Plate, 1 no's.	EA	10.0000
834	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	3.0090
835	GI barbed wire anticlimbing device 3 Kg. Per support	KG	30.0000
836	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	12.0360
837	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	EA	40.0000
838	H W fitting(B&S)90KN,4 Bolt	EA	60.0000
839	Disc insulator (B&S)90 KN polymer	EA	60.0000
840	Earthing of Support (Coil Type)	EA	10.0000
841	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.6200
842	Wedge connector for 100 sq.mm AAA conductor	EA	60.0000
843	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	10.0000
844	H.T. Stay set (Complete)	SET	10.0000
845	H.T. Stay Insulator Type-C (2 No's.)	EA	10.0000
846	7/8 SWG Stay Wire 15kg /stay	KG	150.0000
847	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	KG	113.1000
848	POLYCARBONATE BIRD GUARD	EA	100.0000
849	Black Paint(GIS Numbering & Zebra Stripping)	L	10.0000
850	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	20.0000
851	33 kv Pin Point (100 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	77.0000
852	33 KV V cross Arm (GI) 22Kg each	EA	77.0000
853	Top bracket 100x50x6mm GI Channel(GI) (2kg each)	EA	77.0000
854	Danger Plate, 1 no's.	EA	77.0000
855	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	23.1693

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

856	GI barbed wire anticlimbing device 3 Kg. Per support	KG	231.0000
857	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	92.6772
858	33KV pin insulator polymer	EA	231.0000
859	Earthing of Support (Coil Type)	EA	77.0000
860	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	20.1740
861	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	111.6500
862	100 sq.mm AAA conductor	M	13750.5000
863	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	
864	POLYCARBONATE BIRD GUARD	EA	231.0000
865	Black Paint(GIS Numbering & Zebra Stripping)	L	77.0000
866	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	154.0000
867	Civil and Services Works (100 Sq MM) :- Fixing of complete 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.Note:- Excavation of earth will be done of size 500X500X1500 mm.	EA	32.0000
868	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX2200mm) = 0.55Cu.mtr(Per Pole)	M3	69.8500
869	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	14.2875
870	Provide necessary civil material for construction of Earthing chamber, excavation & installation of incuding earthingpipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	38.0000
871	33 KV DP Without Isolator (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	2.0000
872	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3.25 mtr., 2 no's Channel(GI) required =(2x9.56x3.25)	KG	62.1400
873	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
874	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.96 Mtr., 5 no's Channel(GI) required =(5x7.14x1.96)	KG	69.9720

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

875	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.432 mtr., 4 nos Angle(GI) required = (4*4.5*3.432)	KG	61.7760
876	Danger Plate, 2 no's.	EA	2.0000
877	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
878	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
879	H.T. Stay set (Complete)	SET	2.0000
880	H.T. Stay Insulator Type-C (2 No's.)	EA	4.0000
881	7/8 SWG Stay Wire 15kg /stay	KG	30.0000
882	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	1.0000
883	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	11.8000
884	GI barbed wire anticlimbing device 3 Kg. Per support	KG	6.0000
885	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
886	33KV pin insulator polymer	EA	3.0000
887	H W fitting(B&S) 90KN,4 Bolt	EA	6.0000
888	Disc insulator (B&S) 90 KN polymer	EA	6.0000
889	Wedge connector for 148 sq.mm AAA conductor	EA	6.0000
890	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	KG	12.2610
891	POLYCARBONATE BIRD GUARD	EA	9.0000
892	Black Paint(GIS Numbering & Zebra Stripping)	L	1.0000
893	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
894	33 KV DP With Isolator (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	2.0000
895	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 4.3 mtr., 2 no's Channel(GI) required =(2x9.56x4.3)	KG	82.2160
896	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
897	Insulator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 1 no's Channel(GI) required =(1x7.14x4.3)	KG	30.7020
898	Isolator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 2 no's Channel(GI) required =(2x7.14x4.3)	KG	61.4040
899	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 4 no's Channel(GI) required =(4x7.14x4.3)	KG	122.8080
900	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 4.927 mtr., 4 nos Angle(GI) required = (4*4.5*4.927)	KG	88.6860
901	Isolator Operating Down Pipe Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(1x7.14x0.8)	KG	5.7120

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

902	Down Pipe Diagonal Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.388mtr., 1 nos Angle(GI) required = (1*4.5*0.388)	KG	1.7460
903	Down Pipe Base Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.34mtr., 1 nos Angle(GI) required = (1*4.5*0.340)	KG	1.5300
904	Isolator Support Side Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.5 mtr., 2 no's Channel(GI) required =(2x9.56x0.5)	KG	9.5600
905	Danger Plate, 2 no's.	EA	2.0000
906	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
907	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
908	H.T. Stay set (Complete)	SET	2.0000
909	H.T. Stay Insulator Type-C (2 No's.)	EA	4.0000
910	7/8 SWG Stay Wire 15kg /stay	KG	30.0000
911	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	2.0000
912	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	56.6400
913	GI barbed wire anticlimbing device 3 Kg. Per support	KG	6.0000
914	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
915	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	3.0000
916	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	EA	1.0000
917	33KV pin insulator polymer	EA	3.0000
918	H W fitting(B&S) 90KN,4 Bolt	EA	6.0000
919	Disc insulator (B&S) 90 KN polymer	EA	6.0000
920	Wedge connector for 148 sq.mm AAA conductor	EA	6.0000
921	Paddle clamp for wedge connector of 148 sq.mm AAA conductor	EA	6.0000
922	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	KG	22.1500
923	POLYCARBONATE BIRD GUARD	EA	9.0000
924	Black Paint(GIS Numbering & Zebra Stripping)	L	1.0000
925	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
926	33 kv Cut Point with 180 Deg Cut Angle (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	2.0000
927	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 2 No's of Channel(GI) = (2x 9.56x1.7)	KG	65.0080
928	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	10.5728

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

929	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 2 No's of Channel(GI) = (2x 9.56x0.306)	KG	11.7014
930	Danger Plate, 1 no's.	EA	2.0000
931	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.6018
932	GI barbed wire anticlimbing device 3 Kg. Per support	KG	6.0000
933	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	2.4072
934	33KV pin insulator polymer	EA	6.0000
935	H W fitting(B&S)90KN,4 Bolt	EA	12.0000
936	Disc insulator (B&S)90 KN polymer	EA	12.0000
937	Earthing of Support (Coil Type)	EA	2.0000
938	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	0.5240
939	Wedge connector for 148 sq.mm AAA conductor	EA	12.0000
940	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	KG	9.7580
941	POLYCARBONATE BIRD GUARD	EA	18.0000
942	Black Paint(GIS Numbering & Zebra Stripping)	L	2.0000
943	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
944	33 kv Cut Point with 90 Deg Cut Angle (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	2.0000
945	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 4 No's of Channel(GI) = (4x 9.56x1.7)	KG	130.0160
946	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	21.1456
947	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 4 No's of Channel(GI) = (4x 9.56x0.306)	KG	23.4029
948	Danger Plate, 1 no's.	EA	2.0000
949	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.6018
950	GI barbed wire anticlimbing device 3 Kg. Per support	KG	6.0000
951	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	2.4072
952	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	EA	8.0000
953	H W fitting(B&S)90KN,4 Bolt	EA	12.0000
954	Disc insulator (B&S)90 KN polymer	EA	12.0000
955	Earthing of Support (Coil Type)	EA	2.0000
956	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	0.5240
957	Wedge connector for 148 sq.mm AAA conductor	EA	12.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

958	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
959	H.T. Stay set (Complete)	SET	2.0000
960	H.T. Stay Insulator Type-C (2 No's.)	EA	2.0000
961	7/8 SWG Stay Wire 15kg /stay	KG	30.0000
962	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	KG	22.6200
963	POLYCARBONATE BIRD GUARD	EA	20.0000
964	Black Paint(GIS Numbering & Zebra Stripping)	L	2.0000
965	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
966	33 kv Pin Point (148 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	19.0000
967	33 KV V cross Arm (GI) 22Kg each	EA	19.0000
968	Top bracket 100x50x6mm GI Channel(GI) (2kg each)	EA	19.0000
969	Danger Plate, 1 no's.	EA	19.0000
970	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	5.7171
971	GI barbed wire anticlimbing device 3 Kg. Per support	KG	57.0000
972	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	22.8684
973	33KV pin insulator polymer	EA	57.0000
974	Earthing of Support (Coil Type)	EA	19.0000
975	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	4.9780
976	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	27.5500
977	148 sq.mm AAA conductor	KM	3.0900
978	Crimping type Midspan Compression Joint for 148 sq.mm AAA conductor	EA	0.0000
979	POLYCARBONATE BIRD GUARD	EA	57.0000
980	Black Paint(GIS Numbering & Zebra Stripping)	L	19.0000
981	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	38.0000
982	Civil and Services Works (148 Sq MM) :- Fixing of complete 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.Note:- Excavation of earth will be done of size 500X500X1500 mm.	EA	4.0000
983	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX2200mm) = 0.55Cu.mtr(Per Pole)	M3	14.8500

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

984	Coupling ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	3.0375
985	Provide necessary civil material for construction of Earthing chamber, excavation & installation of including earthing pipe dia up to 100mm dia for length of 3Mtr. Scope also includes necessary nutbolt, 25 Kg Bentonide Power, connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	5.0000
986	33 KV DP Without Isolator (232 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	16.0000
987	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3.25 mtr., 2 no's Channel(GI) required =(2x9.56x3.25)	KG	497.1200
988	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	31.7184
989	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.96 Mtr., 5 no's Channel(GI) required =(5x7.14x1.96)	KG	559.7760
990	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.432 mtr., 4 nos Angle(GI) required = (4*4.5*3.432)	KG	494.2080
991	Danger Plate, 2 no's.	EA	16.0000
992	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	4.8144
993	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	16.0000
994	H.T. Stay set (Complete)	SET	16.0000
995	H.T. Stay Insulator Type-C (2 No's.)	EA	32.0000
996	7/8 SWG Stay Wire 15kg /stay	KG	240.0000
997	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	8.0000
998	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	94.4000
999	GI barbed wire anticlimbing device 3 Kg. Per support	KG	48.0000
1000	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	19.2576
1001	33KV pin insulator polymer	EA	24.0000
1002	H W fitting(B&S) 90KN,4 Bolt	EA	48.0000
1003	Disc insulator (B&S) 90 KN polymer	EA	48.0000
1004	Wedge connector for 232 sq.mm AAA conductor	EA	48.0000
1005	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	KG	98.0880
1006	POLYCARBONATE BIRD GUARD	EA	72.0000
1007	Black Paint(GIS Numbering & Zebra Stripping)	L	8.0000
1008	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000
1009	33 KV DP With Isolator (232 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg =	EA	10.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

	406.46 Kg)		
1010	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 4.3 mtr., 2 no's Channel(GI) required =(2x9.56x4.3)	KG	411.0800
1011	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	19.8240
1012	Insulator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 1 no's Channel(GI) required =(1x7.14x4.3)	KG	153.5100
1013	Isolator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 2 no's Channel(GI) required =(2x7.14x4.3)	KG	307.0200
1014	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 4 no's Channel(GI) required =(4x7.14x4.3)	KG	614.0400
1015	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 4.927 mtr., 4 nos Angle(GI) required = (4*4.5*4.927)	KG	443.4300
1016	Isolator Operating Down Pipe Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(1x7.14x0.8)	KG	28.5600
1017	Down Pipe Diagonal Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.388mtr., 1 nos Angle(GI) required = (1*4.5*0.388)	KG	8.7300
1018	Down Pipe Base Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.34mtr., 1 nos Angle(GI) required = (1*4.5*0.340)	KG	7.6500
1019	Isolator Support Side Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.5 mtr., 2 no's Channel(GI) required =(2x9.56x0.5)	KG	47.8000
1020	Danger Plate, 2 no's.	EA	10.0000
1021	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	3.0090
1022	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	10.0000
1023	H.T. Stay set (Complete)	SET	10.0000
1024	H.T. Stay Insulator Type-C (2 No's.)	EA	20.0000
1025	7/8 SWG Stay Wire 15kg /stay	KG	150.0000
1026	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	10.0000
1027	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	283.2000
1028	GI barbed wire anticlimbing device 3 Kg. Per support	KG	30.0000
1029	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	12.0360
1030	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	15.0000
1031	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	EA	5.0000
1032	33KV pin insulator polymer	EA	15.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1033	H W fitting(B&S) 90KN,4 Bolt	EA	30.0000
1034	Disc insulator (B&S) 90 KN polymer	EA	30.0000
1035	Wedge connector for 232 sq.mm AAA conductor	EA	30.0000
1036	Paddle clamp for wedge connector of 148 sq.mm AAA conductor	EA	30.0000
1037	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	KG	110.7500
1038	POLYCARBONATE BIRD GUARD	EA	45.0000
1039	Black Paint(GIS Numbering & Zebra Stripping)	L	5.0000
1040	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	10.0000
1041	33 kv Cut Point with 180 Deg Cut Angle (232 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	10.0000
1042	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 2 No's of Channel(GI) = (2x 9.56x1.7)	KG	325.0400
1043	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	52.8640
1044	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 2 No's of Channel(GI) = (2x 9.56x0.306)	KG	58.5072
1045	Danger Plate, 1 no's.	EA	10.0000
1046	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	3.0090
1047	GI barbed wire anticlimbing device 3 Kg. Per support	KG	30.0000
1048	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	12.0360
1049	33KV pin insulator polymer	EA	30.0000
1050	H W fitting(B&S)90KN,4 Bolt	EA	60.0000
1051	Disc insulator (B&S)90 KN polymer	EA	60.0000
1052	Earthing of Support (Coil Type)	EA	10.0000
1053	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.6200
1054	Wedge connector for 232 sq.mm AAA conductor	EA	60.0000
1055	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	KG	48.7900
1056	POLYCARBONATE BIRD GUARD	EA	90.0000
1057	Black Paint(GIS Numbering & Zebra Stripping)	L	10.0000
1058	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	20.0000
1059	33 kv Cut Point with 90 Deg Cut Angle (232 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	8.0000
1060	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 4 No's of Channel(GI) = (4x 9.56x1.7)	KG	520.0640

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1061	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	84.5824
1062	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 4 No's of Channel(GI) = (4x 9.56x0.306)	KG	93.6115
1063	Danger Plate, 1 no's.	EA	8.0000
1064	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.4072
1065	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
1066	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	9.6288
1067	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	EA	32.0000
1068	H W fitting(B&S)90KN,4 Bolt	EA	48.0000
1069	Disc insulator (B&S)90 KN polymer	EA	48.0000
1070	Earthing of Support (Coil Type)	EA	8.0000
1071	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.0960
1072	Wedge connector for 232 sq.mm AAA conductor	EA	48.0000
1073	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	8.0000
1074	H.T. Stay set (Complete)	SET	8.0000
1075	H.T. Stay Insulator Type-C (2 No's.)	EA	8.0000
1076	7/8 SWG Stay Wire 15kg /stay	KG	120.0000
1077	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	KG	90.4800
1078	POLYCARBONATE BIRD GUARD	EA	80.0000
1079	Black Paint(GIS Numbering & Zebra Stripping)	L	8.0000
1080	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000
1081	33 kv Pin Point (232 Sq MM) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	97.0000
1082	33 KV V cross Arm (GI) 22Kg each	EA	97.0000
1083	Top bracket 100x50x6mm GI Channel(GI) (2kg each)	EA	97.0000
1084	Danger Plate, 1 no's.	EA	97.0000
1085	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	29.1873
1086	GI barbed wire anticlimbing device 3 Kg. Per support	KG	291.0000
1087	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	116.7492
1088	33KV pin insulator polymer	EA	291.0000
1089	Earthing of Support (Coil Type)	EA	97.0000
1090	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	25.4140
1091	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	140.6500
1092	232 sq.mm AAA conductor	Mtr	15759.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1093	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	
1094	POLYCARBONATE BIRD GUARD	EA	291.0000
1095	Black Paint(GIS Numbering & Zebra Stripping)	L	97.0000
1096	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	194.0000
1097	Civil and Services Works (232 Sq MM) :- Fixing of complete 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excavation including excavation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.Note:- Excavation of earth will be done of size 500X500X1500 mm.	EA	34.0000
1098	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX2200mm) = 0.55Cu.mtr(Per Pole)	M3	78.6500
1099	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	16.0875
1100	Provide necessary civil material for construction of Earthing chamber, excavation & installation of including earthing pipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	18.0000
1101	33kV 1C, 630sqmm UG Cable :- Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr	560.0000
1102	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	EA	16.0000
1103	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	EA	16.0000
1104	Installation, Laying, Commissioning & Testing of 33kV, 1Core, 630sqmm, XLPE U/G cable by HDD method with HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	M	560.0000
1105	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	128.0000
1106	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	5.0000
1107	33kV 3C, 400sqmm UG Cable :- Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA-20kA)	Mtr	840.0000
1108	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	EA	24.0000
1109	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	EA	24.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1110	Installation, Laying, Commissioning & Testing of 33kV, 3Core, 400sqmm, XLPE U/G cable by HDD method with HDPE pipe (200mm dia, PN8 PE80) including supply of HDPE Pipe.	M	840.0000
1111	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	192.0000
1112	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	14.0000
1113	16 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	3.0000
1114	Top Channel(GI) GI 100 X 50 X 6 MM (1200 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x1.200x9.56= 22.94 Kg)	KG	68.8320
1115	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., Noch 0.280 mtr. length, 4 No's required = (4x2.36x0.280)	KG	7.9296
1116	Transformer Mounting Bracket (65x65x6 GI Angle(GI)) suitable for 16/10KVA 11/0.23 KV Transformer	EA	3.0000
1117	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (2000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x2.000x7.14= 28.56 Kg)	KG	85.6800
1118	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	34.6140
1119	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (2000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x2.000x7.14= 28.56 Kg)	KG	85.6800
1120	25x3mm Flat(GI) for earthing, 0.59kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle) (Each 62.6x 0.59= 36.93 Kg)	KG	110.8020
1121	55mm ² ACSR - PVC Insulated (25 Mtr. Each Dtr.)	Mtr.	75.0000
1122	2Cx16 mm ² LT XLPE Cable(armoured)	Mtr.	27.0000
1123	AB Switch(11KV,200A.2pole,50Hz)	Set	3.0000
1124	H.G.Fuse(11KV.200A.2Pole)	Set	3.0000
1125	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
1126	POLYCARBONATE BIRD GUARD	EA	12.0000
1127	Disc insulator (B&S)70 KN polymer	EA	6.0000
1128	H W fitting (B&S)70KN(3bolted)	Set	6.0000
1129	Lightning Arrester(12KV,10KA) Station Class 2	EA.	6.0000
1130	11KV pin insulator polymer	EA	6.0000
1131	HT stay set complete	Set	6.0000
1132	HT stay Clamp (1.9Kg/pair)	Pair	6.0000
1133	HT stay insulator TYPE-C	EA	6.0000
1134	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	90.0000
1135	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	15.0000
1136	GI Nuts & Bolts of Assorted size (15 Kg/ DSS SP)	KG	45.0000
1137	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	9.0000
1138	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 No's = (4x0.59x0.510)	KG	3.6108

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1139	Danger plate 11kv	EA	3.0000
1140	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 No's (Noch 1x0.59x0.510)	KG	0.9027
1141	Name plate	EA	3.0000
1142	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	Ltr	3.0000
1143	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	Ltr	1.5000
1144	Civil and Services Works for 16 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole)	M3	1.3500
1145	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.3390
1146	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3X2X0.1)= 0.6 Cu. mtr.	M3	1.8000
1147	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA.	6.0000
1148	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA.	15.0000
1149	Laying of 2 Cx 16 mm ² LT PVC Cable	Mtr.	27.0000
1150	Supply of AL Lugs suitable for 16 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	12.0000
1151	SITC and Erection of GI Fencing with Gate	RM	30.0000
1152	25 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	10.0000
1153	9 Mtr. long 300 Kg. PSC Pole	EA	5.0000
1154	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	10.0000
1155	EYE hook for XLPE Aerial bunched Cable	EA	10.0000
1156	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	10.0000
1157	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	107.1000
1158	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	286.8000
1159	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	19.8240
1160	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	214.2000
1161	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	214.2000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1162	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	33.4600
1163	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	28.5600
1164	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	214.2000
1165	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	57.8340
1166	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	57.6900
1167	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	286.8000
1168	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	49.2340
1169	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	135.0000
1170	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	26.1000
1171	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	45.0000
1172	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	774.0800
1173	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	250.0000
1174	4 Cx 35 mm ² LT XLPE Cable(Armoured) - FOR 25 KVA Trf.	M	75.0000
1175	4 Cx 35 mm ² LT XLPE Cable(Armoured) - From LTDB to PSC Pole	M	200.0000
1176	AB Switch(11KV,200A.3pole,50Hz)	SET	5.0000
1177	H.G.Fuse(11KV.200A.3Pole)	SET	5.0000
1178	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	30.0000
1179	POLYCARBONATE BIRD GUARD	EA	30.0000
1180	Disc insulator (B&S)70 KN polymer	EA	15.0000
1181	H W fitting (B&S)70KN(3bolted)	EA	15.0000
1182	Lightning Arrester(12KV,10KA) Station Class 2	EA	15.0000
1183	11KV pin insulator polymer	EA	15.0000
1184	HT stay set complete	SET	10.0000
1185	HT stay Clamp (1.9Kg/pair)	EA	10.0000
1186	HT stay insulator TYPE-C	EA	10.0000
1187	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	150.0000
1188	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	35.0000
1189	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	125.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1190	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	30.0000
1191	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	12.0360
1192	Danger plate 11kv	EA	10.0000
1193	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	3.0090
1194	Name plate	EA	5.0000
1195	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	10.0000
1196	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	5.0000
1197	Civil and Services Works for 25 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	4.5000
1198	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	1.1300
1199	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	7.5000
1200	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	10.0000
1201	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	35.0000
1202	Laying of 4 Cx 35 mm ² LT XLPE Cable	M	275.0000
1203	SITC and Erection of GI Fencing with Gate	RM	80.0000
1204	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.8750
1205	Supply of AL Lugs suitable for 35 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	120.0000
1206	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 16-35sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	15.0000
1207	63 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	14.0000
1208	9 Mtr. long 300 Kg. PSC Pole	EA	7.0000
1209	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	14.0000
1210	EYE hook for XLPE Aerial bunched Cable	EA	14.0000
1211	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	14.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1212	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	149.9400
1213	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	401.5200
1214	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	27.7536
1215	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	299.8800
1216	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	299.8800
1217	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	46.8440
1218	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	39.9840
1219	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	299.8800
1220	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	80.9676
1221	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	80.7660
1222	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	401.5200
1223	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	68.9276
1224	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	189.0000
1225	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	36.5400
1226	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	63.0000
1227	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	1083.7120
1228	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	350.0000
1229	4 Cx 95 mm ² LT XLPE Cable(Armoured) - FOR 63 KVA Trf.	M	105.0000
1230	4 Cx 95 mm ² LT XLPE Cable(Armoured) - From LTDB to Pole	M	280.0000
1231	AB Switch(11KV,200A.3pole,50Hz)	SET	7.0000
1232	H.G.Fuse(11KV.200A.3Pole)	SET	7.0000
1233	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	42.0000
1234	POLYCARBONATE BIRD GUARD	EA	42.0000
1235	Disc insulator (B&S)70 KN polymer	EA	21.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1236	H W fitting (B&S)70KN(3bolted)	EA	21.0000
1237	Lightning Arrester(12KV,10KA) Station Class 2	EA	21.0000
1238	11KV pin insulator polymer	EA	21.0000
1239	HT stay set complete	SET	14.0000
1240	HT stay Clamp (1.9Kg/pair)	EA	14.0000
1241	HT stay insulator TYPE-C	EA	14.0000
1242	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	210.0000
1243	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	49.0000
1244	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	175.0000
1245	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	42.0000
1246	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	16.8504
1247	Danger plate 11kv	EA	14.0000
1248	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	4.2126
1249	Name plate	EA	7.0000
1250	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	14.0000
1251	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	7.0000
1252	Civil and Services Works for 63 KVA DP Mounted DSS :-- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	6.3000
1253	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	1.5820
1254	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	10.5000
1255	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set, stay wire, stay insulator.	EA	14.0000
1256	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	49.0000
1257	Laying of 4 Cx 95 mm ² LT XLPE Cable	M	385.0000
1258	SITC and Erection of GI Fencing with Gate	RM	112.0000
1259	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	2.6250
1260	Supply of AL Lugs suitable for 95 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	168.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1261	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 50-95sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	21.0000
1262	100 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44Kg/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	8.0000
1263	9 Mtr. long 300 Kg. PSC Pole	EA	4.0000
1264	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	8.0000
1265	EYE hook for XLPE Aerial bunched Cable	EA	8.0000
1266	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	8.0000
1267	LT Cable raising Channel (GI) 75x40x4.8 mm GI Channel (GI) (1000 mm long) (7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	85.6800
1268	Top Channel (GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	229.4400
1269	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	15.8592
1270	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	171.3600
1271	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	171.3600
1272	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	26.7680
1273	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	22.8480
1274	HG/ DO Fuse Mounting Channel (GI) 75x40x4.8 mm GI Channel (GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	171.3600
1275	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	46.2672
1276	Cantilever Support Angle (GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	46.1520
1277	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	229.4400
1278	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	39.3872
1279	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	108.0000
1280	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	20.8800
1281	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	36.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1282	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	619.2640
1283	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	200.0000
1284	4 Cx 150 mm ² LT XLPE Cable(Armoured) - FOR 100 KVA Trf.	M	60.0000
1285	1.1kV, 4Core, 150 sqmm, XLPE insulation armoured - Aluminium UG cable from LTDB to Pole	M	160.0000
1286	AB Switch(11KV,200A.3pole,50Hz)	SET	4.0000
1287	H.G.Fuse(11KV.200A.3Pole)	SET	4.0000
1288	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	24.0000
1289	POLYCARBONATE BIRD GUARD	EA	24.0000
1290	Disc insulator (B&S)70 KN polymer	EA	12.0000
1291	H W fitting (B&S)70KN(3bolted)	EA	12.0000
1292	Lightning Arrester(12KV,10KA) Station Class 2	EA	12.0000
1293	11KV pin insulator polymer	EA	12.0000
1294	HT stay set complete	SET	8.0000
1295	HT stay Clamp (1.9Kg/pair)	EA	8.0000
1296	HT stay insulator TYPE-C	EA	8.0000
1297	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	120.0000
1298	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	28.0000
1299	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	100.0000
1300	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	24.0000
1301	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	9.6288
1302	Danger plate 11kv	EA	8.0000
1303	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	2.4072
1304	Name plate	EA	4.0000
1305	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000
1306	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	4.0000
1307	Civil and Services Works for 100 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	3.6000
1308	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.9040
1309	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	6.0000
1310	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	8.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1311	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	28.0000
1312	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	220.0000
1313	SITC and Erection of GI Fencing with Gate	RM	64.0000
1314	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.5000
1315	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	96.0000
1316	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	12.0000
1317	250 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
1318	9 Mtr. long 300 Kg. PSC Pole	EA	2.0000
1319	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	3.0000
1320	EYE hook for XLPE Aerial bunched Cable	EA	3.0000
1321	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	3.0000
1322	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 6 No's.) (Each 6x1.000x7.14= 42.84 Kg)	KG	42.8400
1323	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
1324	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
1325	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
1326	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
1327	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	6.6920
1328	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	5.7120
1329	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
1330	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	11.5668

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1331	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	11.5380
1332	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	42.8400
1333	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 2 nos Angle(GI) required = (4.5x3.512x2)	KG	31.6080
1334	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	154.8160
1335	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	50.0000
1336	1 Cx 400 mm ² LT XLPE Cable(Un-Armoured)	M	120.0000
1337	LT Cable Supporting Channel(GI) 100 X 50 X 6 MM GI Channel(GI) (2000 mm long)(9.56 Kg./Mtr., 2 No's.) (Each 2x2x9.56= 28.56 Kg)	KG	38.2400
1338	LT Cable Supproting Angle(GI), 50x50x6mm.GI 4.5Kg./mtr., each Angle(GI) length 2 mtr., 4 nos Angle(GI) required = (4.5x4x2)	KG	36.0000
1339	Supply of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable from LTDB to Pole	M	60.0000
1340	AB Switch(11KV,200A.3pole,50Hz)	SET	1.0000
1341	H.G.Fuse(11KV.200A.3Pole)	SET	1.0000
1342	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	6.0000
1343	POLYCARBONATE BIRD GUARD	EA	6.0000
1344	Disc insulator (B&S)70 KN polymer	EA	3.0000
1345	H W fitting (B&S)70KN(3bolted)	EA	3.0000
1346	Lightning Arrester(12KV,10KA) Station Class 2	EA	3.0000
1347	11KV pin insulator polymer	EA	3.0000
1348	HT stay set complete	SET	2.0000
1349	HT stay Clamp (1.9Kg/pair)	EA	2.0000
1350	HT stay insulator TYPE-C	EA	2.0000
1351	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	30.0000
1352	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	7.0000
1353	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	25.0000
1354	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	6.0000
1355	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
1356	Danger plate 11kv	EA	2.0000
1357	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
1358	Name plate	EA	1.0000
1359	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
1360	Black Colour Paint(GIS Numbering & Zebra Stripping) for	L	1.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

	numbering		
1361	Civil and Services Works for 250 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	0.9000
1362	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.2260
1363	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3.5X2.5X0.1)= 0.875 Cu. mtr.	M3	0.8750
1364	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	2.0000
1365	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	7.0000
1366	LTDB Plinth	EA	1.0000
1367	DTR Plinth	EA	1.0000
1368	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	60.0000
1369	Laying of 1.1kV cable from 400 to 1000sqmm	M	120.0000
1370	SITC and Erection of GI Fencing with Gate	RM	18.0000
1371	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	0.7500
1372	Supply of AL Lugs suitable for 400 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	16.0000
1373	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	24.0000
1374	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 1C 300-1000 sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	8.0000
1375	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	3.0000
1376	500 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
1377	9 Mtr. long 300 Kg. PSC Pole	EA	4.0000
1378	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	8.0000
1379	EYE hook for XLPE Aerial bunched Cable	EA	8.0000
1380	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	8.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1381	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 6 No's.) (Each 6x1.000x7.14= 42.84 Kg)	KG	85.6800
1382	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	114.7200
1383	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
1384	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
1385	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
1386	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	13.3840
1387	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	11.4240
1388	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
1389	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	23.1336
1390	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	23.0760
1391	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	85.6800
1392	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 2 nos Angle(GI) required = (4.5x3.512x2)	KG	63.2160
1393	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	309.6320
1394	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	100.0000
1395	1 Cx 400 mm ² LT XLPE Cable(Un-Armoured)	M	360.0000
1396	LT Cable Supporting Channel(GI) 100 X 50 X 6 MM GI Channel(GI) (2000 mm long)(9.56 Kg./Mtr., 2 No's.) (Each 2x2x9.56= 28.56 Kg)	KG	76.4800
1397	LT Cable Supproting Angle(GI), 50x50x6mm.GI 4.5Kg./mtr., each Angle(GI) length 2 mtr., 4 nos Angle(GI) required = (4.5x4x2)	KG	72.0000
1398	Supply of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable from LTDB to Pole	M	160.0000
1399	AB Switch(11KV,200A.3pole,50Hz)	SET	2.0000
1400	H.G.Fuse(11KV.200A.3Pole)	SET	2.0000
1401	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
1402	POLYCARBONATE BIRD GUARD	EA	12.0000
1403	Disc insulator (B&S)70 KN polymer	EA	6.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1404	H W fitting (B&S)70KN(3bolted)	EA	6.0000
1405	Lightning Arrester(12KV,10KA) Station Class 2	EA	6.0000
1406	11KV pin insulator polymer	EA	6.0000
1407	HT stay set complete	SET	4.0000
1408	HT stay Clamp (1.9Kg/pair)	EA	4.0000
1409	HT stay insulator TYPE-C	EA	4.0000
1410	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	60.0000
1411	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	14.0000
1412	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	50.0000
1413	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	12.0000
1414	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144
1415	Danger plate 11kv	EA	4.0000
1416	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
1417	Name plate	EA	2.0000
1418	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
1419	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	2.0000
1420	Civil and Services Works for 500 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	1.8000
1421	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.4520
1422	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3.5X3.5X0.1)= 1.225 Cu. mtr.	M3	2.4500
1423	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	4.0000
1424	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	14.0000
1425	LTDB Plinth	EA	2.0000
1426	DTR Plinth upto 1000 KVA	EA	2.0000
1427	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	160.0000
1428	Laying of 1.1kV cable from 400 to 1000sqmm	M	360.0000
1429	SITC and Erection of GI Fencing with Gate	RM	40.0000
1430	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.5000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1431	Supply of AL Lugs suitable for 400 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	48.0000
1432	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	64.0000
1433	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 1C 300-1000 sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	24.0000
1434	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	8.0000
1435	LT Line (50 Sq MM, 70 Sq MM, 95 Sq MM) :- 9 Mtr. long 300 Kg. PSC Pole	EA	181.0000
1436	WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	52.0000
1437	LT Stay set Complete	SET	59.0000
1438	7/12 SWG GI stay wire, Grade -2	KG	708.0000
1439	LT stay Clamp (1.40Kg/pair)	EA	59.0000
1440	LT Stay insulator	EA	59.0000
1441	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	292.0000
1442	EYE hook for XLPE Aerial bunched Cable	EA	118.0000
1443	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	118.0000
1444	Suspension Clamp with EYE hook for ABC	PAA	174.0000
1445	4C×50 mm ² (P)+1C×50 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	315.0000
1446	4C×70 mm ² (P)+1C×70 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	6205.5000
1447	4C×95 mm ² (P)+1C×95 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	1659.0000
1448	4 WAY SERVICE Distb. Box with kit kat fuse and Aluminium bus bar.	EA	44.0000
1449	Insulated piercing connector.Type-A-main 50 to 150 sq.mm & Tap-50 to 150 sq.mm	EA	275.0000
1450	GI Pipe Earthing (each 5th pole to earth)	EA	46.0000
1451	Coil Earthing	EA	187.0000
1452	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	61.1000
1453	Danger plate (LT)	EA	233.0000
1454	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	70.1100
1455	GI barbed wire anticlimbing device 3 Kg. Per support	KG	699.0000
1456	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	280.4400

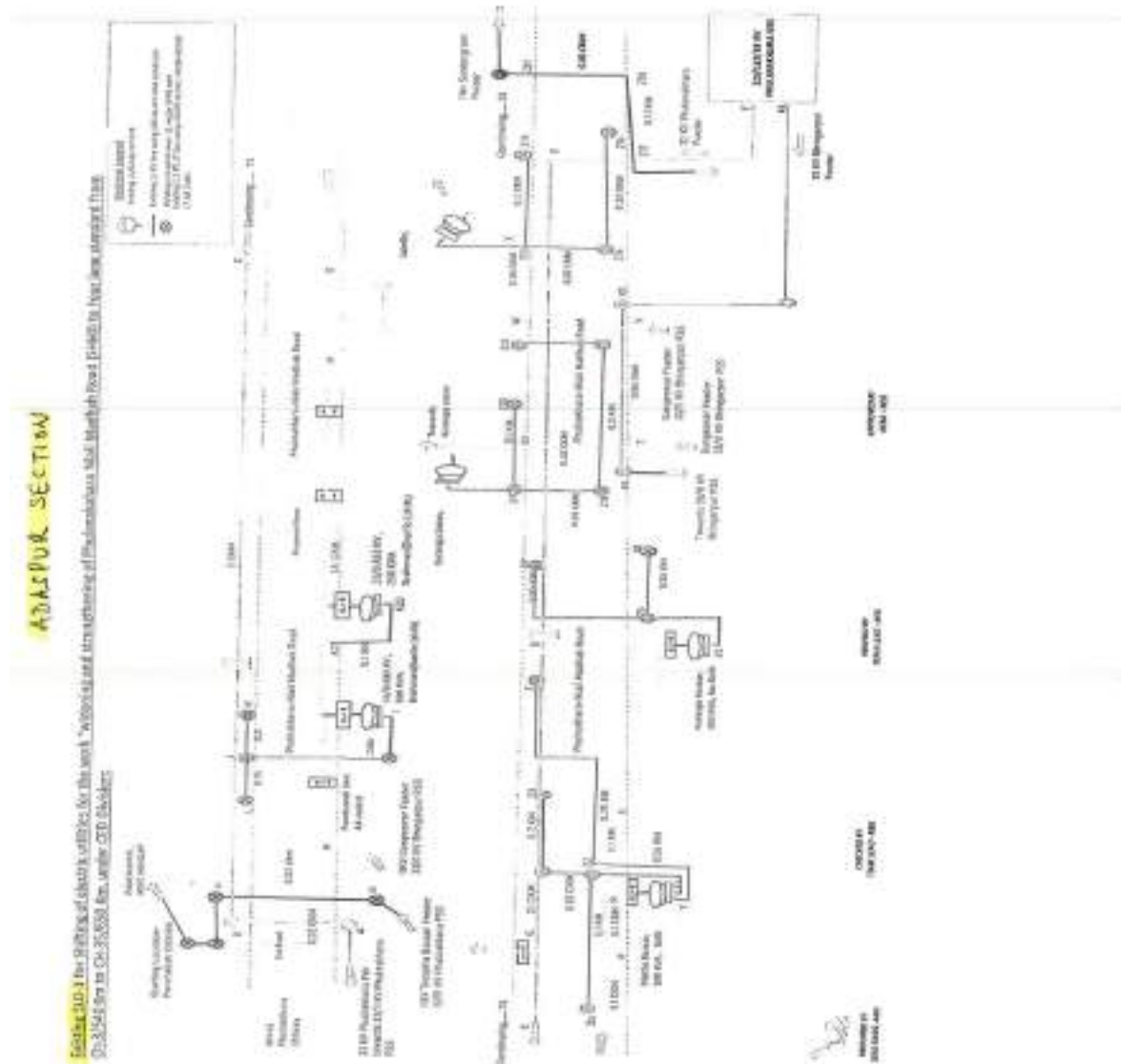
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1457	GI Nut , Bolt & Washer of different sizes (0.5 Kg/ Pole)	KG	116.5000
1458	Black Paint(GIS Numbering & Zebra Stripping)	Ltr	233.0000
1459	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	Ltr	466.0000
1460	Civil and Services Works LT Line:- Fixing of complete LT line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excavation including excavation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	59.0000
1461	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	15.3000
1462	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	3.8250
1463	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1550mm) = 0.375Cu.mtr(Per Pole)	Cu.mtr	50.6250
1464	Construction Earthing chamber including installation of earthing pipe making earthing chamber including excavation, soil treatment with bentonide powder, calculation of earth resistance, including, installation of 3 Mtr GI pipe 40/50 mm including welding of GI flat around pipe.	No	46.0000
1465	LT 4C, 150 & 300 sqmm UG Cable :- Length of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	805.0800
1466	Length of 1.1kV, 4Core, 300 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	1489.8300
1467	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (110mm dia, PN8 PE80) including supply of HDPE Pipe.	Mtr	3080.0000
1468	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including supply of HDPE Pipe.	Mtr	560.0000
1469	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	84.0000
1470	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 240-300sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	16.0000
1471	Dismantling:- Dismantling of 11/13 Mtr. Joist/WPB Pole- 150X150 mm/ 160X160 mm	EA	430.0000
1472	Dismantling of 9/8 Mtr. PCC/Joist Pole	EA	210.0000

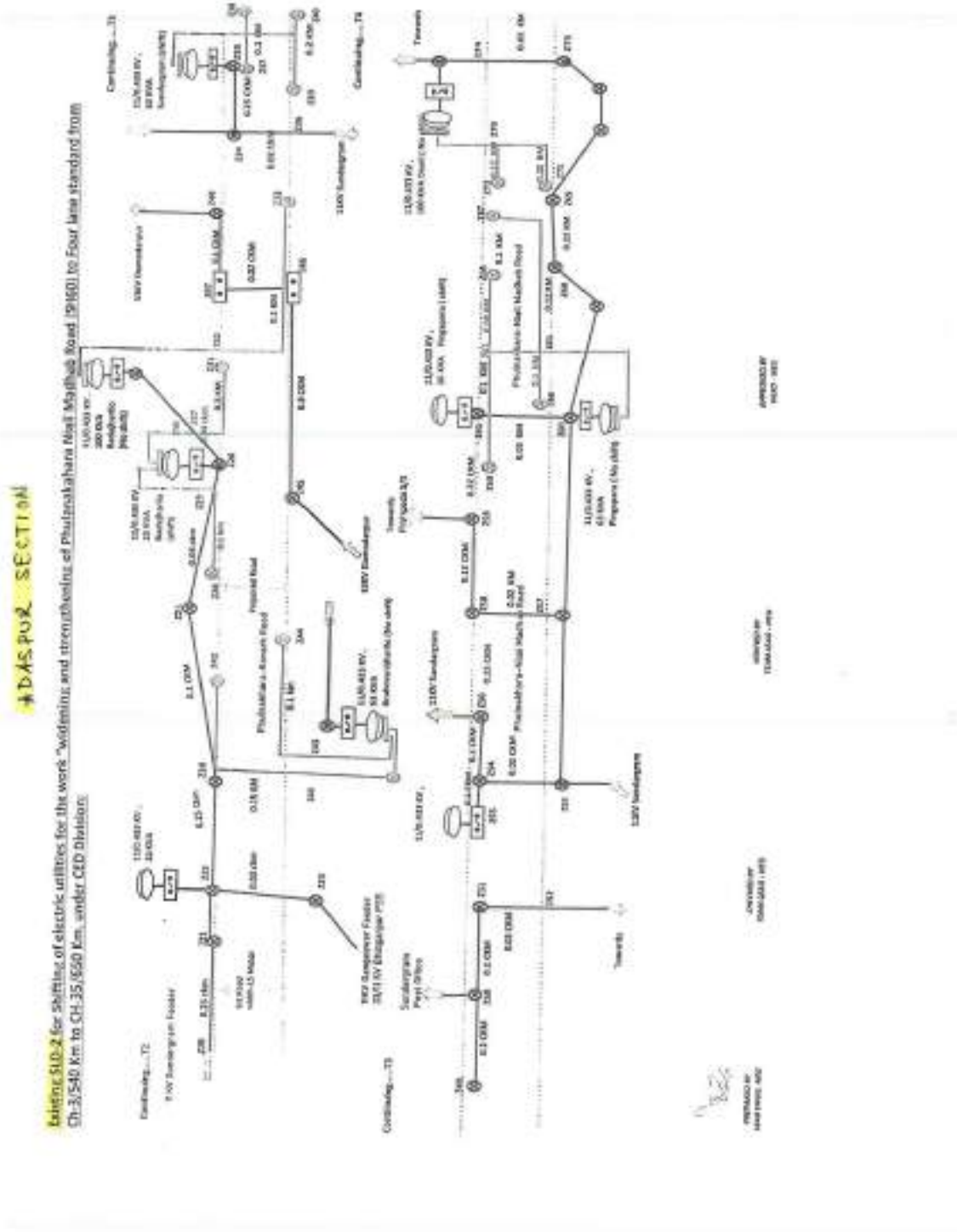
“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1473	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 16KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	3.0000
1474	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 25KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	5.0000
1475	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 63KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	7.0000
1476	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 100KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	4.0000
1477	Dismantling of existing 11/0.4kV, 33/0.4KV, 250kVA Three Phase Distribution Transformer including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	1.0000
1478	Dismantling of existing 11/0.4kV, 33/0.4KV, 500kVA Three Phase Distribution Transformer including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	2.0000
1479	Dismantling of ACSR/AAAC 34/55 mm ² from overhead line	Mtr	10800.0000
1480	Dismantling of ACSR/AAAC 80/100 mm ² from overhead line	Mtr	29070.0000
1481	Dismantling of ACSR/AAAC 148/232 mm ² from overhead line	Mtr	18210.0000
1482	Dismantling of various size of LT AB Cable	Mtr	8640.0000

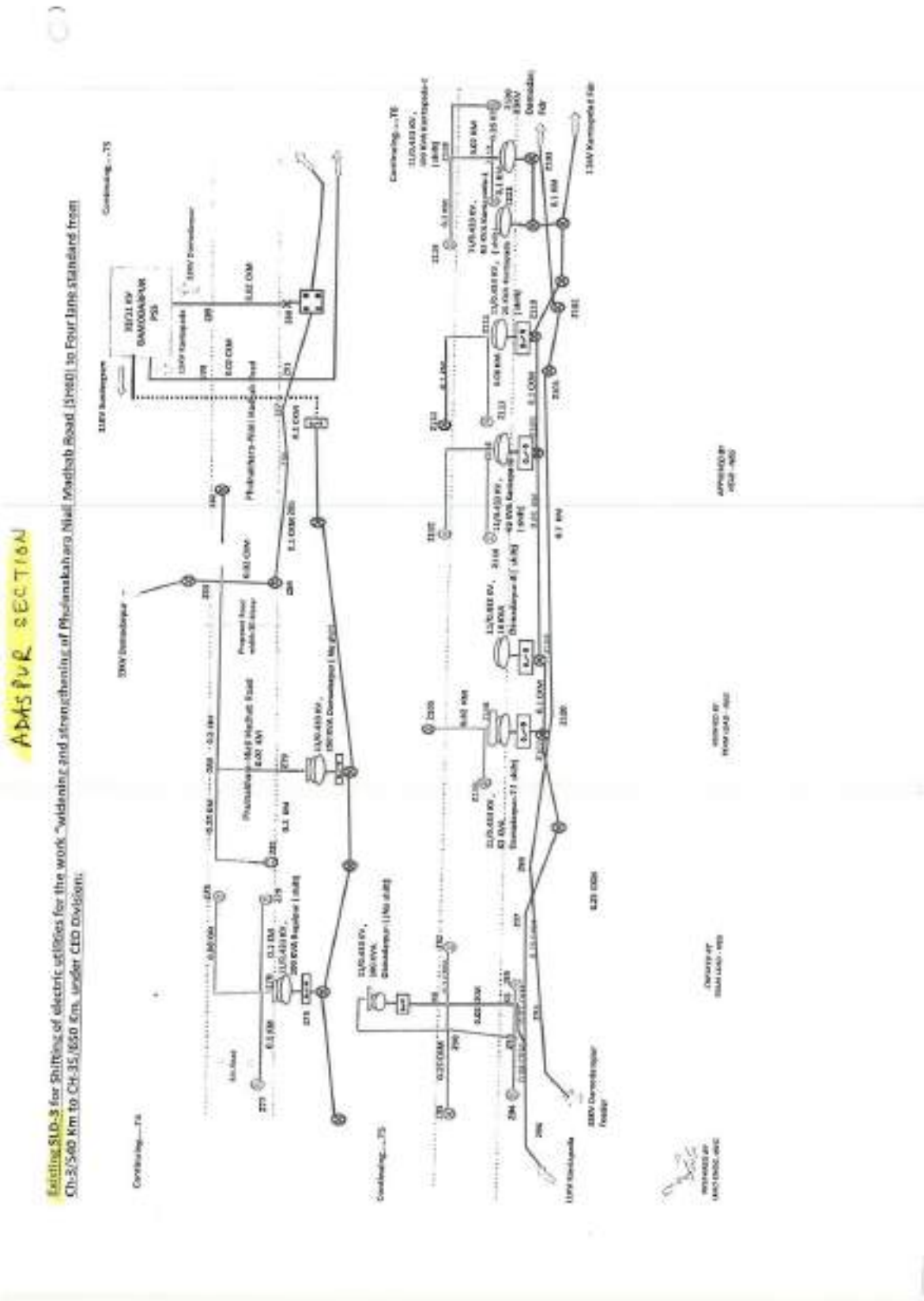
Existing SLD-1 to 5 of Adaspur Section



"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"



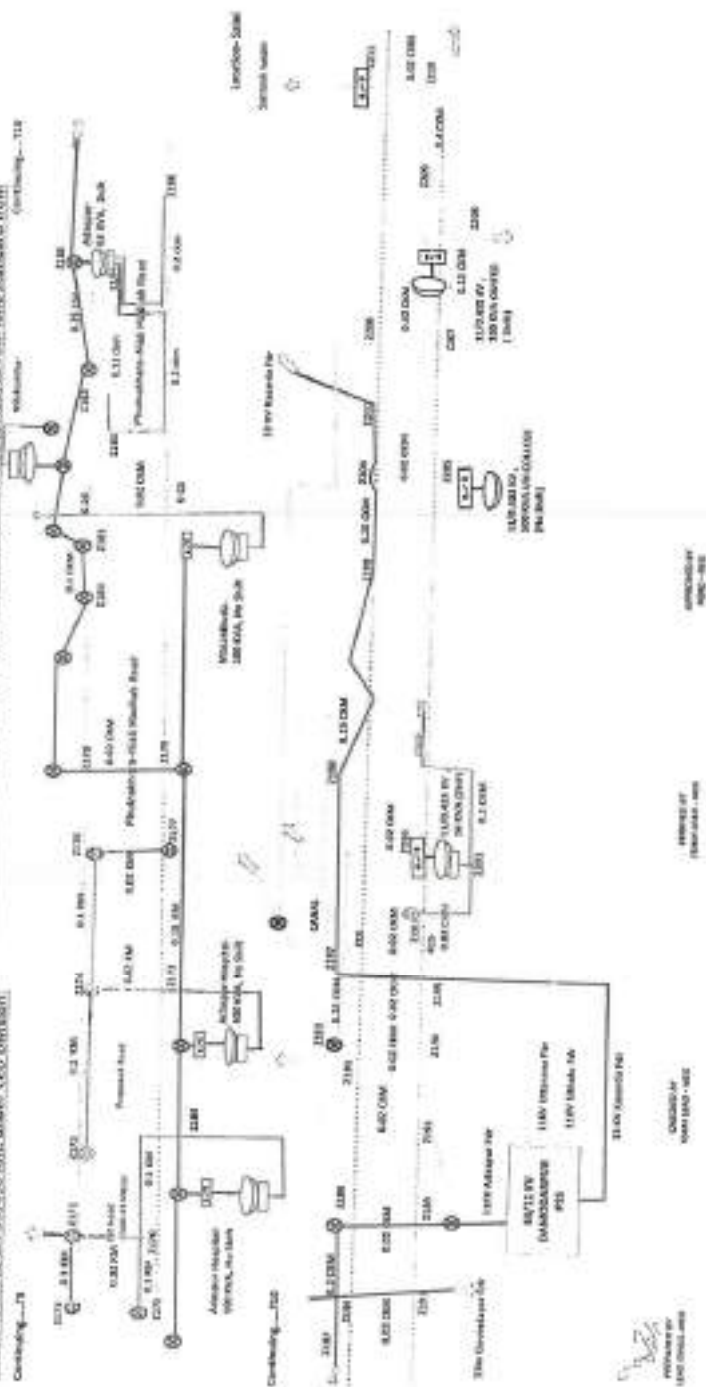
"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"



ADDS PUL SECTION

ADASPUR SECTION

Address: S.D.O.5 for 31th rank of electric utilities for the work "widening and strengthening of Bhulnabharu Wadi Madhuk Road (S.H.50) to Four lane standard from Ch-2/240 Km to Ch-3/5,650 Km. under CEG Division



Proposed SLD-1 to 5 of Adaspur Section

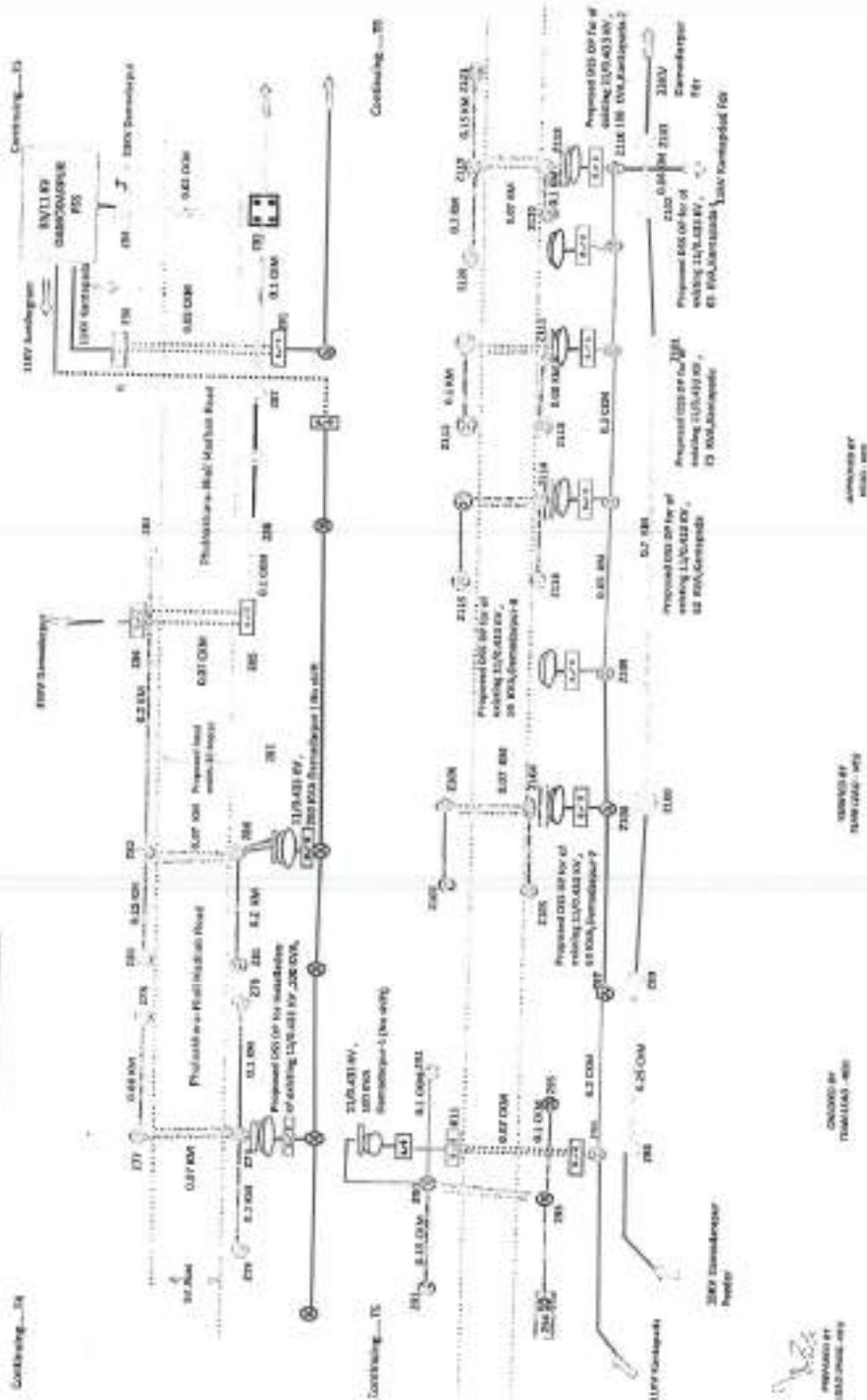


A-DASPUR SECTION

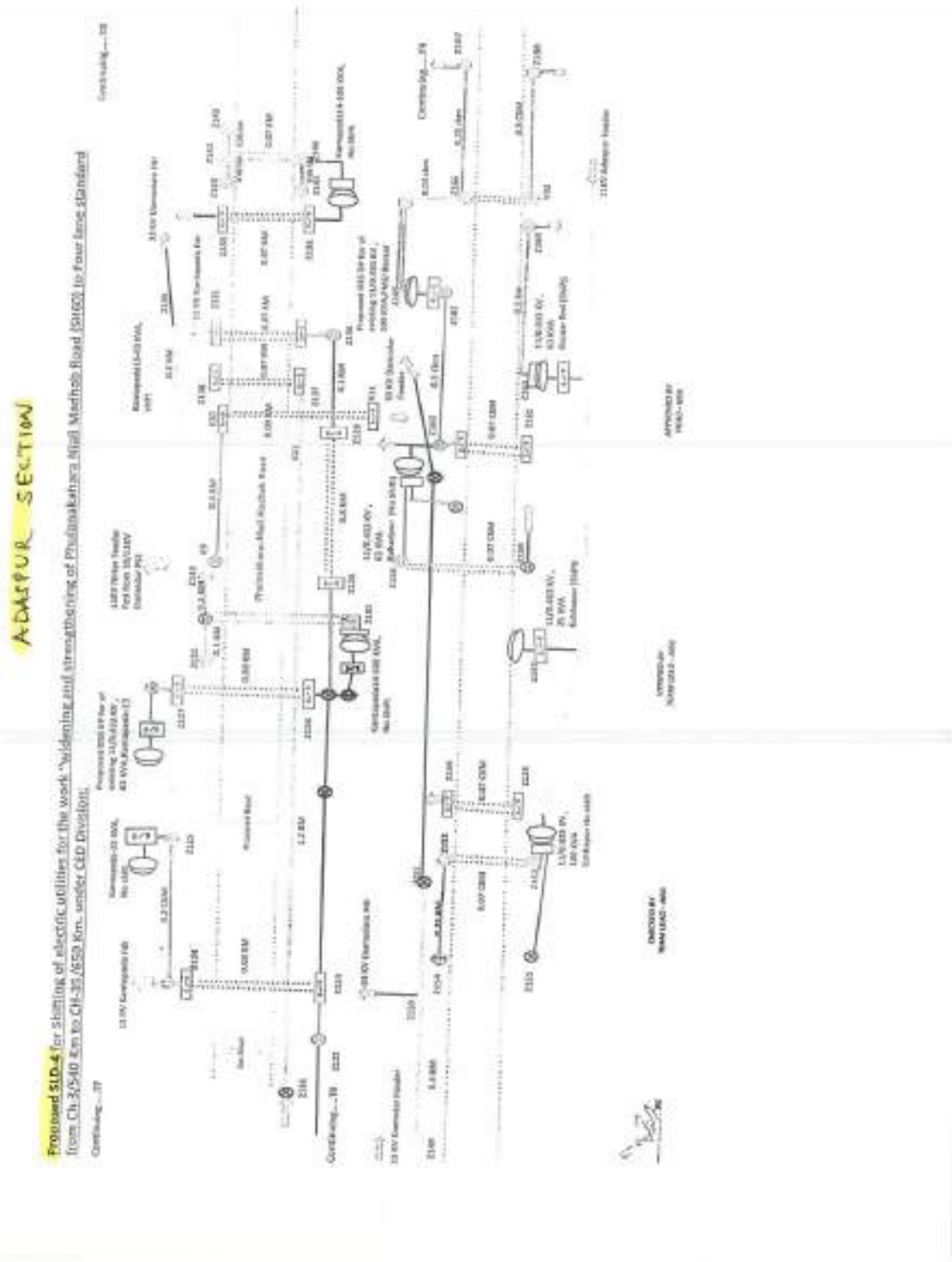


ADASPUR SECTION

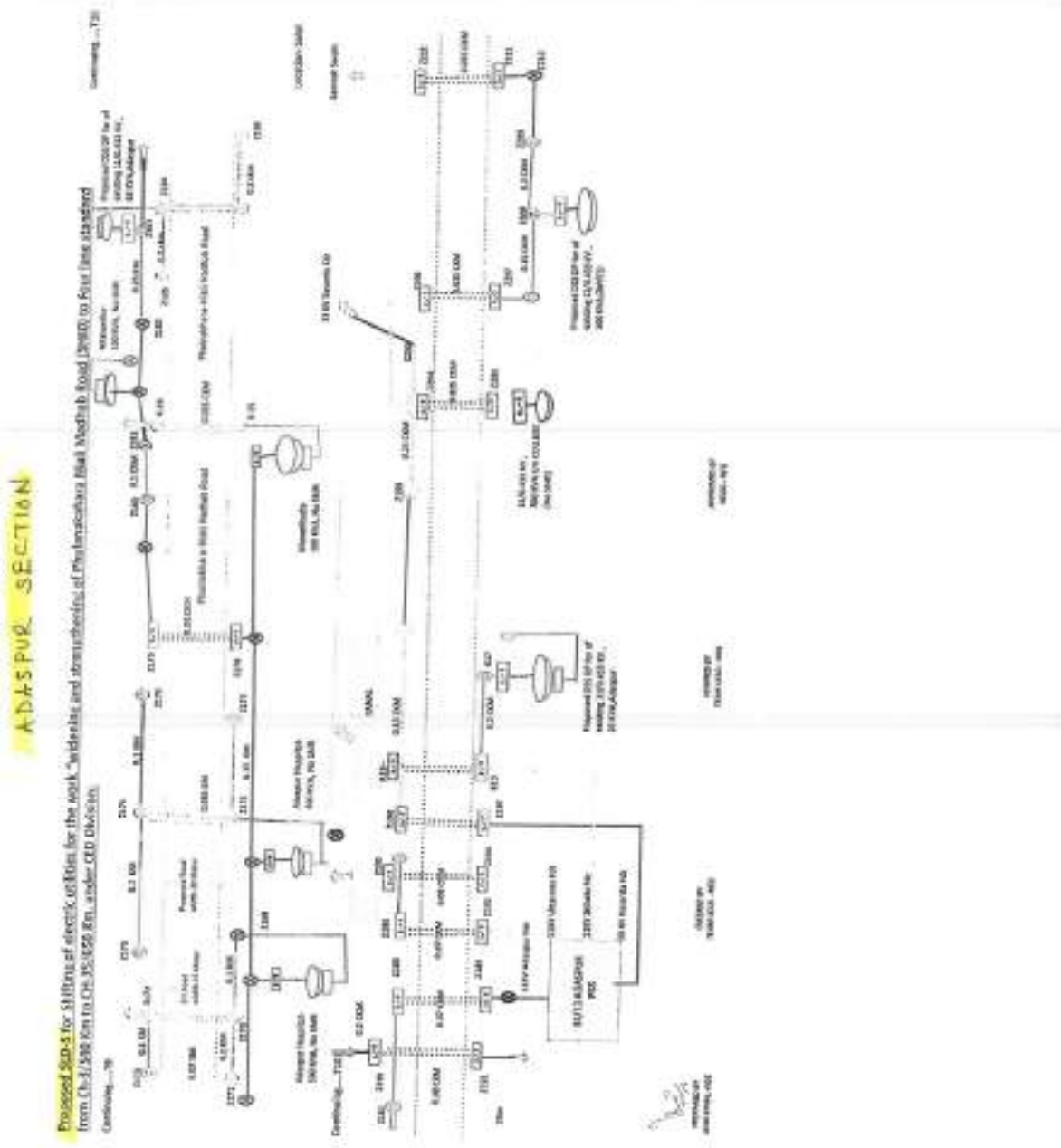
Continuing... To



"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"



ADDRESS SECTION



“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

c) Shifting of line & S/S /Electrical Infrastructure due to construction of Improvement of Phulnakhara-Niali-Madhaba Road under Niali Section-I (SLD No-1 to 5).

1483	SLD No :- 1 to 5 for NIALI-I SECTION :- DP Without AB Switch (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
1484	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 2.3 mtr., 2 no's Channel(GI) required =(2x9.56x2.3)	KG	43.9760
1485	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
1486	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.66 Mtr., 4 no's Channel(GI) required =(7.14x1.66x4)	KG	47.4096
1487	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 2.671 mtr., 4 nos Angle(GI) required = (4.5x2.671x4)	KG	48.0780
1488	Danger Plate, 2 no's.	EA	2.0000
1489	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
1490	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
1491	H.T. Stay set (Complete)	SET	2.0000
1492	H.T. Stay Insulator Type-C	EA	2.0000
1493	7/10 SWG Stay Wire 15kg /stay	KG	30.0000
1494	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	1.0000
1495	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	11.8000
1496	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	6.0000
1497	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
1498	11 KV pin insulator polymer	EA	3.0000
1499	H W fitting(B&S) 70KN, 3Bolt	EA	6.0000
1500	Disc insulator (B&S) 70 KN polymer	EA	6.0000
1501	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	6.0000
1502	POLYCARBONATE BIRD GUARD	EA	9.0000
1503	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	KG	12.2610
1504	Black Paint(GIS Numbering & Zebra Stripping)	L	1.0000
1505	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
1506	DP With AB Switch (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	16.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1507	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3 mtr., 2 no's Channel(GI) required =(2x9.56x3)	KG	458.8800
1508	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	31.7184
1509	AB switch Mounting Channel(GI) 75X40X4.8mm, 7.14KG/Mtr, each Channel(GI) length 3 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	342.7200
1510	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	53.5360
1511	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	45.6960
1512	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 4 no's Channel(GI) required =(7.14x3x4)	KG	685.4400
1513	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 4 nos Angle(GI) required = (4.5x3.512x4)	KG	505.7280
1514	Danger Plate, 2 no's.	EA	16.0000
1515	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	4.8144
1516	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	16.0000
1517	H.T. Stay set (Complete)	SET	16.0000
1518	H.T. Stay Insulator Type-C	EA	16.0000
1519	7/10 SWG Stay Wire 15kg /stay	KG	240.0000
1520	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	16.0000
1521	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	387.0400
1522	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	48.0000
1523	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	19.2576
1524	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	24.0000
1525	AB Switch (11KV,400A.3pole,50Hz)	SET	8.0000
1526	11 KV pin insulator polymer	EA	24.0000
1527	H W fitting(B&S) 70KN, 3Bolt	EA	48.0000
1528	Disc insulator (B&S) 70 KN polymer	EA	48.0000
1529	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	48.0000
1530	Paddle clamp for wedge connector of 100 sq.mm AAA conductor	EA	48.0000
1531	POLYCARBONATE BIRD GUARD	EA	72.0000
1532	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	KG	109.7440
1533	Black Paint(GIS Numbering & Zebra Stripping)	L	8.0000
1534	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1535	11 KV Cut Point with 180 Degree Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	5.0000
1536	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 2 no's Channel(GI) required =(2x9.56x1.2)	KG	114.7200
1537	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	26.4320
1538	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 2 no's Channel(GI) required =(2x9.56x0.306)	KG	29.2536
1539	Danger Plate, 1 no's.	EA	5.0000
1540	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	1.5045
1541	GI barbed wire anticlimbing device 3 Kg. Per support	KG	15.0000
1542	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	6.0180
1543	11 KV pin insulator polymer	EA	15.0000
1544	H W fitting(B&S) 70KN, 3Bolt	EA	30.0000
1545	Disc insulator (B&S) 70 KN polymer	EA	30.0000
1546	Earthing of Support (Coil Type)	EA	5.0000
1547	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.3100
1548	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	30.0000
1549	POLYCARBONATE BIRD GUARD	EA	45.0000
1550	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	KG	17.7500
1551	Black Paint(GIS Numbering & Zebra Stripping)	L	2.5000
1552	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	10.0000
1553	11 KV Cut Point with 90 Degree Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	6.0000
1554	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 4 no's Channel(GI) required =(4x9.56x1.2)	KG	275.3280
1555	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	63.4368
1556	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required =(4x9.56x0.306)	KG	70.2086
1557	Danger Plate, 1 no's.	EA	6.0000
1558	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	1.8054
1559	GI barbed wire anticlimbing device 3 Kg. Per support	KG	18.0000
1560	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's =	KG	7.2216

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

	(4x0.59x0.510)		
1561	11 KV pin insulator polymer	EA	24.0000
1562	H W fitting(B&S) 70KN, 3Bolt	EA	36.0000
1563	Disc insulator (B&S) 70 KN polymer	EA	36.0000
1564	Earthing of Support (Coil Type)	EA	6.0000
1565	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.5720
1566	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	36.0000
1567	POLYCARBONATE BIRD GUARD	EA	60.0000
1568	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	12.0000
1569	H.T. Stay set (Complete)	SET	12.0000
1570	H.T. Stay Insulator Type-C	EA	12.0000
1571	7/10 SWG Stay Wire 15kg /stay	KG	180.0000
1572	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	44.5980
1573	Black Paint(GIS Numbering & Zebra Stripping)	L	3.0000
1574	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	12.0000
1575	11 KV Line (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	23.0000
1576	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	23.0000
1577	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	23.0000
1578	Danger Plate, 1 no's. for each pole	EA	23.0000
1579	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	6.9207
1580	GI barbed wire anticlimbing device 3 Kg. Per support	KG	69.0000
1581	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	27.6828
1582	11 KV pin insulator polymer, 3 Nos. required for each support	EA	69.0000
1583	Earthing of Support (Coil Type)	EA	23.0000
1584	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	6.0260
1585	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	33.3500
1586	100 sq.mm AAA conductor	KM	5.2839
1587	Black Paint(GIS Numbering & Zebra Stripping)	L	23.0000
1588	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	46.0000
1589	POLYCARBONATE BIRD GUARD	EA	69.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1590	Civil and Services Works :- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excavation including excavation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	30.0000
1591	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr(Per Pole)	M3	23.4000
1592	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	5.8500
1593	Provide necessary civil material for construction of Earthing chamber, excavation & installation of including earthing pipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power, connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	17.0000
1594	DP Without AB Switch (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
1595	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 2.3 mtr., 2 no's Channel(GI) required =(2x9.56x2.3)	KG	43.9760
1596	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
1597	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.66 Mtr., 4 no's Channel(GI) required =(7.14x1.66x4)	KG	47.4096
1598	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 2.671 mtr., 4 nos Angle(GI) required = (4.5x2.671x4)	KG	48.0780
1599	Danger Plate, 2 no's.	EA	2.0000
1600	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
1601	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
1602	H.T. Stay set (Complete)	SET	2.0000
1603	H.T. Stay Insulator Type-C	EA	2.0000
1604	7/10 SWG Stay Wire 15kg /stay	KG	30.0000
1605	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	1.0000
1606	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	11.8000
1607	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	6.0000
1608	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1609	11 KV pin insulator polymer	EA	3.0000
1610	H W fitting(B&S) 70KN, 3Bolt	EA	6.0000
1611	Disc insulator (B&S) 70 KN polymer	EA	6.0000
1612	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	6.0000
1613	POLYCARBONATE BIRD GUARD	EA	9.0000
1614	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	KG	12.2610
1615	Black Paint(GIS Numbering & Zebra Stripping)	L	1.0000
1616	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
1617	DP With AB Switch (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	52.0000
1618	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3 mtr., 2 no's Channel(GI) required =(2x9.56x3)	KG	1491.3600
1619	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	103.0848
1620	AB switch Mounting Channel(GI) 75X40X4.8mm, 7.14KG/Mtr, each Channel(GI) length 3 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	1113.8400
1621	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	173.9920
1622	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	148.5120
1623	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 4 no's Channel(GI) required =(7.14x3x4)	KG	2227.6800
1624	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 4 nos Angle(GI) required = (4.5x3.512x4)	KG	1643.6160
1625	Danger Plate, 2 no's.	EA	52.0000
1626	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	15.6468
1627	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	52.0000
1628	H.T. Stay set (Complete)	SET	52.0000
1629	H.T. Stay Insulator Type-C	EA	52.0000
1630	7/10 SWG Stay Wire 15kg /stay	KG	780.0000
1631	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	52.0000
1632	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	1257.8800
1633	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	156.0000
1634	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	62.5872

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1635	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	78.0000
1636	AB Switch (11KV,400A.3pole,50Hz)	SET	26.0000
1637	11 KV pin insulator polymer	EA	78.0000
1638	H W fitting(B&S) 70KN, 3Bolt	EA	156.0000
1639	Disc insulator (B&S) 70 KN polymer	EA	156.0000
1640	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	156.0000
1641	POLYCARBONATE BIRD GUARD	EA	234.0000
1642	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	KG	356.6680
1643	Black Paint(GIS Numbering & Zebra Stripping)	L	26.0000
1644	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	52.0000
1645	11 KV Cut Point with 180 Degree Angle (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	8.0000
1646	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 2 no's Channel(GI) required =(2x9.56x1.2)	KG	183.5520
1647	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	42.2912
1648	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 2 no's Channel(GI) required =(2x9.56x0.306)	KG	46.8058
1649	Danger Plate, 1 no's.	EA	8.0000
1650	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.4072
1651	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000
1652	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	9.6288
1653	11 KV pin insulator polymer	EA	24.0000
1654	H W fitting(B&S) 70KN, 3Bolt	EA	48.0000
1655	Disc insulator (B&S) 70 KN polymer	EA	48.0000
1656	Earthing of Support (Coil Type)	EA	8.0000
1657	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	2.0960
1658	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	48.0000
1659	POLYCARBONATE BIRD GUARD	EA	72.0000
1660	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	KG	28.4000
1661	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
1662	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	16.0000
1663	11 KV Cut Point with 90 Degree Angle (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	7.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1664	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 4 no's Channel(GI) required =(4x9.56x1.2)	KG	321.2160
1665	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	74.0096
1666	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required =(4x9.56x0.306)	KG	81.9101
1667	Danger Plate, 1 no's.	EA	7.0000
1668	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.1063
1669	GI barbed wire anticlimbing device 3 Kg. Per support	KG	21.0000
1670	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	8.4252
1671	11 KV pin insulator polymer	EA	28.0000
1672	H W fitting(B&S) 70KN, 3Bolt	EA	42.0000
1673	Disc insulator (B&S) 70 KN polymer	EA	42.0000
1674	Earthing of Support (Coil Type)	EA	7.0000
1675	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.8340
1676	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	42.0000
1677	POLYCARBONATE BIRD GUARD	EA	70.0000
1678	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	14.0000
1679	H.T. Stay set (Complete)	SET	14.0000
1680	H.T. Stay Insulator Type-C	EA	14.0000
1681	7/10 SWG Stay Wire 15kg /stay	KG	210.0000
1682	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	52.0310
1683	Black Paint(GIS Numbering & Zebra Stripping)	L	3.5000
1684	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	14.0000
1685	11 KV Line (55 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	34.0000
1686	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	34.0000
1687	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	34.0000
1688	Danger Plate, 1 no's. for each pole	EA	34.0000
1689	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	10.2306
1690	GI barbed wire anticlimbing device 3 Kg. Per support	KG	102.0000
1691	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	40.9224
1692	11 KV pin insulator polymer, 3 Nos. required for each support	EA	102.0000
1693	Earthing of Support (Coil Type)	EA	34.0000
1694	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	8.9080

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1695	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	49.3000
1696	55 sq.mm AAA conductor	KM	9.3600
1697	Black Paint(GIS Numbering & Zebra Stripping)	L	34.0000
1698	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	68.0000
1699	POLYCARBONATE BIRD GUARD	EA	102.0000
1700	Civil and Services Works (55 Sq MM AAAC) :- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	68.0000
1701	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr(Per Pole)	M3	46.3500
1702	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	11.5875
1703	Provide necessary civil material for construction of Earthing chamber, excavation & installation of incuding earthingpipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	53.0000
1704	11 KV 3C, 300 sqmm UG Cable :- Supply of 11kV, 3Core, 300sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 28.3kA and SC rating of Armour in kA- 15kA)	Mtr	1760.0000
1705	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, HT UG Cable kits	EA	48.0000
1706	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits	EA	48.0000
1707	Installation, Laying, Commissioning & Testing of 11kV, 3Core, 300sqmm, XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	M	1760.0000
1708	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	384.0000
1709	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	29.0000
1710	11 KV 3C, 400sqmm UG Cable: - Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	Mtr	1060.0000
1711	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, HT UG Cable kits	EA	24.0000
1712	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits	EA	24.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1713	Installation, Laying, Commissioning & Testing of 11kV, 3Core, 400sqmm, XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including supply of HDPE Pipe.	M	1060.0000
1714	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	192.0000
1715	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	18.0000
1716	33 KV DP With Isolator (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	8.0000
1717	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 4.3 mtr., 2 no's Channel(GI) required =(2x9.56x4.3)	KG	328.8640
1718	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	15.8592
1719	Insulator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 1 no's Channel(GI) required =(1x7.14x4.3)	KG	122.8080
1720	Isolator Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 2 no's Channel(GI) required =(2x7.14x4.3)	KG	245.6160
1721	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 4.3 Mtr., 4 no's Channel(GI) required =(4x7.14x4.3)	KG	491.2320
1722	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 4.927 mtr., 4 nos Angle(GI) required = (4*4.5*4.927)	KG	354.7440
1723	Isolator Operating Down Pipe Support Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(1x7.14x0.8)	KG	22.8480
1724	Down Pipe Diagonal Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.388mtr., 1 nos Angle(GI) required = (1*4.5*0.388)	KG	6.9840
1725	Down Pipe Base Support Angle(GI), 4.5Kg./mtr., each Angle(GI) length 0.34mtr., 1 nos Angle(GI) required = (1*4.5*0.340)	KG	6.1200
1726	Isolator Support Side Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.5 mtr., 2 no's Channel(GI) required =(2x9.56x0.5)	KG	38.2400
1727	Danger Plate, 2 no's.	EA	8.0000
1728	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	2.4072
1729	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	8.0000
1730	H.T. Stay set (Complete)	SET	8.0000
1731	H.T. Stay Insulator Type-C (2 No's.)	EA	16.0000
1732	7/8 SWG Stay Wire 15kg /stay	KG	120.0000
1733	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	8.0000
1734	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	226.5600
1735	GI barbed wire anticlimbing device 3 Kg. Per support	KG	24.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1736	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	9.6288
1737	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12.0000
1738	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	EA	4.0000
1739	33KV pin insulator polymer	EA	12.0000
1740	H W fitting(B&S) 90KN,4 Bolt	EA	24.0000
1741	Disc insulator (B&S) 90 KN polymer	EA	24.0000
1742	Wedge connector for 100 sq.mm AAA conductor	EA	24.0000
1743	Paddle clamp for wedge connector of 100 sq.mm AAA conductor	EA	24.0000
1744	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	KG	88.6000
1745	POLYCARBONATE BIRD GUARD	EA	36.0000
1746	Black Paint(GIS Numbering & Zebra Stripping)	L	4.0000
1747	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000
1748	33 kv Cut Point with 90 Deg Cut Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	2.0000
1749	Straight Cross Arm Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 1.7 Mtr., 4 No's of Channel(GI) = (4x 9.56x1.7)	KG	130.0160
1750	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	21.1456
1751	Straight Cross Arm Top Channel(GI) 100 x 50 x 6 mm, 9.56 KG/mtr, each Channel(GI) length 0.306 Mtr., 4 No's of Channel(GI) = (4x 9.56x0.306)	KG	23.4029
1752	Danger Plate, 1 no's.	EA	2.0000
1753	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.6018
1754	GI barbed wire anticlimbing device 3 Kg. Per support	KG	6.0000
1755	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	2.4072
1756	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	EA	8.0000
1757	H W fitting(B&S)90KN,4 Bolt	EA	12.0000
1758	Disc insulator (B&S)90 KN polymer	EA	12.0000
1759	Earthing of Support (Coil Type)	EA	2.0000
1760	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	0.5240
1761	Wedge connector for 100 sq.mm AAA conductor	EA	12.0000
1762	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
1763	H.T. Stay set (Complete)	SET	2.0000
1764	H.T. Stay Insulator Type-C (2 No's.)	EA	2.0000
1765	7/8 SWG Stay Wire 15kg /stay	KG	30.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1766	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	KG	22.6200
1767	POLYCARBONATE BIRD GUARD	EA	20.0000
1768	Black Paint(GIS Numbering & Zebra Stripping)	L	2.0000
1769	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
1770	33 kv Pin Point (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 395.72 Kg + 10.74 Kg = 406.46 Kg)	EA	3.0000
1771	33 KV V cross Arm (GI) 22Kg each	EA	3.0000
1772	Top bracket 100x50x6mm GI Channel(GI) (2kg each)	EA	3.0000
1773	Danger Plate, 1 no's.	EA	3.0000
1774	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.9027
1775	GI barbed wire anticlimbing device 3 Kg. Per support	KG	9.0000
1776	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	3.6108
1777	33KV pin insulator polymer	EA	9.0000
1778	Earthing of Support (Coil Type)	EA	3.0000
1779	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	0.7860
1780	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	4.3500
1781	100 sq.mm AAA conductor	M	679.8000
1782	POLYCARBONATE BIRD GUARD	EA	9.0000
1783	Black Paint(GIS Numbering & Zebra Stripping)	L	3.0000
1784	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	6.0000
1785	Civil and Services Works (100 Sq MM AAAC) :- Fixing of complete 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.Note:- Excavation of earth will be done of size 500X500X1500 mm.	EA	10.0000
1786	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX2200mm) = 0.55Cu.mtr(Per Pole)	M3	7.1500
1787	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	1.4625
1788	Provide necessary civil material for construction of Earthing chamber, excavation & installation of incuding earthingpipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be	EA	8.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

	executed as per TPCODL drawing & design		
1789	33kV 3C, 400sqmm UG Cable :- Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA-20kA)	Mtr	280.0000
1790	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	EA	8.0000
1791	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	EA	8.0000
1792	Installation, Laying, Commissioning & Testing of 33kV, 3Core, 400sqmm, XLPE U/G cable by HDD method with HDPE pipe (200mm dia, PN8 PE80) including supply of HDPE Pipe.	M	280.0000
1793	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	64.0000
1794	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	5.0000
1795	25 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	8.0000
1796	9 Mtr. long 300 Kg. PSC Pole	EA	4.0000
1797	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	8.0000
1798	EYE hook for XLPE Aerial bunched Cable	EA	8.0000
1799	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	8.0000
1800	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	85.6800
1801	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr., 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	229.4400
1802	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	15.8592
1803	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	171.3600
1804	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	171.3600
1805	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	26.7680
1806	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	22.8480
1807	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	171.3600

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1808	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	46.2672
1809	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	46.1520
1810	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	229.4400
1811	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	39.3872
1812	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	108.0000
1813	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	20.8800
1814	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	36.0000
1815	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	619.2640
1816	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	200.0000
1817	4 Cx 35 mm ² LT XLPE Cable(Armoured) - FOR 25 KVA Trf.	M	60.0000
1818	4 Cx 35 mm ² LT XLPE Cable(Armoured) - From LTDB to PSC Pole	M	160.0000
1819	AB Switch(11KV,200A.3pole,50Hz)	SET	4.0000
1820	H.G.Fuse(11KV.200A.3Pole)	SET	4.0000
1821	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	24.0000
1822	POLYCARBONATE BIRD GUARD	EA	24.0000
1823	Disc insulator (B&S)70 KN polymer	EA	12.0000
1824	H W fitting (B&S)70KN(3bolted)	EA	12.0000
1825	Lightning Arrester(12KV,10KA) Station Class 2	EA	12.0000
1826	11KV pin insulator polymer	EA	12.0000
1827	HT stay set complete	SET	8.0000
1828	HT stay Clamp (1.9Kg/pair)	EA	8.0000
1829	HT stay insulator TYPE-C	EA	8.0000
1830	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	120.0000
1831	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	28.0000
1832	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	100.0000
1833	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	24.0000
1834	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	9.6288
1835	Danger plate 11kv	EA	8.0000
1836	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	2.4072
1837	Name plate	EA	4.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1838	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000
1839	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	4.0000
1840	Civil and Services Works for 25 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	3.6000
1841	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.9040
1842	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	6.0000
1843	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	8.0000
1844	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	28.0000
1845	Laying of 4 Cx 35 mm ² LT XLPE Cable	M	220.0000
1846	SITC and Erection of GI Fencing with Gate	RM	64.0000
1847	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.5000
1848	Supply of AL Lugs suitable for 35 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	96.0000
1849	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 16-35sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	12.0000
1850	63 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	10.0000
1851	9 Mtr. long 300 Kg. PSC Pole	EA	5.0000
1852	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	10.0000
1853	EYE hook for XLPE Aerial bunched Cable	EA	10.0000
1854	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	10.0000
1855	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	107.1000
1856	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	286.8000
1857	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	19.8240

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1858	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	214.2000
1859	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	214.2000
1860	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	33.4600
1861	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	28.5600
1862	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	214.2000
1863	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	57.8340
1864	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	57.6900
1865	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	286.8000
1866	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	49.2340
1867	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	135.0000
1868	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	26.1000
1869	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	45.0000
1870	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	774.0800
1871	55mm2 ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	250.0000
1872	4 Cx 95 mm2 LT XLPE Cable(Armoured) - FOR 63 KVA Trf.	M	75.0000
1873	4 Cx 95 mm2 LT XLPE Cable(Armoured) - From LTDB to Pole	M	200.0000
1874	AB Switch(11KV,200A.3pole,50Hz)	SET	5.0000
1875	H.G.Fuse(11KV.200A.3Pole)	SET	5.0000
1876	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	30.0000
1877	POLYCARBONATE BIRD GUARD	EA	30.0000
1878	Disc insulator (B&S)70 KN polymer	EA	15.0000
1879	H W fitting (B&S)70KN(3bolted)	EA	15.0000
1880	Lightning Arrester(12KV,10KA) Station Class 2	EA	15.0000
1881	11KV pin insulator polymer	EA	15.0000
1882	HT stay set complete	SET	10.0000
1883	HT stay Clamp (1.9Kg/pair)	EA	10.0000
1884	HT stay insulator TYPE-C	EA	10.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1885	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	150.0000
1886	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	35.0000
1887	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	125.0000
1888	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	30.0000
1889	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	12.0360
1890	Danger plate 11kv	EA	10.0000
1891	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	3.0090
1892	Name plate	EA	5.0000
1893	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	10.0000
1894	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	5.0000
1895	Civil and Services Works for 63 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	4.5000
1896	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	1.1300
1897	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	7.5000
1898	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	10.0000
1899	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	35.0000
1900	Laying of 4 Cx 95 mm ² LT XLPE Cable	M	275.0000
1901	SITC and Erection of GI Fencing with Gate	RM	80.0000
1902	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.8750
1903	Supply of AL Lugs suitable for 95 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	120.0000
1904	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 50-95sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	15.0000
1905	100 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1906	9 Mtr. long 300 Kg. PSC Pole	EA	1.0000
1907	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	2.0000
1908	EYE hook for XLPE Aerial bunched Cable	EA	2.0000
1909	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	2.0000
1910	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	21.4200
1911	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
1912	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
1913	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
1914	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
1915	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	6.6920
1916	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	5.7120
1917	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
1918	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	11.5668
1919	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	11.5380
1920	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
1921	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	9.8468
1922	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	27.0000
1923	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	5.2200
1924	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	9.0000
1925	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	154.8160
1926	LT Distribution Box with MCCB, Aluminium Busbar of 2 Bay with kit kat fuse for 100 KVA S/S	EA	1.0000
1927	55mm2 ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	50.0000
1928	4 Cx 150 mm2 LT XLPE Cable(Armoured) - FOR 100 KVA Trf.	M	15.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1929	1.1kV, 4Core, 150 sqmm, XLPE insulation armoured - Aluminium UG cable from LTDB to Pole	M	40.0000
1930	AB Switch(11KV,200A.3pole,50Hz)	SET	1.0000
1931	H.G.Fuse(11KV.200A.3Pole)	SET	1.0000
1932	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	6.0000
1933	POLYCARBONATE BIRD GUARD	EA	6.0000
1934	Disc insulator (B&S)70 KN polymer	EA	3.0000
1935	H W fitting (B&S)70KN(3bolted)	EA	3.0000
1936	Lightning Arrester(12KV,10KA) Station Class 2	EA	3.0000
1937	11KV pin insulator polymer	EA	3.0000
1938	HT stay set complete	SET	2.0000
1939	HT stay Clamp (1.9Kg/pair)	EA	2.0000
1940	HT stay insulator TYPE-C	EA	2.0000
1941	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	30.0000
1942	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	7.0000
1943	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	25.0000
1944	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	6.0000
1945	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
1946	Danger plate 11kv	EA	2.0000
1947	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
1948	Name plate	EA	1.0000
1949	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
1950	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	1.0000
1951	Civil and Services Works for 100 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	0.9000
1952	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.2260
1953	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	1.5000
1954	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	2.0000
1955	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	7.0000
1956	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	55.0000
1957	SITC and Erection of GI Fencing with Gate	RM	16.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1958	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	0.3750
1959	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	24.0000
1960	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	3.0000
1961	500 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
1962	9 Mtr. long 300 Kg. PSC Pole	EA	4.0000
1963	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	8.0000
1964	EYE hook for XLPE Aerial bunched Cable	EA	8.0000
1965	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	8.0000
1966	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 6 No's.) (Each 6x1.000x7.14= 42.84 Kg)	KG	85.6800
1967	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	114.7200
1968	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
1969	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
1970	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
1971	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	13.3840
1972	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	11.4240
1973	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
1974	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	23.1336
1975	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	23.0760
1976	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	85.6800
1977	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 2 nos Angle(GI) required = (4.5x3.512x2)	KG	63.2160

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1978	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	309.6320
1979	55mm2 ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	100.0000
1980	1 Cx 400 mm2 LT XLPE Cable(Un-Armoured)	M	360.0000
1981	LT Cable Supporting Channel(GI) 100 X 50 X 6 MM GI Channel(GI) (2000 mm long)(9.56 Kg./Mtr., 2 No's.) (Each 2x2x9.56= 28.56 Kg)	KG	76.4800
1982	LT Cable Supproting Angle(GI), 50x50x6mm.GI 4.5Kg./mtr., each Angle(GI) length 2 mtr., 4 nos Angle(GI) required = (4.5x4x2)	KG	72.0000
1983	Supply of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable from LTDB to Pole	M	160.0000
1984	AB Switch(11KV,200A.3pole,50Hz)	SET	2.0000
1985	H.G.Fuse(11KV.200A.3Pole)	SET	2.0000
1986	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
1987	POLYCARBONATE BIRD GUARD	EA	12.0000
1988	Disc insulator (B&S)70 KN polymer	EA	6.0000
1989	H W fitting (B&S)70KN(3bolted)	EA	6.0000
1990	Lightning Arrester(12KV,10KA) Station Class 2	EA	6.0000
1991	11KV pin insulator polymer	EA	6.0000
1992	HT stay set complete	SET	4.0000
1993	HT stay Clamp (1.9Kg/pair)	EA	4.0000
1994	HT stay insulator TYPE-C	EA	4.0000
1995	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	60.0000
1996	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	14.0000
1997	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	50.0000
1998	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	12.0000
1999	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144
2000	Danger plate 11kv	EA	4.0000
2001	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
2002	Name plate	EA	2.0000
2003	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
2004	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	2.0000
2005	Civil and Services Works for 500 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	1.8000
2006	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.4520

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2007	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3.5X3.5X0.1)= 1.225 Cu. mtr.	M3	2.4500
2008	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	4.0000
2009	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	14.0000
2010	LTDB Plinth	EA	2.0000
2011	DTR Plinth upto 1000 KVA	EA	2.0000
2012	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	160.0000
2013	Laying of 1.1kV cable from 400 to 1000sqmm	M	360.0000
2014	SITC and Erection of GI Fencing with Gate	RM	40.0000
2015	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.5000
2016	Supply of AL Lugs suitable for 400 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	48.0000
2017	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	64.0000
2018	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 1C 300-1000 sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	24.0000
2019	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	8.0000
2020	LT Line (50 Sq MM, 70 Sq MM, 95 Sq MM) :- 9 Mtr. long 300 Kg. PSC Pole	EA	135.0000
2021	WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	34.0000
2022	LT Stay set Complete	SET	38.0000
2023	7/12 SWG GI stay wire, Grade -2	KG	456.0000
2024	LT stay Clamp (1.40Kg/pair)	EA	38.0000
2025	LT Stay insulator	EA	38.0000
2026	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	207.0000
2027	EYE hook for XLPE Aerial bunched Cable	EA	66.0000
2028	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	66.0000
2029	Suspension Clamp with EYE hook for ABC	PAA	131.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2030	4C×50 mm ² (P)+1C×50 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	630.0000
2031	4C×70 mm ² (P)+1C×70 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	3129.0000
2032	4C×95 mm ² (P)+1C×95 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	2152.5000
2033	4 WAY SERVICE Distb. Box with kit kat fuse and Aluminium bus bar.	EA	22.0000
2034	Insulated piercing connector.Type-A-main 50 to 150 sq.mm & Tap-50 to 150 sq.mm	EA	202.0000
2035	Insulated piercing connector.Type-C-main 16 to 95 sq.mm & Tap-1.5 to 16 sq.mm	EA	48.0000
2036	GI Pipe Earthing (each 5th pole to earth)	EA	34.0000
2037	Coil Earthing	EA	135.0000
2038	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	44.2000
2039	Danger plate (LT)	EA	169.0000
2040	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	50.8600
2041	GI barbed wire anticlimbing device 3 Kg. Per support	KG	507.0000
2042	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	203.4000
2043	GI Nut , Bolt & Washer of different sizes (0.5 Kg/ Pole)	KG	84.5000
2044	Black Paint(GIS Numbering & Zebra Stripping)	Ltr	169.0000
2045	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	Ltr	338.0000
2046	Civil and Services Works (LT line) :- Fixing of complete LT line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	38.0000
2047	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	15.3000
2048	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	3.8250
2049	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1550mm) = 0.375Cu.mtr(Per Pole)	Cu.mtr	50.6250
2050	Construction Earthing chamber including installation of earthing pipe making earthing chamber including excavation, soil treatment with bentonide powder, calculation of earth resistance, including, installation of 3 Mtr GI pipe 40/50 mm including welding of GI flat around pipe.	No	34.0000
2051	LT 4C,150 & 300 sqmm UG Cable :- Length of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	1700.0000
2052	Length of 1.1kV, 4Core, 300 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	700.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2053	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (110mm dia, PN8 PE80) including supply of HDPE Pipe.	Mtr	1700.0000
2054	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including supply of HDPE Pipe.	Mtr	700.0000
2055	11 KV Cut Point with 90 Degree Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
2056	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 4 no's Channel(GI) required =(4x9.56x1.2)	KG	183.5520
2057	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	42.2912
2058	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required =(4x9.56x0.306)	KG	46.8058
2059	Danger Plate, 1 no's.	EA	4.0000
2060	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	1.2036
2061	GI barbed wire anticlimbing device 3 Kg. Per support	KG	12.0000
2062	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	4.8144
2063	11 KV pin insulator polymer	EA	16.0000
2064	H W fitting(B&S) 70KN, 3Bolt	EA	24.0000
2065	Disc insulator (B&S) 70 KN polymer	EA	24.0000
2066	Earthing of Support (Coil Type)	EA	4.0000
2067	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.0480
2068	Non Metallic Ties-11 KV 100 Sq mm CVRD AAAC	EA	16.0000
2069	IPC for 100 Sq mm AAA Conductor (For covered conductor)- 11 KV	EA	24.0000
2070	Spike (GI) (Using 50x8 mm flat (GI) welded with 8 mm square bar)(2nos of spike per set in each Pole)	EA	8.0000
2071	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	8.0000
2072	H.T. Stay set (Complete)	SET	8.0000
2073	H.T. Stay Insulator Type-C	EA	8.0000
2074	7/10 SWG Stay Wire 15kg /stay	KG	120.0000
2075	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	29.7320
2076	Black Paint(GIS Numbering & Zebra Stripping)	L	2.0000
2077	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	8.0000
2078	11 KV Line (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	7.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2079	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	7.0000
2080	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	7.0000
2081	Danger Plate, 1 no's. for each pole	EA	7.0000
2082	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.1100
2083	GI barbed wire anticlimbing device 3 Kg. Per support	KG	21.0000
2084	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	8.4300
2085	11 KV pin insulator polymer, 3 Nos. required for each support	EA	21.0000
2086	Earthing of Support (Coil Type)	EA	7.0000
2087	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.8300
2088	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	10.1500
2089	100 sq.mm AAAC XLPE covered conductor-11 KV	Mtr	772.5000
2090	Black Paint(GIS Numbering & Zebra Stripping)	L	7.0000
2091	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	14.0000
2092	Non Metallic Ties-11 KV 100 Sq mm CVRD AAAC	EA	21.0000
2093	Spike (GI) (Using 50x8 mm flat (GI) welded with 8 mm square bar)(2nos of spike per set in each Pole)	EA	14.0000
2094	Civil and Services Works (11 KV Line):- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	8.0000
2095	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr(Per Pole)	M3	4.9500
2096	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	1.2375
2097	Dismantling :- Dismantling of 11/13 Mtr. Joist/WPB Pole- 150X150 mm/ 160X160 mm	EA	117.0000
2098	Dismantling of 9/8 Mtr. PCC/Joist Pole	EA	160.0000
2099	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 25KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	4.0000
2100	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 63KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	5.0000
2101	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 100KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	1.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

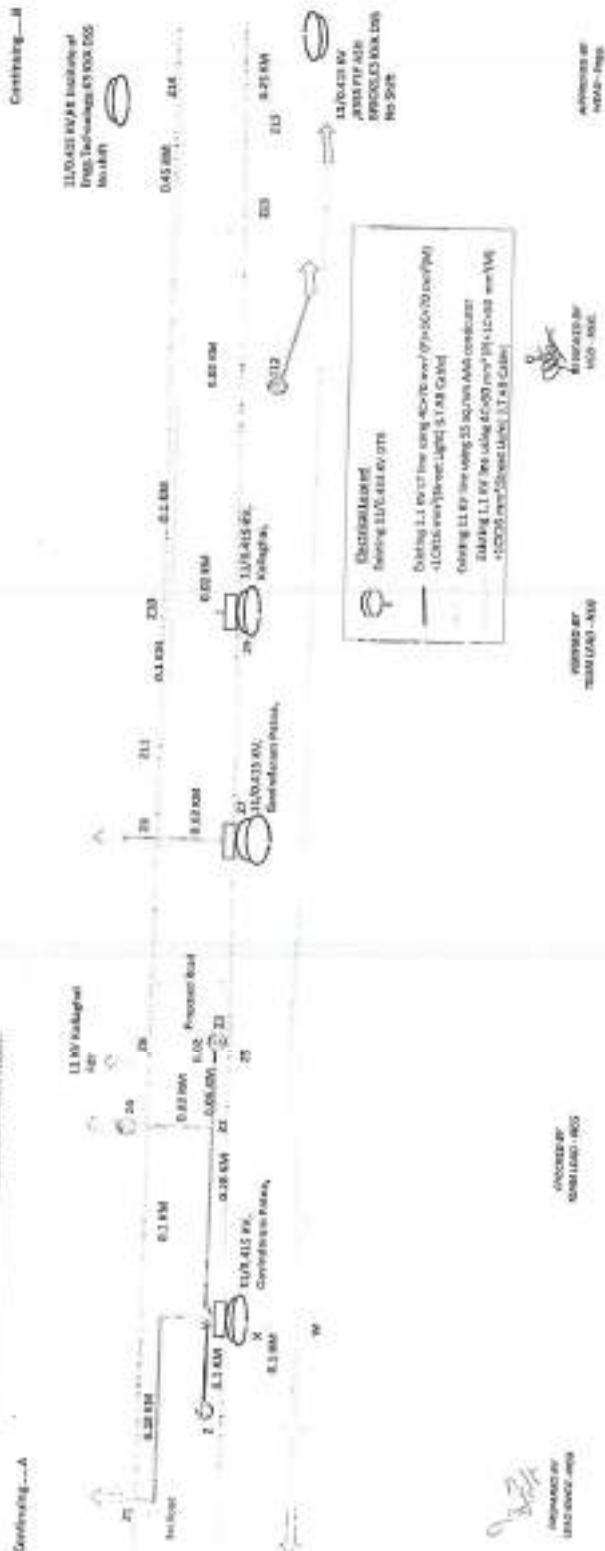
2102	Dismantling of existing 11/0.4kV, 33/0.4KV, 500kVA Three Phase Distribution Transformer including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	2.0000
2103	Dismantling of ACSR/AAAC 34/55 mm ² from overhead line	Mtr	8969.0000
2104	Dismantling of ACSR/AAAC 80/100 mm ² from overhead line	Mtr	6824.0000
2105	Dismantling of varous size of LT AB Cable	Mtr	5660.0000

Existing SLD-1 to 5 of Niali-I Section



MAIN-1 SECTION

From Sub to From Subal Chavala to Mall Police Station under High -3 District Section.



WILLY-F. SECTION

From left to right: Chhabra, Dr. Mallikarjun Marthani, and Dr. J. Electric Section.



FINAL-1 SECTION

From Solid to Free Solid: Changes to Mail Policy Station under Mail-1 Electric Section

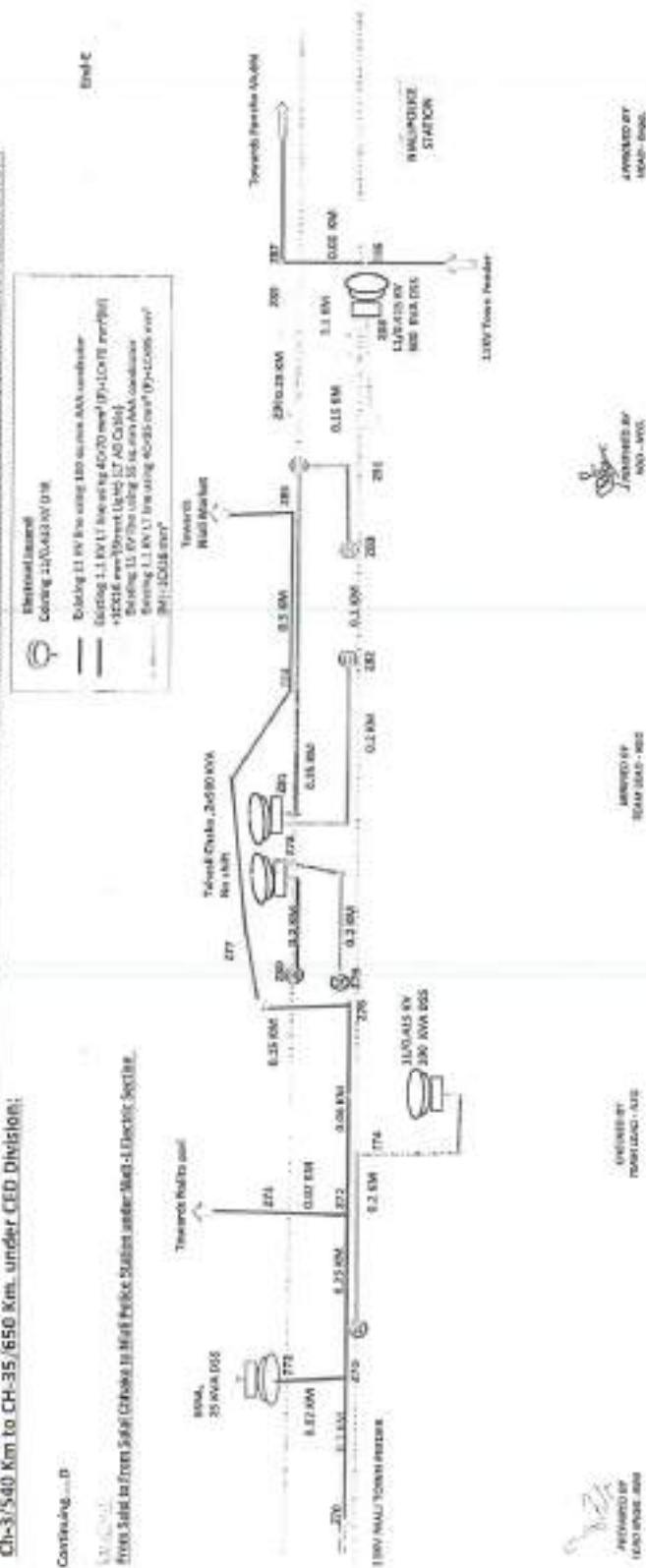


MIAMI - 1 SECTION

Continuing on...

674004

From Solid to From Soft: Change in Male Police Station and Mail-Order Section



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Journal of Internal Medicine 247: 391–397

APPENDIX

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 Date: _____
 Title: _____

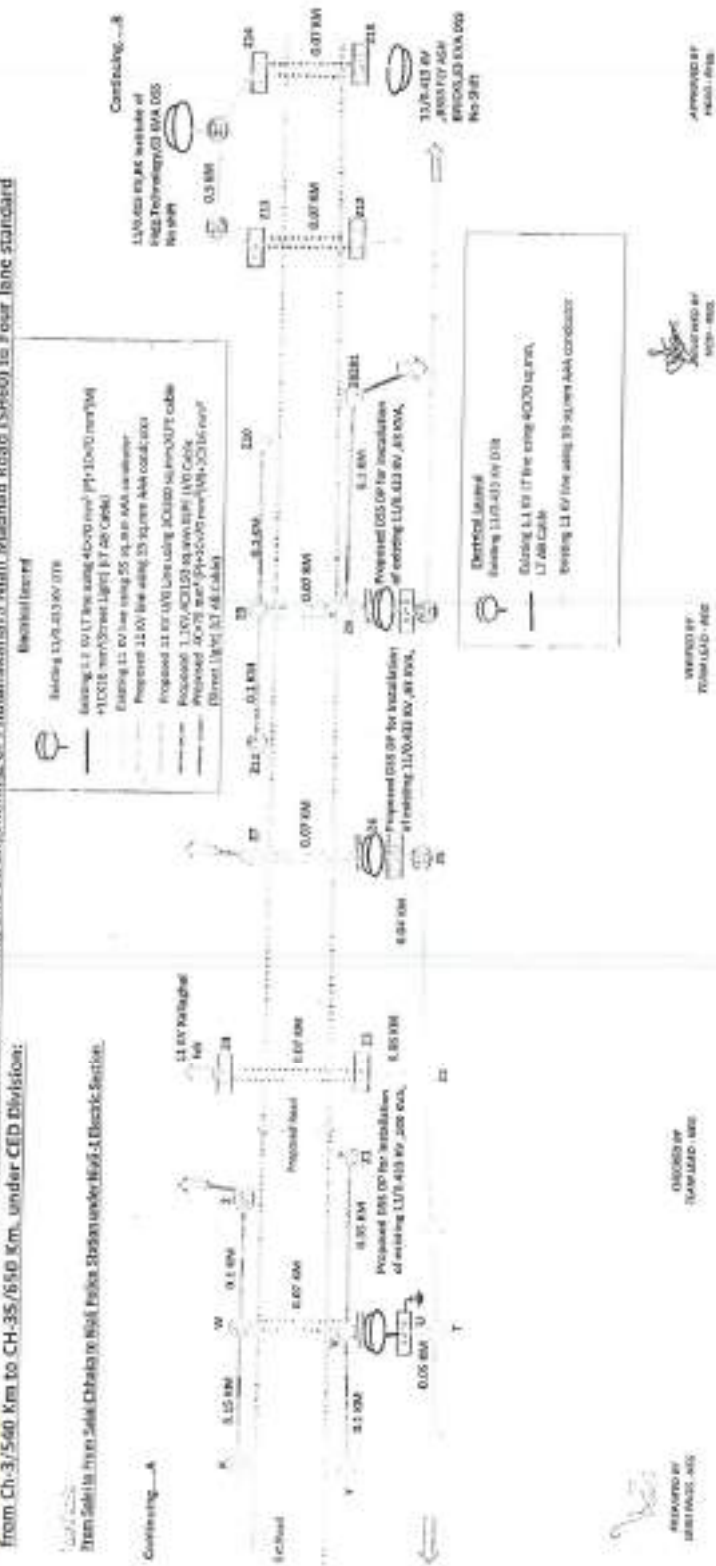
ANALYSIS

Proposed SLD-1 to 5 of Niali-I Section



WALI - 1 SECTION

From Saleh to Ayman Suleim, Chibokas in Wolf Police Station under Houthi Electric Section.

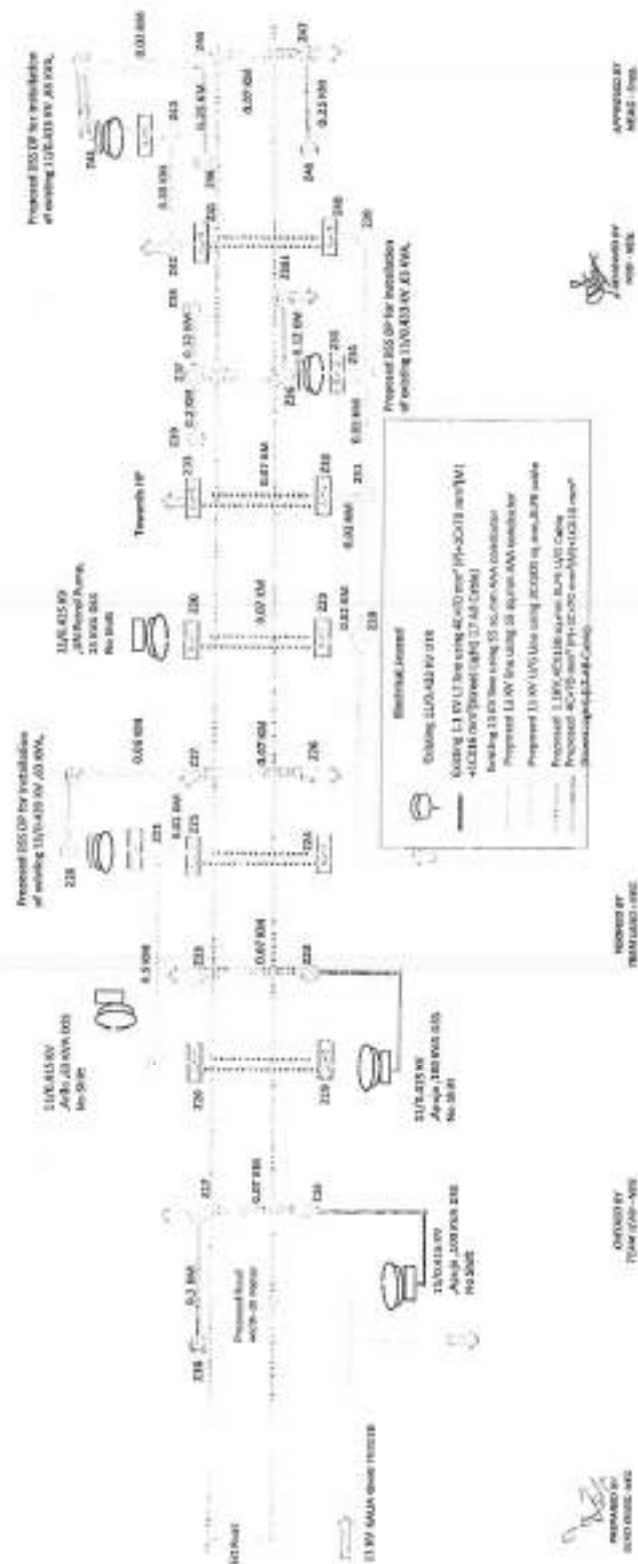


WIALI-1 SECTION

1922-23

From Solid to Free-Solids (Molten to Solid Polymers under Heat - I Electric Section).

Conclusions: C



NI4LI-1 SECTION

From Solid to Free Solid, California's Most Polite Station and the Most of Electric, Section



“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(d) Shifting of line & S/S /Electrical Infrastructure due to construction of Improvement of Phulnakhara-Niali-Madhaba Road under Niali-II Section (SLD No-1to 2).

2106	SLD No :- 1 to 2 for NIALI -II SECTION :- DP Without AB Switch (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
2107	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 2.3 mtr., 2 no's Channel(GI) required =(2x9.56x2.3)	KG	43.9760
2108	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
2109	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 1.66 Mtr., 4 no's Channel(GI) required =(7.14x1.66x4)	KG	47.4096
2110	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 2.671 mtr., 4 nos Angle(GI) required = (4.5x2.671x4)	KG	48.0780
2111	Danger Plate, 2 no's.	EA	2.0000
2112	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
2113	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	2.0000
2114	H.T. Stay set (Complete)	SET	2.0000
2115	H.T. Stay Insulator Type-C	EA	2.0000
2116	7/10 SWG Stay Wire 15kg /stay	KG	30.0000
2117	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	1.0000
2118	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	11.8000
2119	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	6.0000
2120	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
2121	11 KV pin insulator polymer	EA	3.0000
2122	H W fitting(B&S) 70KN, 3Bolt	EA	6.0000
2123	Disc insulator (B&S) 70 KN polymer	EA	6.0000
2124	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	6.0000
2125	POLYCARBONATE BIRD GUARD	EA	9.0000
2126	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	KG	12.2610
2127	Black Paint(GIS Numbering & Zebra Stripping)	L	1.0000
2128	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
2129	DP With AB Switch (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.)-DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	22.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2130	Top Channel(GI) 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 3 mtr., 2 no's Channel(GI) required =(2x9.56x3)	KG	630.9600
2131	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	43.6128
2132	AB switch Mounting Channel(GI) 75X40X4.8mm, 7.14KG/Mtr, each Channel(GI) length 3 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	471.2400
2133	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	73.6120
2134	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	62.8320
2135	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 4 no's Channel(GI) required =(7.14x3x4)	KG	942.4800
2136	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 4 nos Angle(GI) required = (4.5x3.512x4)	KG	695.3760
2137	Danger Plate, 2 no's.	EA	22.0000
2138	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	6.6198
2139	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	22.0000
2140	H.T. Stay set (Complete)	SET	22.0000
2141	H.T. Stay Insulator Type-C	EA	22.0000
2142	7/10 SWG Stay Wire 15kg /stay	KG	330.0000
2143	Gi Pipe Earthing 40mm. 3 Mtr. Long	EA	22.0000
2144	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	532.1800
2145	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	KG	66.0000
2146	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	26.4792
2147	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	33.0000
2148	AB Switch (11KV,400A.3pole,50Hz)	SET	11.0000
2149	11 KV pin insulator polymer	EA	33.0000
2150	H W fitting(B&S) 70KN, 3Bolt	EA	66.0000
2151	Disc insulator (B&S) 70 KN polymer	EA	66.0000
2152	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	66.0000
2153	Paddle clamp for wedge connector of 100 sq.mm AAA conductor	EA	66.0000
2154	POLYCARBONATE BIRD GUARD	EA	99.0000
2155	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	KG	150.8980
2156	Black Paint(GIS Numbering & Zebra Stripping)	L	11.0000
2157	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	22.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2158	11 KV Cut Point with 180 Degree Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	7.0000
2159	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 2 no's Channel(GI) required =(2x9.56x1.2)	KG	160.6080
2160	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	37.0048
2161	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 2 no's Channel(GI) required =(2x9.56x0.306)	KG	40.9550
2162	Danger Plate, 1 no's.	EA	7.0000
2163	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	2.1063
2164	GI barbed wire anticlimbing device 3 Kg. Per support	KG	21.0000
2165	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	8.4252
2166	11 KV pin insulator polymer	EA	21.0000
2167	H W fitting(B&S) 70KN, 3Bolt	EA	42.0000
2168	Disc insulator (B&S) 70 KN polymer	EA	42.0000
2169	Earthing of Support (Coil Type)	EA	7.0000
2170	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	1.8340
2171	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	42.0000
2172	POLYCARBONATE BIRD GUARD	EA	63.0000
2173	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	KG	24.8500
2174	Black Paint(GIS Numbering & Zebra Stripping)	L	3.5000
2175	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	14.0000
2176	11 KV Cut Point with 90 Degree Angle (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	13.0000
2177	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 1.2 mtr., 4 no's Channel(GI) required =(4x9.56x1.2)	KG	596.5440
2178	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	KG	137.4464
2179	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each Channel(GI) length 0.306 mtr., 4 no's Channel(GI) required =(4x9.56x0.306)	KG	152.1187
2180	Danger Plate, 1 no's.	EA	13.0000
2181	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	3.9117
2182	GI barbed wire anticlimbing device 3 Kg. Per support	KG	39.0000
2183	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's =	KG	15.6468

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

	(4x0.59x0.510)		
2184	11 KV pin insulator polymer	EA	52.0000
2185	H W fitting(B&S) 70KN, 3Bolt	EA	78.0000
2186	Disc insulator (B&S) 70 KN polymer	EA	78.0000
2187	Earthing of Support (Coil Type)	EA	13.0000
2188	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	3.4060
2189	WEDGE CONNECTOR FOR 100 SQMM.CONDUCTOR	EA	78.0000
2190	POLYCARBONATE BIRD GUARD	EA	130.0000
2191	H.T. Stay clamp, 50x8 mm. Flat(GI), 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	EA	26.0000
2192	H.T. Stay set (Complete)	SET	26.0000
2193	H.T. Stay Insulator Type-C	EA	26.0000
2194	7/10 SWG Stay Wire 15kg /stay	KG	390.0000
2195	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	KG	96.6290
2196	Black Paint(GIS Numbering & Zebra Stripping)	L	6.5000
2197	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	26.0000
2198	11 KV Line (100 Sq MM AAAC) :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	81.0000
2199	11 KV V cross Arm(GI) (10.2 K.g. each)	EA	81.0000
2200	Top bracket 100x50X6 mm GI Channel(GI) (2kg each)	EA	81.0000
2201	Danger Plate, 1 no's. for each pole	EA	81.0000
2202	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	24.3729
2203	GI barbed wire anticlimbing device 3 Kg. Per support	KG	243.0000
2204	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.4916
2205	11 KV pin insulator polymer, 3 Nos. required for each support	EA	243.0000
2206	Earthing of Support (Coil Type)	EA	81.0000
2207	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	21.2220
2208	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	KG	117.4500
2209	100 sq.mm AAA conductor	KM	13.9668
2210	Black Paint(GIS Numbering & Zebra Stripping)	L	81.0000
2211	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	162.0000
2212	POLYCARBONATE BIRD GUARD	EA	243.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2213	Civil and Services Works (100 Sq MM AAAC) :- Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excavation including excavation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	EA	50.0000
2214	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.45Cu.mtr(Per Pole)	M3	56.2500
2215	Couping ratio 1:1.5:3(M-20 Grade) with dimension (500X500X450)= 0.1125 Cu mtr(Per Pole)	M3	14.0625
2216	Provide necessary civil material for construction of Earthing chamber, excavation & installation of including earthing pipe dia up to 100mm dia for length of 3Mtr.Scope also includes necessary nutbolt, 25 Kg Bentonide Power , connection & welding with incoming earth Flat(GI). The work to be executed as per TPCODL drawing & design	EA	23.0000
2217	11 KV 3C, 400sqmm UG Cable :- Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	Mtr	840.0000
2218	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, HT UG Cable kits	EA	24.0000
2219	Erection of Straight through jointing Kits/Outdoor termination kits/Indoor termination Kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits	EA	24.0000
2220	Installation, Laying, Commissioning & Testing of 11kV, 3Core, 400sqmm, XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	M	840.0000
2221	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	M	192.0000
2222	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	EA	14.0000
2223	25 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
2224	9 Mtr. long 300 Kg. PSC Pole	EA	1.0000
2225	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	2.0000
2226	EYE hook for XLPE Aerial bunched Cable	EA	2.0000
2227	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	2.0000
2228	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	21.4200
2229	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
2230	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
2231	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2232	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
2233	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	6.6920
2234	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel (GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	5.7120
2235	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
2236	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	11.5668
2237	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	11.5380
2238	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
2239	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	9.8468
2240	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	27.0000
2241	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	5.2200
2242	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	9.0000
2243	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	154.8160
2244	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	50.0000
2245	4 Cx 35 mm ² LT XLPE Cable(Armoured) - FOR 25 KVA Trf.	M	15.0000
2246	4 Cx 35 mm ² LT XLPE Cable(Armoured) - From LTDB to PSC Pole	M	40.0000
2247	AB Switch(11KV,200A.3pole,50Hz)	SET	1.0000
2248	H.G.Fuse(11KV.200A.3Pole)	SET	1.0000
2249	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	6.0000
2250	POLYCARBONATE BIRD GUARD	EA	6.0000
2251	Disc insulator (B&S)70 KN polymer	EA	3.0000
2252	H W fitting (B&S)70KN(3bolted)	EA	3.0000
2253	Lightning Arrester(12KV,10KA) Station Class 2	EA	3.0000
2254	11KV pin insulator polymer	EA	3.0000
2255	HT stay set complete	SET	2.0000
2256	HT stay Clamp (1.9Kg/pair)	EA	2.0000
2257	HT stay insulator TYPE-C	EA	2.0000
2258	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	30.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2259	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	7.0000
2260	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	25.0000
2261	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	6.0000
2262	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
2263	Danger plate 11kv	EA	2.0000
2264	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
2265	Name plate	EA	1.0000
2266	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
2267	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	1.0000
2268	Civil and Services Works for 25 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	0.9000
2269	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.2260
2270	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	1.5000
2271	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	2.0000
2272	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	7.0000
2273	Laying of 4 Cx 35 mm ² LT XLPE Cable	M	55.0000
2274	SITC and Erection of GI Fencing with Gate	RM	16.0000
2275	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	0.3750
2276	Supply of AL Lugs suitable for 35 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	24.0000
2277	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 16-35sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	3.0000
2278	63 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
2279	9 Mtr. long 300 Kg. PSC Pole	EA	2.0000
2280	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	4.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2281	EYE hook for XLPE Aerial bunched Cable	EA	4.0000
2282	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	4.0000
2283	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	42.8400
2284	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	114.7200
2285	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
2286	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
2287	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
2288	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	13.3840
2289	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	11.4240
2290	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
2291	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	23.1336
2292	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	23.0760
2293	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	114.7200
2294	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	19.6936
2295	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	54.0000
2296	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	10.4400
2297	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	18.0000
2298	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	309.6320
2299	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	100.0000
2300	4 Cx 95 mm ² LT XLPE Cable(Armoured) - FOR 63 KVA Trf.	M	30.0000
2301	4 Cx 95 mm ² LT XLPE Cable(Armoured) - From LTDB to Pole	M	80.0000
2302	AB Switch(11KV,200A.3pole,50Hz)	SET	2.0000
2303	H.G.Fuse(11KV.200A.3Pole)	SET	2.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2304	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
2305	POLYCARBONATE BIRD GUARD	EA	12.0000
2306	Disc insulator (B&S)70 KN polymer	EA	6.0000
2307	H W fitting (B&S)70KN(3bolted)	EA	6.0000
2308	Lightning Arrester(12KV,10KA) Station Class 2	EA	6.0000
2309	11KV pin insulator polymer	EA	6.0000
2310	HT stay set complete	SET	4.0000
2311	HT stay Clamp (1.9Kg/pair)	EA	4.0000
2312	HT stay insulator TYPE-C	EA	4.0000
2313	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	60.0000
2314	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	14.0000
2315	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	50.0000
2316	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	12.0000
2317	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144
2318	Danger plate 11kv	EA	4.0000
2319	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
2320	Name plate	EA	2.0000
2321	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	4.0000
2322	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	2.0000
2323	Civil and Services Works for 63 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	1.8000
2324	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.4520
2325	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	3.0000
2326	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	4.0000
2327	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	14.0000
2328	Laying of 4 Cx 95 mm ² LT XLPE Cable	M	110.0000
2329	SITC and Erection of GI Fencing with Gate	RM	32.0000
2330	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	0.7500

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2331	Supply of AL Lugs suitable for 35 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	48.0000
2332	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 16-35sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	6.0000
2333	100 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	2.0000
2334	9 Mtr. long 300 Kg. PSC Pole	EA	1.0000
2335	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	2.0000
2336	EYE hook for XLPE Aerial bunched Cable	EA	2.0000
2337	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	2.0000
2338	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 3 No's.) (Each 3x1.000x7.14= 21.42 Kg)	KG	21.4200
2339	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
2340	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.9648
2341	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
2342	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
2343	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	6.6920
2344	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	5.7120
2345	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	42.8400
2346	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	11.5668
2347	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	11.5380
2348	Transformer Base GI Channel(GI) 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	57.3600
2349	Transformer Base Support GI Channel(GI) 100 X 50 X 6 MM (515 mm long) (9.56Kg./Mtr, 2 No's) (Each 2x0.515x9.56= 9.85Kg)	KG	9.8468
2350	Transformer Belting Angle(GI) 50 X 50 X 6MM GI (3000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x3.0x4.5 Kg)	KG	27.0000
2351	Transformer Belting Support Angle(GI) 50 X 50 X 6MM GI (580 mm long)(4.5Kg./Mtr,2 No's) (Each 2x0.580x4.5= Kg)	KG	5.2200

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2352	LTDB Mounting Angle(GI) 50 X 50 X 6MM GI (1000 mm long)(4.5Kg./Mtr, 2 No's) (Each 2x1x4.5 Kg)	KG	9.0000
2353	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	154.8160
2354	LT Distribution Box with MCCB, Aluminium Busbar of 2 Bay with kit kat fuse for 100 KVA S/S	EA	1.0000
2355	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	50.0000
2356	4 Cx 150 mm ² LT XLPE Cable(Armoured) - FOR 100 KVA Trf.	M	15.0000
2357	1.1kV, 4Core, 150 sqmm, XLPE insulation armoured - Aluminium UG cable from LTDB to Pole	M	40.0000
2358	AB Switch(11KV,200A.3pole,50Hz)	SET	1.0000
2359	H.G.Fuse(11KV.200A.3Pole)	SET	1.0000
2360	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	6.0000
2361	POLYCARBONATE BIRD GUARD	EA	6.0000
2362	Disc insulator (B&S)70 KN polymer	EA	3.0000
2363	H W fitting (B&S)70KN(3bolted)	EA	3.0000
2364	Lightning Arrester(12KV,10KA) Station Class 2	EA	3.0000
2365	11KV pin insulator polymer	EA	3.0000
2366	HT stay set complete	SET	2.0000
2367	HT stay Clamp (1.9Kg/pair)	EA	2.0000
2368	HT stay insulator TYPE-C	EA	2.0000
2369	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	30.0000
2370	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	7.0000
2371	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	25.0000
2372	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	6.0000
2373	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.4072
2374	Danger plate 11kv	EA	2.0000
2375	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.6018
2376	Name plate	EA	1.0000
2377	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	L	2.0000
2378	Black Colour Paint(GIS Numbering & Zebra Stripping) for numbering	L	1.0000
2379	Civil and Services Works for 100 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	0.9000
2380	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.2260
2381	PCC ratio 1:3:6(M-10 Grade) For DSS Area (5X3X0.1)= 1.5 Cu. mtr.	M3	1.5000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2382	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	2.0000
2383	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	7.0000
2384	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	55.0000
2385	SITC and Erection of GI Fencing with Gate	RM	16.0000
2386	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	0.3750
2387	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	24.0000
2388	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	3.0000
2389	250 KVA DP Mounted DSS :- WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	4.0000
2390	9 Mtr. long 300 Kg. PSC Pole	EA	4.0000
2391	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	6.0000
2392	EYE hook for XLPE Aerial bunched Cable	EA	6.0000
2393	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	6.0000
2394	LT Cable raising Channel(GI) 75x40x4.8 mm GI Channel(GI) (1000 mm long)(7.14Kg./Mtr., 6 No's.) (Each 6x1.000x7.14= 42.84 Kg)	KG	85.6800
2395	Top Channel(GI) GI 100 X 50 X 6 MM (3000 mm long) (9.56Kg./Mtr, 2 No's.) (Each 2x3.000x9.56= 57.36 Kg)	KG	114.7200
2396	Fish Plate(GI) 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	7.9296
2397	M.U Channel(GI) GI 75x40x4.8 mm (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
2398	AB Switch Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800
2399	AB Switch Side Support Channel(GI) 100X50X6mm,9.56 KG/Mtr., each Channel(GI) length 0.35 mtr., 2 no's Channel(GI) required =(9.56x2x0.35)	KG	13.3840
2400	Channel(GI) Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 0.8 Mtr., 1 no's Channel(GI) required =(7.14x0.8x1)	KG	11.4240
2401	HG/ DO Fuse Mounting Channel(GI) 75x40x4.8 mm GI Channel(GI) (3000 mm long)(7.14Kg./Mtr., 2 No's.) (Each 2x3.000x7.14= 42.84 Kg)	KG	85.6800

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2402	Cantilever Support Channel(GI) 75x40x4.8 mm GI Channel(GI) (810 mm long,2 No's.) (7.14Kg./Mtr., 2 No's.) (Each 2x0.810x7.14= 11.57 Kg)	KG	23.1336
2403	Cantilever Support Angle(GI) 50 X 50 X 6MM GI (1282 mm long) (4.5Kg./Mtr, 2 No's.) (Each 2x1.282x4.5= 11.54Kg)	KG	23.0760
2404	Double Pole Belting Channel(GI) 75X40X 4.8mm., 7.14KG/Mtr., each Channel(GI) length 3.0 Mtr., 2 no's Channel(GI) required =(7.14x3x2)	KG	85.6800
2405	50x50x6mm.GI Bracing Angle(GI), 4.5Kg./mtr., each Angle(GI) length 3.512 mtr., 2 nos Angle(GI) required = (4.5x3.512x2)	KG	63.2160
2406	50x6mm Flat(GI) for earthing, 2.36kg/mtr., (2.5x7 mtr. For mesh formation, 12 Mtr. For LA and 2.5 mtr. For raising, 11 mtr for AB switch, 2.8 mtr for HG Fuse, 5x2 mtr. for DTR Nutral, (1.3+4.5) mtr. For DTR Body, 0.500 mtr for LTDB & AB Switch operating handle, 3 mtr. for Fencing) (Each 65.6x 2.36= 154.81 Kg)	KG	309.6320
2407	55mm ² ACSR - PVC Insulated (50 Mtr. Each Dtr.)	M	100.0000
2408	1 Cx 400 mm ² LT XLPE Cable(Un-Armoured)	M	240.0000
2409	LT Cable Supporting Channel(GI) 100 X 50 X 6 MM GI Channel(GI) (2000 mm long)(9.56 Kg./Mtr., 2 No's.) (Each 2x2x9.56= 28.56 Kg)	KG	76.4800
2410	LT Cable Supproting Angle(GI), 50x50x6mm.GI 4.5Kg./mtr., each Angle(GI) length 2 mtr., 4 nos Angle(GI) required = (4.5x4x2)	KG	72.0000
2411	Supply of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable from LTDB to Pole	M	120.0000
2412	AB Switch(11KV,200A.3pole,50Hz)	SET	2.0000
2413	H.G.Fuse(11KV.200A.3Pole)	SET	2.0000
2414	WEDGE CONNECTOR FOR 55 SQMM.CONDUCTOR	EA	12.0000
2415	POLYCARBONATE BIRD GUARD	EA	12.0000
2416	Disc insulator (B&S)70 KN polymer	EA	6.0000
2417	H W fitting (B&S)70KN(3bolted)	EA	6.0000
2418	Lightning Arrester(12KV,10KA) Station Class 2	EA	6.0000
2419	11KV pin insulator polymer	EA	6.0000
2420	HT stay set complete	SET	4.0000
2421	HT stay Clamp (1.9Kg/pair)	EA	4.0000
2422	HT stay insulator TYPE-C	EA	4.0000
2423	7/10 SWG GI stay wire, Grade -2 (15Kg./ Set)	KG	60.0000
2424	40 mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr .Long	EA	14.0000
2425	GI Nuts & Bolts of Assorted size (25 Kg/ DSS DP)	KG	50.0000
2426	GI Barbed wire/Anticlimbing device (3Kg /Pole)	KG	12.0000
2427	Back Clamp for anticlimbing device 25X3 mm. Flat (GI), 0.59Kg/Mtr. Flat (GI) of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	4.8144
2428	Danger plate 11kv	EA	4.0000
2429	Back Clamp for danger Plate 25X3 mm. Flat (GI), 0.59Kg/Mtr. Flat (GI) of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	1.2036
2430	Name plate	EA	2.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2431	Yellow Colour Paint (GIS Numbering & Zebra Stripping) for Background	L	4.0000
2432	Black Colour Paint (GIS Numbering & Zebra Stripping) for numbering	L	2.0000
2433	Civil and Services Works for 250 KVA DP Mounted DSS :- Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450 Cu.mtr (Per Pole) (For WPB Pole)	M3	1.8000
2434	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	0.4520
2435	PCC ratio 1:3:6(M-10 Grade) For DSS Area (3.5X2.5X0.1)= 0.875 Cu. mtr.	M3	1.7500
2436	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6(M-10 Grade) size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	EA	4.0000
2437	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of Flat(GI) around pipe .	EA	14.0000
2438	LTDB Plinth	EA	2.0000
2439	DTR Plinth	EA	2.0000
2440	Laying of 4 Cx 150 mm ² LT XLPE Cable	M	120.0000
2441	Laying of 1.1kV cable from 400 to 1000sqmm	M	240.0000
2442	SITC and Erection of GI Fencing with Gate	RM	36.0000
2443	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1500mm) = 0.375Cu.mtr(Per Pole) (For PSC Pole)	M3	1.5000
2444	Supply of AL Lugs suitable for 400 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	32.0000
2445	Supply of AL Lugs suitable for 150 sq mm cable/conductor, Crimping with cable and Fixing/connecting include supply and erection of PVC Tape as per voltage requirement.	EA	48.0000
2446	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 1C 300-1000 sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	16.0000
2447	Supply and erection of double Compression Flameproof Type Glanding for armored Cable 3.5/4C 120-185sqmm including making hole in Base plate and dressing of cable along with vermin proofing properly .Supply to be done as per TPCODL Spec and approved make dowells.	EA	6.0000
2448	LT Line (50 Sq MM, 70 Sq MM, 95 Sq MM) :- 9 Mtr. long 300 Kg. PSC Pole	EA	68.0000
2449	WPB (GI) Pole 160x152 (11Mtr. Long, 30.44KG/Mtr.) -DP (Total Pole Weight with Base Plate & Stiffner = 334.84 Kg + 10.74 Kg = 345.58 Kg)	EA	14.0000
2450	LT Stay set Complete	SET	36.0000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2451	7/12 SWG GI stay wire, Grade -2	KG	432.0000
2452	LT stay Clamp (1.40Kg/pair)	EA	36.0000
2453	LT Stay insulator	EA	36.0000
2454	Pole clamp for EYE hook for (XLPE Aerial bunched Cable)	EA	112.0000
2455	EYE hook for XLPE Aerial bunched Cable	EA	72.0000
2456	Dead End Clamp suitable for messenger XLPE Aerial bunched Cable	EA	72.0000
2457	Suspension Clamp with EYE hook for ABC	PAA	40.0000
2458	4C×50 mm ² (P)+1C×50 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	220.5000
2459	4C×70 mm ² (P)+1C×70 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	1512.0000
2460	4C×95 mm ² (P)+1C×95 mm ² (M)+1CX16 mm ² (Street Light) (LT AB Cable)	M	1029.0000
2461	4 WAY SERVICE Distb. Box with kit kat fuse and Aluminium bus bar.	EA	10.0000
2462	Insulated piercing connector.Type-A-main 50 to 150 sq.mm & Tap-50 to 150 sq.mm	EA	143.0000
2463	GI Pipe Earthing (each 5th pole to earth)	EA	17.0000
2464	Coil Earthing	EA	65.0000
2465	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	KG	21.5000
2466	Danger plate (LT)	EA	82.0000
2467	Back Clamp for danger Plate 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	24.6800
2468	GI barbed wire anticlimbing device 3 Kg. Per support	KG	246.0000
2469	Back Clamp for anticlimbing device 25X3 mm. Flat(GI), 0.59Kg/Mtr. Flat(GI) of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	98.6900
2470	GI Nut , Bolt & Washer of different sizes (0.5 Kg/ Pole)	KG	41.0000
2471	Black Paint(GIS Numbering & Zebra Stripping)	Ltr	82.0000
2472	Yellow Colour Paint(GIS Numbering & Zebra Stripping) for Background	Ltr	164.0000
2473	Civil and Services Works LT Line:- Fixing of complete LT line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	36.0000
2474	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1800mm) = 0.450Cu.mtr(Per Pole) (For WPB Pole)	M3	6.3000
2475	Couping ratio 1:1.5:3(M-20 Grade) (500mmX500mmX450mm) = 0.113Cu.mtr(Per Pole)	M3	1.5750
2476	Concreting ratio 1:1.5:3(M-20 Grade) (500mmX500mmX1550mm) = 0.375 Cu.mtr (Per Pole)	Cu.mtr	25.5000

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2477	Construction Earthing chamber including installation of earthing pipe making earthing chamber including excavation, soil treatment with bentonide powder, calculation of earth resistance, including, installation of 3 Mtr GI pipe 40/50 mm including welding of GI flat around pipe.	No	17.0000
2478	LT 4C,150 & 300 sqmm UG Cable :- Length of 1.1kV, 4Core, 150 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	700.0000
2479	Length of 1.1kV, 4Core, 300 sqmm, XLPE insulation armoured -Aluminium UG cable -HDD Method	Mtr	280.0000
2480	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr	700.0000
2481	Installation, Laying, Commissioning & Testing of LT XLPE U/G cable by HDD method with HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr	280.0000
2482	Supply and erection for Termination of armored cable 3.5/4C 120-185 Sq mm	EA	20.0000
2483	Supply and erection for Termination of armored cable 3.5/4C 240-300 Sq mm	EA	15.0000
2484	Dismantling:- Dismantling of 11/13 Mtr. Joist/WPB Pole- 150X150 mm/ 160X160 mm	EA	90.0000
2485	Dismantling of 9/8 Mtr. PCC/Joist Pole	EA	65.0000
2486	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 25KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	1.0000
2487	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 63KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	2.0000
2488	Dismantling of existing 11/0.4kV, 33/0.4KV, Three Phase Distribution Transformer 100KVA including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	1.0000
2489	Dismantling of existing 11/0.4kV, 33/0.4KV, 250kVA Three Phase Distribution Transformer including removal of HT/LT leads, earth connections and unloading by crane if required.	EA	2.0000
2490	Dismantling of ACSR/AAAC 80/100 mm ² from overhead line	Mtr	13284.0000
2491	Dismantling of varous size of LT AB Cable	Mtr	2399.0000

Existing SLD-1 to 2 of Niali-II Section



N/A21-11 section

CONCLUSION

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Proposed SLD-1 to 2 of Niali-II Section



Section 11-1741N



“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - C
(See Clause 2.1)
Project Facilities

1. Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

- (a) Road side furniture
- (b) Kilometer Stone
- (c) Road Studs
- (d) W-Metal Beam Crash Barrier
- (e) Bus bay
- (f) Other Misc. project facilities

Project facilities have been described in Annex –I of this Schedule C and the same to be completed on or before project completion date

2. Description of Project Facilities.

Each of the Project Facilities is described below:

The road side furniture shall include the provision of the followings:

(a) Road side furniture;

(i) Boundary pillars

Boundary pillars are to be provided as per IRC specification

(ii) Traffic Signs:

The following traffic signages are to be fixed as per specification IRC – 67.

- 90 cm high octagonal Sign
- 60 cm Equilateral Triangle
- 60 cm circular Sign
- 60 cm x 45 cm rectangular Sign
- 80 cm x 60 cm rectangular Sign
- 60cm x 50 cm chevron marking Sign

(iii) Pavement Markings.

Pavement markings shall cover road marking with hot thermoplastic paint for the entire project highway as per manual & IRC specifications.

(iv) Informatory Signs

KM stone & 5th KM Stone are to be fixed as per IRC specification

NB; -a). Signboards shall be provided as per requirement at site as per IRC- 67 and as per direction of the Engineer in Charge.

(b) Road Studs/ Raised Pavement Marker: -

Road Studs/ Raised Pavement Marker shall be provided along the total Stretch of road in both side.

N.B.: Providing and fixing of road stud 100x 100 mm, die cast in aluminum, resistant to corrosive effect of salt and grit, fitted with lenses reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm up to a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973)

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

- (c) A total length of **1308.96 mtr** of **W beam crash barrier** shall be proposed at high embankment locations as per direction of Engineer in Charge as suggested in manual recommended in schedule-D.

(d) Bus shelters and bays

Bus bays to be provided at the following locations with shelters as per attached drawing & codal provision. The bus bays and shelters should be properly illuminated and safe from any vehicle entry.

Sl no	Location	Remarks
1	16.700 Km	Both Sides
2	8.600 Km	Both Sides
3	29.500 Km	Both Sides
4	34.780 Km	Both Sides

(e) Other Misc Project facilities

Other Misc. Project facilities and safety requirement shall be fulfilled by traffic safety signages, markers, studs etc as per Manual and relevant IRC codes.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - D
(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Project Highway.

2. Design Standards

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

Manual of Specifications and Standards for Four Laning of Highways (IRC: SP: 84), referred to herein as the Manual.

The following technical specifications shall be form a part of the agreement

- i) Specifications for road and bridge works MoRTH&H 5th revision and latest addition of following IRC codes.
- ii) IRC-67, IRC-25 & IRC-8

Annex – I (Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

1.1 All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for [Four Laning of Highways IRC: SP:84)], referred to as the Manual, and MORTH Specifications for Road and Bridge Works 5th revision. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority’s Engineer.

1.2 Specification of Materials.

Steel. Steel shall be procured from primary producers meeting the BIS standard.

Cement, -Only **OPC/PSC** Cement shall be used, procured from reputed manufacturers meeting the BIS standard.

Bitumen and Emulsion, -Bitumen and emulsion shall be procured from IOCL/HPCL and shall meet the BIS standards.

2. Deviations from the Specifications and Standards

2.1 The terms “Concessionaire”, “Independent Engineer” and “Concession Agreement” used in the Manual shall be deemed to be substituted by the terms “Contractor”, “Authority’s Engineer” and “Agreement” respectively.

2.2 [Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

Deviations from the Manual

- a) To carry out improvement proposal within existing land, where adequate vertical curve length are not provided due to land constraint, adhering to all codal stipulations of traffic claiming measures and sinages, vertical profile and cross sections was customized as against recommended in Manual applicable for the project alignment.

Schedule - E

(See Clauses 2.1 and 14.2)

Maintenance Requirements

1. Maintenance Requirements

- (i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- (ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfillment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- (iii) All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[Specify all the relevant documents]

2. Repair/rectification of Defects and deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

3. Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

4. Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

time shall be determined by the Authority’s Engineer and conveyed to the Contractor and the Authority with reasons thereof.

5. Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6. Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority’s Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority’s Engineer at any time during office hours.

7. Pre-monsoon inspection/post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before [1st June] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority’s Engineer before the [10th June] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority’s Engineer a compliance report. Post monsoon inspection shall be done by the [30th September] and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority’s Engineer.

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or wilful default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex-I
(Schedule-E)

Repair/rectification of Defects and deficiencies

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

Table -1: Maintenance Criteria for Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, Approaches of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003	24-48 hours	MORT&H Specification 3004.2
	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like		2 -7 days	IRC:82- 2015
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer, etc.		3 -7 days	MORT&H Specification 3004.4
	Ravelling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82- 2015 read with IRC SP-81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100m section and width < 0.1 m at any location, restricted to 30 cm from the edge	Daily			7-15 days	IRC:82- 2015 1

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspect ion	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer: SCRM (Sideway force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer: ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
	Skid Number	60SN	50 SN	Bi-Annually			180 days	BS: 7941-1:2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82-2015
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82-2015
	Deflection/ Remaining Life			Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, Grade structure approaches of connecting roads, Slip roads, lay byes etc. as applicable)	Roughness BI	2200 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC:SP:83-2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRM (Sideway force Coefficient Routine Investigation Machine or equivalent)	IRC:SP:83-2008	180 days	IRC:SP:83-2008
		Minimum SN	Traffic Speed (Km/h)	Bi-Annually				
		36	50					
		33	65					
		32	80					
		31	95					
	31	110						
	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber/cross fall	Daily			7-15 days	MORT&H Specification 408.4
Embankment Slopes	Nil	<15% variation in prescribed side slope	Daily	7-15 days			MORT&H Specification 408.4	

211

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

Table -2: Maintenance Criteria for Rigid Pavements

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > 1m. Within 7days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > 1 m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm. hair cracks	Route and seal with epoxy. Within 7 days	Staple or Dowel Bar Retrofit. Within 15days
			2	w = 0.2 - 0.5 mm, discernible from slow-moving vehicle		
			3	w = 0.5 - 1.5 mm, discernible from fast-moving vehicle	Route, seal and stitch, if L > 1 m. Within 7 days	Full Depth Repair Dismantle and reconstruct affected Portion with norms and specifications - See Para 5.5 & 9.2 within 15 days
			4	w = 3.0 - 6.0 mm	Dowel Bar Retrofit Within 15 days	
			5	w > 6 mm. usually associated with spalling and / or slab rocking under traffic	Not Applicable, as it may be full depth	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernible from slow moving vehicle	Seal with epoxy, if L > 1m. Within 7 days	Staple or dowel bar retrofit. Within 15days
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > 1 m. Within 15 days	
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not Applicable, as it may be full depth	Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications See Para 5.6.4 Within 15 days
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > 1 m. Within 15 days	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstatement sub base, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		
5	Corner Break	w = width of crack L = length of crack	0	Nil, not discernible	No Action	
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts Within 7 days	Seal with epoxy seal with epoxy Within 7days
			2	w < 1.5 mm; L < 0.6 m, only one corner broken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	three or four corners broken		Reinstate sub-base, and reconstruct the slab as per norms and specifications within 30 days

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
6	Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m2)	0	Nil, not discernible		No Action
			1	w < 0.5 mm; L < 3 m/m2	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts. Within 15days
			2	either w > 0.5 mm or L < 3 m/m2		
			3	w > 1.5 mm and L < 3 m/m2		
			4	w > 3 mm, L < 3 m/m2 and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within 30days
			5	w > 3 mm, L > 3 m/m2 and deformation		
SURFACE DEFECTS						
7		r = area damaged surface/total surface of slab (%) h = maximum depth of damage			Short Term	Long Term
	Ravelling or Honeycomb type surface		0	Nil, not discernible	No action.	Not Applicable
			1	r < 2 %	Local repair of areas Damaged and liable to be damaged. Within 15 days	
			2	r = 2 - 10 %		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs if affecting. Within 30 days	
			4	r = 25 - 50 %		
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	r = damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	No action.	Not Applicable
			1	r < 2 %	Local repair of areas Damaged and liable to be damaged Within 7days	
			2	r = 2 - 10 %		
			3	r = 10-20%	Bonded Inlay within 15 days	
			4	r = 20 - 30 %		
			5	r > 30% and h > 25 mm	Reconstruct slab within 30 days	
9	Polished Surface/Glazing	t= texture depth, sand patch test	0		No action.	Not Applicable
			1	t > 1 mm		
			2	t = 1 - 0.6 mm	Monitor rate of	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			3	t = 0.6 - 0.3 mm	deterioration	
			4	t = 0.3 - 0.1 mm		
			5	t < 0.1 mm	Diamond Grinding if Affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	Popout (Small Hole), Pothole Refer Para 8.4	n = number/m2 d = diameter h = maximum depth	0	d < 50 mm; h < 25 mm; n < 1 per 5 m2	No action	Not Applicable
			1	d = 50 - 100 mm; h < 50 mm; n < 1 per 5 m2	Partial depth repair 65 mm deep Within 15 days	
			2	d = 50 - 100 mm; h > 50 mm; n < 1 per 5 m2		
			3	d = 100 - 300 mm; h < 100 mm n < 1 per 5 m2	Partial depth repair 110mm i.e.10 mm more than the Depth of the hole. Within 30 days	
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m2		
			5	d > 300 mm; h > 100 mm; n > 1 per 5 m2	Full depth repair Within 30 days	
JOINT DEFECTS						
11	Joint Seal Defects	loss or damage L = Length as % total joint length	0	Difficult to discern.	No action.	Not Applicable
			1	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible protection against ingress of water and trapping incompressible material	Clean, widen and reseal the joint. Within 7 days	
12	Spalling of Joints	w = width on either	0	Nil, not discernible	No action	Not Applicable

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
		side of the joint L = length of spalled portion (as % joint length)	1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion Within 7 days Partial Depth Repair. Within 15 days 30 - 50 mm deep, h = w + 20% of w, within 30 days 50 - 100 mm deep repair, h= w +20% of w, within 30 days	
			2	w = 10 - 20 mm, L < 25%		
			3	w = 20 - 40 mm, L > 25%		
			4	w = 40 - 80 mm, L > 25%		
			5	w > 80 mm, and L > 25%		
			13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0
1	f < 3 mm	Determine cause and observe, take action for diamond grinding Diamond Grinding Raise sunken slab. Strengthen Subgrade and sub-base by grouting and raising sunken slab				Replace the slab as appropriate. Within 30days
2	f = 3 - 6 mm					
3	f = 6 - 12 mm					
4	f = 12 - 18 mm					
5	f > 18 mm					
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	Short Term	Long Term
			1	h < 6 mm	No Action	
			2	h = 6 - 12 mm	Install Signs to Warn Traffic within 7 days	
			3	h = 12 - 25 mm		
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs. Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L=length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade Reinstate pavement at normal level if L < 20 m. Within 30 days	
			5	h > 100 mm		

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

16	Heave	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	Short Term	Long Term
					No action	scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
17	Bump	h = vertical displacement from normal profile	0	h < 4 mm	No action	
			1	h = 4 - 7 mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction
			3	h = 7 - 15 mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction Within 30days
			5	h > 15 mm	Full Depth Repair within 30 days	Full Depth Repair Within 30days
18	Lane to Shoulder Dropoff	f = difference of level	0	Nil, not discernible < 3mm	Short Term No action	Long Term
			1	f = 3 - 10 mm	Spot repair of shoulder within 7 days	For any 100 m Stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			2	f = 10 - 25 mm		
			3	f = 25 - 50 mm	Fill up shoulder within 7 days	
			4	f = 50 - 75 mm		
			5	f > 75 mm		
DRAINAGE						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	Inspect and repair sub-drainage at distressed sections and upstream
			3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days	
		Nos/100m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	
20	Ponding	Ponding on slabs due to blockage of drains	0 - 2	No discernible problem	No Action	
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	Action required to stop water damaging foundation within 30 days.
			5	Ponding, accumulation of water observed	-do-	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments. In case of permanent structure or design deficiency: Removal of Obstruction / improvement of deficiency at the earliest Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.	IRC:SP 84-2014	
		Design Speed, kmph	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
		100	360	180					
		80	260	130					
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect -within 2 months	IRC:35-2015
	Day time Visibility	During expected life Service Time Cement Road - 130mcd/m2/lux Bituminous Road - 100mcd/m2/lux			Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect within 2 months	IRC:35-2015
	Night Time Visibility	Initial and Minimum Performance for Dry Retro reflectivity during night time:			Bi-Annually	As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015
		Design Speed	(RL) Retro Reflectivity (mcd/m2/lux)						
			Initial (7 days)	Minimum Threshold level					

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
				(TL) & warranty period required up to 2 years					
		Up to 65	200	80					
		65 - 100	250	120					
		Above 100	350	150					
		Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity): Initial 7 days Retro reflectivity: 100 mcd/m2/lux Minimum Threshold Level: 50 mcd/m2/lux							
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc			Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35- 2015
Road Signs	Shape and Position	Shape and Position as per IRC:67-2012. Signboard should be clearly visible for the design speed of the section.			Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in	IRC:67-2012

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
						case of Gantry/ Cantilever Sign boards	
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.	Change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry / Cantilever Sign boards	IRC:67-2012
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	IRC 86:1983
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	IRC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014, IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment of Traffic Safety Barriers	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:2014, IRC:119-2015
	Guard Posts And Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with lux meter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014
Trees and Plantation Including median plantation	Obstruction in a minimum head-room of 5.5 m above Carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:84-2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Rest Areas	Cleaning of toilets		Daily			Every 4 hours	
	Defects in electrical, water and sanitary installations		Daily		Rectification	24 hours	
Other Project Facilities And Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily		Rectification	15 days	IRC:SP:84-2014
Pipe/box/slab culverts	Free waterway/ unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints.	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC:SP:40-1993	15 Days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 sq.m					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron (concrete apron) not more than 1 sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damage aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC SP 40- 1993 and IRC:SP:13-2004.
Bridges including ROBs Flyover etc. as applicable	Riding quality or User comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge –Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3 days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.
	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 month	MORTH specifications 2600 & 2700
	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m.	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999.
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap	Monthly	Detailed condition survey as per IRCSP:35-1990 using	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.
Bridge substructure	Cracks/spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.
	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990	In case of failure of even one bearing on any pier/abutment, all	3 months	MORTH specification 2810 and IRC SP: 40-199

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		locations per side, no rupture of reinforcement or rubber		using Mobile Bridge Inspection Unit	the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.		
Bridge Foundations	Scouring Around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sq.m, damage to solid apron (concrete apron) not more than 1 sq.m	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor							

Table 4: Maintenance Criteria for Structures and Culverts:

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

A. Flexible Pavement

Nature of Defect or deficiency		Tim limit for repair/rectification
ROADS		
(a)	Carriageway shoulders and paved	
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours ; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding 2,000 mm in a stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred And twenty) days
(iii)	Potholes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 hours
(b)	Granular earth shoulders, side slopes, drains and culverts	
(i)	Variation by more than 1% in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Nature of Defect or deficiency		Time limit for repair/rectification
(ii)	Edgedropatshouldersexceeding40 mm	7(seven)days
(iii)	Variationbymorethan15%inthe prescribedside(embankment)slopes	30(thirty)days
(iv)	Raincuts/gulliesinslope	7(seven)days
(v)	Damagetoorsiltingofculvertsandsi dedrains	7(seven)days
(vi)	Desiltingofdrainsinurban/semi-urbanareas	24hours
(vii)	Railing,parapets,crashbarriers	7(seven)days(Restoreimmediatelyif causingsafetyhazard)
(c)	Roadsidefurnitureincludingroa dsignandpavementmarking	
(i)	Damagetoshapeorposition,poorvi sibilityorlossofretro-reflectivity	48hours
(ii)	Paintingofkmstone,railing,parapet s,crashbarriers	As and when required/Onceevery year
(iii)	Damaged/missing signs road requiringreplacement	7(seven)days
(iv)	Damagetoroadmarkups	7(seven)days
(d)	Roadlighting	
(i)	Anymajorfailureofthesystem	24hours
(ii)	Faultsandminorfailures	8hours
(e)	Treesandplantation	
(i)	Obstruction in a minimum head- room of 5 m above carriageway orobstructioninvisibilityofroadsig ns	24hours
(ii)	Removaloffallentreescarria from geway	4hours
(iii)	Deteriorationinhealthoftreesandbu shes	Timely watering and treatment

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Nature of Defect or deficiency		Time limit for repair/rectification
(iv)	Trees and bushes requiring replacement	30(thirty)days
(v)	Removal of vegetation affecting sight line and road structures	15(fifteen)days
(f)	Rest area	
(i)	Cleaning of toilets	Every 4 hours
(ii)	Defects in electrical, water and sanitary installations	24 hours
(g)	[Toll Plaza]	
(h)	Other Project Facilities and Approach roads	
(i)	Damage in approach roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15(fifteen)days
(ii)	Damaged vehicles or debris on the road	4(four)hours
(iii)	Malfunctioning of the mobile crane	4(four)hours
Bridges		
(a)	Superstructure	
(i)	Any damage, cracks, spalling/scaling Temporary measures Permanent measures	within 48 hours within 15(fifteen)days or as specified by the Authority's Engineer
(b)	Foundations	
(i)	Scouring and/or cavitation	15(fifteen)days
(c)	Piers, abutments, return walls and wing walls	
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30(thirty)days

Nature of Defect or deficiency		Time limit for repair/rectification
(d)	Bearings (metallic) of bridges	

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(i)	Deformation,damages,tiltingorshiftingofbearings	15 (fifteen) daysGreasing of metallicbearingsonceinayear
(e)	Joints	
(i)	Malfunctioningofjoints	15(fifteen)days
(f)	Otheritems	
(i)	Deformingofpadsinelastomericbearings	7(seven)days
(ii)	Gathering of dirt in bearings andjoints; or clogging of spouts, weepholesandvent-holes	3(three)days
(iii)	Damage or deterioration in kerbs,parapets,handrailsandcrashbarriers	3(three)days (immediatelywithin24hours if posing danger to safety)
(iv)	Rain-cutsorerosionofbanksofthesideslopesofapproaches	7(seven)days
(v)	Damage towearingcoat	15(fifteen)days
(vi)	Damageordeteriorationinapproach slabs,pitching,apron,toes,floororguidebunds	30(thirty)days
(vii)	Growthofvegetationaffectingtherectureorobstructingthewaterway	15(fifteen)days
(g)	HillRoads	
(i)	Damage to retaining wall/breastwall	7(seven)days
(ii)	Landslidesrequiringclearance	12(twelve)hours
(iii)	Snowrequiringclearance	24(twentyfour)hours

The failure to address above measures for any of the defects/deficiency may attract reduction in payment as per schedule M.

Note: For all tables as above, latest BIS&IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SCHEDULE - F
(See Clause 3.1.7(a))

APPLICABLE PERMITS

1 Applicable Permits

- 1.1 The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:
- (a) Permission of the State Government for extraction of boulders from quarry;
 - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
 - (c) Licence for use of explosives;
 - (d) Permission of the State Government for drawing water from river/reservoir;
 - (e) Licence from inspector of factories or other competent Authority for setting up batching plant;
 - (f) Clearance of Pollution Control Board for setting up batching plant;
 - (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
 - (h) Permission of Village Panchayats and State Government for borrow earth; and
 - (i) Any other permits or clearances required under Applicable Laws.
- 1.2 Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.
- 1.3 The Contractor shall be solely responsible for obtaining the above permits and the Authority will not be liable for payment of compensation on any account for failure in the part of the Contractor to obtain any such permits.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SCHEDULE - G

(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause 7.1.1)

[Performance Security/Additional Performance Security]

.....]
WHEREAS:

_[Name and address of contractor] (hereinafter called the “**Contractor**”) and [name and address of the authority], (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for “**Improvement of Phulnakhara-Niali-Madhaba Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan**” on Engineering, Procurement and Construction (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement

- (A) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs. cr. (Rupees Crore) (the “**Guarantee Amount**”).
- (B) We, ... through our branch at (the “**Bank**”) have agreed to
Furnish this bank guarantee (*hereinafter called the “**Guarantee**”*) by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of **[Superintending Engineer, Cuttack (R&B) Division-II, Cuttack, Government of Odisha]**, that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect on ****\$. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this day of, 20..... at SIGNED, SEALED
AND DELIVERED For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

^SInsert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement).

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of the issuing branch should be mentioned on the covering letter of the issuing branch.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

(See Clause 7.5.3)

Form for Guarantee for Withdrawal of Retention Money

[The Superintending Engineer,

.....(R&B) Division, ...]

WHEREAS:

- (A) [name and address of contractor] (herein after called the “**Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the [Superintending Engineer, Cuttack (R&B) Division-II, Cuttack, representing Chief Engineer (Roads-I), Odisha], (hereinafter called the “**Authority**”) for the construction of the work “**Improvement of Phulnakhara-Niali-Madhaba Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan**” on Engineering, Procurement and Construction (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the “**Retention Money**”) after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.
- (C) We, ... through our branch at (the “**Bank**”) have agreed to furnish this bank guarantee (hereinafter called the “**Guarantee**”) for the amount of Rs. ----- cr. (Rs.-----crore) (the “**Guarantee Amount**”).

NOW, THEREFORE, the Bank hereby unconditionally and irrevocably guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sums specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [Superintending Engineer, Cuttack (R&B) Division-II, Cuttack] that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Retention Money and any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full power to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force _____ and effect _____ up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this day of, 20..... at

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by : (

Signature)

(Name) (Designation)

(Code

Number) (Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of the issuing branch should be mentioned on the covering letter of the issuing branch.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex – III

(Schedule - G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

[The Executive Engineer,
..... (R&B) Division,]

WHEREAS:

- A. [Name and address of contractor] (hereinafter called the “**Contractor**”) has executed an agreement (herein after called the “**Agreement**”) with the [name and address of the authority], (hereinafter called the “**Authority**”) for the “**Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan**” on Engineering, Procurement and Construction (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement.
- B. In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing advance payment @10% per Annum (herein after called “Advance Payment”) equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in four installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a Nationalised Bank, counter guaranteed by its branch at Bhubaneswar for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second/third/fourth} installment of the Advance Payment is Rs. ----- cr. (Rupees ----- crore) and the amount of this Guarantee is Rs. ---- --- cr. (**Rupees ----- crore**) (the “Guarantee Amount”) \$.
- C. We, ... through our branch at (the “**Bank**”) have agreed to furnish this bank guarantee (*hereinafter called the “**Guarantee**”*) for the Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest

^{\$} The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

- 2 A letter from the Authority, under the hand of an officer not below the rank of **[Superintending Engineer, Cuttack (R&B) Division-II, Cuttack, Government of Odisha,]**, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
- 3 In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
- 4 It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
- 5 The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
- 6 This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
- 7 Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
- 8 The Guarantee shall cease to be in force and effect on ****.\$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

discharged from its liabilities hereunder.

- 9** The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
- 10** Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
- 11** This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this day of, 20..... at

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

\$ Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement)

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SCHEDULE - H

(See Clauses 10.1.4 and 19.3)

Contract Price Weightages

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage
	C.1- Widening and Strengthening of Existing Road (2-Lane to 4-Lane)		
66.39%	1	Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	3.27 %
	2	Sub Grade	1.83%
	3	Sub Base Course(GSB)	9.78%
	4	Non Bituminous Base Course (WMM)	9.59%
	5	Bituminous Base Course (DBM +prime coat+Tack coat)	10.90%
	6	Wearing Course(BC)	11.53%
	RECONSTRUCTION/NEW INTERMEDIATE-LANE SERVICE ROAD(FILEXIBLE PAVEMENT)		
	1	Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	0.37 %
	2	Sub Grade	0.24%
	3	Sub Base Course(GSB)	1.32%
	4	Non Bituminous Base Course (WMM)	1.73%
	5	Bituminous Base Course (DBM +prime coat+Tack coat)	1.87%
	6	Wearing Course(BC)	1.12%
	WIDENING/NEW/RE CONSTRUCTION OF HUME PIPE & BOX CULVERTS		
	1	Culverts and associated Protection Works	12.57%
	2	Box Type Minor Bridge (Length > 6 m and < 60 m)	0.27%
	WIDENING AND REPAIR OF MINOR BRIDGES (Length > 6 m and < 60 m)		
4.20%	1	Foundation: On completion of the foundation work including foundations for wing and return walls.	1.98%
	2	Sub- Structure: On completion of the Sub- Structure work including Sub- Structure work for wing and return walls, abutments, piers up to the abutment/pier cap.	0.65%
	3	Super-structure: On completion of the super structure in all respect including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	1.37%

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage
	4	Approaches: On completion of approaches including retaining wall, stone pitching, Protection works complete in all respect and fit for use.	0.20%
29.41%	OTHER WORKS		
	1	Road side drain (RCC Drain)	11.27%
	2	Pavement Marking, Traffic Signs, Road Stud, Median Kerb, Paint, Road Boundary stone, km stone & 5 th km stone.	1.87%
	3	W metal crash barrier	0.26%
	PROJECT FACILITIES		
	1	Bus bays and Bus Shelter	0.52%
	2	Junctions (Major & Minor)	1.39%
	PROTECTION WORKS		
	1	Retaining Wall	2.45%
	2	Toe Wall and Stone Pitching	1.03%
	3	Turfing	0.13%
	ELECTRICAL UTILITY SHIFTING		
	1	Electrical utility shifting as mentioned in schedule-B	10.49%

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

1.3 Procedure of estimating the value of work done

1.3.1 Road works including approaches to minor bridges, Major Bridges and Structures (excluding service roads).

Procedure for estimating the value of road work done shall be as follows:

Table1.3.1

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage	Payment Procedure
	C.1- Widening and Strengthening of Existing Road (2-Lane to 4-Lane)			
66.39%	1(a)	Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	2.95 %	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500 m length, whichever is less.
	1(b)	Earthwork up to formation level in berm, in median filling, dressing of side slopes with necessary compaction as required including site clearance etc.	0.32%	
	2	Sub Grade	1.83%	
	3	Sub Base Course (GSB)	9.78%	
	4	Non-Bituminous Base Course (WMM)	9.59%	
	5	Bituminous Base Course (DBM +prime coat+Tack coat)	10.90%	
	6	Wearing Coarse (BC)	11.53%	
	C.1 - Reconstruction/ New service road (Flexible pavement)			
	1	Earthwork up to top of the sub-grade including excavation in soil, soft rock and hard rock including Cleaning & grubbing with required site clearance etc.	0.37 %	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500 m length, whichever is less.
	2	Sub Grade	0.24%	
	3	Sub Base Course (GSB)	1.32%	
	4	Non-Bituminous Base Course (WMM)	1.73%	
	5	Bituminous Base Course (DBM +prime coat+Tack coat)	1.87%	
	6	Wearing Coarse (BC)	1.12%	
	WIDENING/NEW/RE CONSTRUCTION OF HUME PIPE &			

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage	Payment Procedure
	BOX CULVERTS			
	1	Box Culvert	12.57%	Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least One culvert
	2	Box Type Minor Bridge (Length > 6 m and < 60 m)	0.27%	Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least One culvert
	Construction of Minor Bridge (Length > 6 m and < 60 m)			
4.20%	1	Foundation: On completion of the foundation work including foundations for wing and return walls.	1.98%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25 (Twenty-Five) percent of the scope of foundation of each minor bridge subject to completion of atleast two foundations of each minor bridge including load testing also where specified.
	2	Sub- Structure: On completion of the sub-structure work including sub-structure for wing and return walls, abutments, piers up to the abutment/pier cap.	0.65%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage	Payment Procedure
				not less than 25 (Twenty-Five) percent of the scope of sub- structure of each minor bridge subject to completion of atleast two nos sub-structure work upto abutment/pier cap level of each minor bridge.
	3	Super-structure: On completion of the super structure in all respect including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	1.37%	Payment shall be made on pro rata basis on completion of stage that is completion of superstructure of each minor bridge.
	4	Approaches: On completion of approaches including retaining wall, stone pitching, Protection works complete in all respect and fit for use.	0.20%	Payment shall be made on pro rata basis on completion of stage that is completion of Approaches of each minor bridge.

1.3.2 OTHER WORKS

Procedure for estimating the value of other works done shall be as stated in table:

Table 1.3.2

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage	Payment Procedure
	OTHER WORKS			
	1	Road side drain (RCC Drain)	11.27%	Unit of measurement is linear length in meter. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage	Payment Procedure
29.41%	2	Pavement Marking, Traffic Signs, Road Stud, Median Kerb, Paint, Road Boundary stone, km stone & 5 th km stone.	1.87%	Payment shall be made on pro rata basis for completed facilities.
	3	Junctions (Major & Minor)	0.26%	Cost of each junction shall be determined on pro rata basis to the total no of Junctions.Payment shall be made on the completion of atleast one Junction.
	4	Retaining Wall	2.45%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10 % (ten per cent) of the total length
	5	Turfing	0.13%	Payment shall be made on pro rata basis for completed facilities.
	6	Toe Wall and Stone Pitching	1.03%	Unit measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10 % (ten per cent) of the total length
	7	Bus bays and Bus Shelter	0.52%	Unit of measurement is each number. Payment shall be made on pro rata basis for completed facilities.
	8	W metal crash barrier	0.26%	Payment shall be made on completion of the facilities in all respect.
	9	Electrical utility shifting as mentioned in schedule-B	10.49%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro-rata basis as per its weightage with reference to total cost of LT/HT line. Payment shall be made for completed activity. (The average weightage of major activities (only for

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Weightage in percentage to the contract price	Stage for Payment		Percentage weightage	Payment Procedure
				payment purpose) in shifting work is (i) Erection of Poles-20% (ii) Conductor stringing including laying of cable-30%, (iii) DTR erection (if involved)-10% and (iv)Charging of line including dismantling and site clearance-40% (with DTR) and 50%without DTR)

@ For example, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

$$\text{Cost per km} = P \times \text{weightage for bituminous work} \times (1/L)$$

Where,

P = Contract Price

L = Total length in km

Similarly, the rates per km for other stages shall be worked out accordingly.

Note: The length affected due to law-and-order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract Agreement.

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

SCHEDULE - I
(See Clause 10.2.4)
DRAWINGS

1. Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2. Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex – I

(Schedule - I)

List of Drawings

[**Note:** The Authority shall describe in this Annex-I, all the Drawings that the Contractor is required to furnish under Clause 10.2.]

A minimum list of the drawings of the various components/elements of the Project Highway and Project facilities required to be submitted by the Concessionaire is given below:

1. Plan & Profile of the Project highway.
2. Longitudinal Section and Cross section of the project highway.
3. Index map.
4. Drawings for Toe Wall & Retaining wall.
5. Detail drawings for RCC Box culvert as per site condition.
6. GAD of Major and Minor Bridges
7. Typical Cross section of road.
8. Other drawings relevant to the Project works.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SCHEDULE - J

(See Clause 10.3.2)

PROJECT COMPLETION SCHEDULE

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the **Scheduled Completion Date**. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

- (i) Project Milestone-I shall occur on the date falling on **the 220th day** from the Appointed Date (the “**Project Mile stone-I**”).
- (ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than **10% (ten per cent)** of the Contract Price.

3. Project Milestone-II

- (i) Project Milestone-II shall occur on the date falling on the **440th day** from the Appointed Date (the “**Project Milestone-II**”).
- (ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than **30% (thirty per cent)** of the Contract Price.

4. Project Milestone-III

- (i) Project Milestone-III shall occur on the date falling on the **620th day** from the Appointed Date (the “**Project Milestone-III**”).
- (ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than **60% (sixty per cent)** of the Contract Price and **should have started construction of all project facilities.**

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

5. Scheduled CompletionDate

- (i) The Scheduled Completion Date shall occur on the [Scheduled Construction Period] 730 days from the Appointed Date.**
- (ii)** On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - K

(See Clause 12.1.2)

Tests on Completion

1. Schedule for Tests

- 1.1. The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority’s Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority’s Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- 1.2. The Contractor shall notify the Authority’s Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority’s Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority’s Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2. Tests

- 2.1. Visual and physical test: The Authority’s Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include **[to be decided with Authority’s Engineer at the time of physical test as per relevant IRC/Code Manual]**.
- 2.2. Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometre.
- 2.3. Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority’s Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing at least for Two spans.
- 2.4. Other tests: The Authority’s Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards.
- 2.5. Environmental audit: The Authority’s Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and ApplicablePermits.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

2.6. Safety Audit: The Authority’s Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice

3. Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the Construction agency or such other agency or person as it may specify in consultation with the Authority/Authority’s Engineer.

4. Completion Certificate

Upon successful completion of Tests, the Authority’s Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - L

(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

I, ... (Name of the Authority’s Engineer), acting as the Authority’s Engineer, under and in accordance with the Agreement dated (the “Agreement”), for construction of the work “**Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan**” on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

1. Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid Punch List.
2. In view of the foregoing, I am satisfied that the Project Highway from km ** to km ** can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the day of 20.....

ACCEPTED, SIGNED, SEALED
AND
AND DELIVERED

SIGNED, SEALED

DELIVERED

For and on behalf of

For and on behalf of

CONTRACTOR by:
by:

AUTHORITY’S ENGINEER

(Signature)
(Name and Designation)
(Address)

(Signature)
(Name and Designation)
(Address)

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

COMPLETION CERTIFICATE

- 1 I, ... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated(the "Agreement"), for **"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan"** Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the day of 20....,

SIGNED, SEALED
AND DELIVERED

For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - M

(See Clauses 14.6, 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

1. Payment reduction for non Compliance with the Maintenance Requirements

- (i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- (ii) Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
- (iii) The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2.

2. Percentage reductions in lumpsum payments

- (i) The following percentages shall govern the payment reduction:

S.No.	Item/Defect/Deficiency	Percentage
(a)	Carriageway/Pavement	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	Road, Embankment, Cuttings, Shoulders	
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	Bridges and Culverts	
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

S.No.	Item/Defect/Deficiency	Percentage
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 th kmstones	5%
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	Defects in Other Project Facilities, non provision of vehicle rescue post.	5%

- (ii) The amount to be deducted from monthly lump-sum payment for non- compliance of particular item shall be calculated asunder:

$$R = P/100 \times M \times L1/L$$

Where P = Percentage of particular item/Defect/deficiency for deduction

M = Monthly lump-sum payment in accordance with the Bid

L1= Non-complying length

L = Total length of the road,

R= Reduction (the amount to be deducted for non-compliance for a particular item/Defect/deficiency

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non-compliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken as one kilometer.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule - N

(See Clause 18.1.1)

Selection of Authority’s Engineer

1. Selection of Authority’s Engineer

- (i) The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by **the Works Department, Govt. of Odisha**, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority’s Engineer.
- (ii) In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2. Terms of Reference

The Terms of Reference for the Authority’s Engineer (the “**TOR**”) shall substantially conform with Annex 1 to this Schedule N.

3. Appointment of Government entity as Authority’s Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority’s Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority’s Engineer.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Annex – I
(Schedule -N)

Terms of Reference for Authority’s Engineer

1. Scope

1.1 These Terms of Reference (the “**TOR**”) for the Authority’s Engineer are being specified pursuant to the EPC Agreement dated (the “**Agreement**”), which has been entered into between the [name and address of the Authority] (the “**Authority**”) and (the “**Contractor**”) for “**Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan**” in the State of Odisha on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

1.2 The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

2.1 The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

2.3 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

3.1 The Authority’s Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

3.2 The Authority’s Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:

- (a) any Time Extension;
- (b) any additional cost to be paid by the Authority to the Contractor;
- (c) the Termination Payment; or
- (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. fifty lakh).

3.3 The Authority’s Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority’s Engineer within 10 (ten) days of the beginning of every month.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

3.4 The Authority’s Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority’s prior approval in accordance with the provisions of Clause 18.2.

3.5 The Authority’s Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

3.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority’s Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4. Construction Period

a. During the Construction Period, the Authority’s Engineer shall review the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1.6. The Authority’s Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

4.2 The Authority’s Engineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.

4.3 The Authority’s Engineer shall review the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.

4.4 The Authority’s Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

4.5 The Authority’s Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.

4.6 The Authority’s Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.

4.7 The Authority’s Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Authority’s Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

- 4.8 The Authority’s Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority’s Engineer may require.
- 4.9 For determining that the Works conform to Specifications and Standards, the Authority’s Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the “Quality Control Manuals”) or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- 4.10 The Authority’s Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- 4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority’s Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
- 4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority’s Engineer shall require the Contractor to carry out remedial measures.
- 4.13 The Authority’s Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- 4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority’s Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority’s Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority’s Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- 4.15 The Authority’s Engineer shall obtain from the Contractor a copy of all the Contractor’s quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.4.
- 4.16 Authority’s Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

carried out remedial measure, the Authority’s Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

4.17 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority’s Engineer to inspect such works, the Authority’s Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

4.18 The Authority’s Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority’s Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

5.1 The Authority’s Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.

5.2 The Authority’s Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

5.3 The Authority’s Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.

5.4 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule E, the Authority’s Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

5.5 The Authority’s Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority’s Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6. Determination of costs and time

6.1 The Authority’s Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

6.2 The Authority’s Engineer shall determine the period of Time Extension that 206 is required to be determined by it under the Agreement.

6.3 The Authority’s Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

- a. The Authority’s Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority’s Engineer in accordance with the provisions of Clause 10.2.4 (d).
- b. Authority’s Engineer shall –
 - (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
 - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.
- c. The Authority’s Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor’s monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- d. The Authority’s Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

The Authority’s Engineer shall perform all other duties and functions as specified in the Agreement.

9. Miscellaneous

9.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority’s Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority’s Engineer thereon, shall be furnished by the Authority’s Engineer to the Authority forthwith.

9.2 The Authority’s Engineer shall retain at least one copy each of all Drawings and Documents received by it, including ‘as-built’ Drawings, and keep them in its safe custody.

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

- 9.3 Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- 9.4 The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- 9.5 The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

SCHEDULE - O

(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

- (a) the estimated amount for the Works executed in accordance with Clause 19.3.1 subsequent to the last claim;
- (b) amounts reflecting adjustments in price for the aforesaid claim;
- (c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;
- (d) amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3 (a);
- (e) total of (a), (b), (c) and (d) above;
- (f) Deductions:
 - (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
 - (ii) Any amount towards deduction of taxes; and
 - (iii) Total of (i) and (ii) above.
- (g) Net claim: (e) – (f) (iii);
- (h) The amounts received by the Contractor upto the last claim:
 - (i) For the Works executed (excluding Change of Scope orders);
 - (ii) For Change of Scope Orders, and
 - (iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and
- (e) amount towards deduction of taxes

3. Contractor’s claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

SCHEDULE - P

(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

1.1 The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

(a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

(b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

1.2 The insurance under paragraph 1.1 (a) and (b) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover **of not less than 15 % of the contract price** for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

3.1 The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences. The insurance cover shall be not less than: Rs. **[*****]**

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

3.2 The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

- (a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
- (b) Damage which is an unavoidable result of the Contractor's obligations to execute the Works.

4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Qualitytest:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometre.

2. Visual and physicaltest:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part here of conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and pot holes and shall be as per the requirement of maintenance mentioned in Schedule-E.

“Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan”

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, ... (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated (the “**Agreement**”), for “**Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under state plan” on Engineering, Procurement and Construction (EPC) basis through** (Name of Contractor), here by certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

"Improvement of Phulnakhara-Niali-Madhab Road (4-lane) from 0/000 km to 35/451 km in the district of Cuttack under State Plan"

******* EndoftheDocument*******

Signature Not Verified

Digitally signed by PRADIPTA KUMAR
NAYAK
Date: 2026.05.11 12:44:01 IST
Location: Odisha-OD

