

	<p>Central Coalfields Limited 'Miniratna' category-I company (A Subsidiary of Coal India Limited) Materials Management Department Darbhanga House, Ranchi-834 001(Jharkhand), India</p>	<p>Tel: 0651-2360716 Fax: 0651-2360198 PBX-2360726,2360687 E mail: hodmm@ccl.gov.in</p>
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Service Contract

BY REGISTERED POST

No. 000-22-2-03-15- 174 (Vehicle Tracking System)

Dated: 24.10.2014

Item category	Tender category	Firm category
Miscellaneous Items	Open Domestic Tender (ODT)	PVT.

To
 M/s. Orange Business Services India Technology Pvt. Ltd.,
 15th Floor, Vishwaroop IT Park,
 Sector 30-A, Vashi
 Navi Mumbai-400703.

Telephone No. 022-61544736
 E-Mail: aftab.alam@orange.com
 Mobile No. 09769937255

Sub: Service Contract for setting up GPS based Vehicle Tracking System and RFID based Weighing Control System along with CCTV in CCL Command Areas on Service Charge basis for 5 years.

- Ref:
- a) Advertised Domestic Tender (Manual) vide no. GM (P)/CCL/KR/2013-14/Turnkey Project for setting up GPS / GPRS. Adv. No. 36/2013-14 Dated: 06.11.2013, SL No.164 due on: 17/12/2013 extended up to 02.01.2014 read with subsequent letters last letter being dated: 25.08.2014
 - b) Your Offer No. orange/CCL/VTS/2013-14/10 Dated: 16.12.2013 read with subsequent letters, last being dated: 27.08.2014
 - c) Letter of Intent No. GM (P)/CCL/KR/Vehicle Tracking System/14-15/ 5547 Dated: 19.09.2014

Dear Sir,

Your offer for setting up GPS based Vehicle Tracking System and RFID based Weighing Control System along with CCTV in CCL Command Areas on Service Charge basis for 5 years has been accepted with terms and conditions indicated hereunder:-

1. Scope Of Service Contract:

SN	Description	Unit	Qty	(exclusive of Service Tax)	
				Unit DTC	Unit Monthly Service Charge (Inclusive all)
A. GPS / GPRS based Vehicle Tracking System					
1	HQ Server (40% weightage)	Nos	2	23,733.00	7,911.00
2	Auto scheduled LTO library (LTO 5/6 backup device with backup software (40% weightage)	No.	1	48,691.00	16,230.00
3	Server for Proxy & LTO backup (40% weightage)	Nos	2	5,466.00	1,822.00
4	Area Server (40% weightage)	Nos	11	10,586.00	3,529.00
5	GPS/GPRS Tracker	Nos	2150	393.00	131.00
6	GIS Map of all areas.	Nos	1	305,411.00	101,804.00
7	16 Port layer-2 managed switch including rack	Nos	2	4,808.00	1,603.00
8	Server Rack	Nos	1	3,127.00	1,042.00
9	Operator workstation (without monitor)	Nos	12	13,796.00	4,599.00

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10	42" LCD screen (as workstation monitor)	Nos.	12	4,493.00	1,498.00
11	Operator PC with 26" TFT monitor for RFID	Nos.	1	6,453.00	2,151.00
12	A4 size laser printer	Nos.	1	1,328.00	443.00
13	A3 size laser printer	Nos.	1	6,687.00	2,229.00
14	52" LCD dashboard + MIS application for the dashboard	Nos.	1	7,369.00	2,456.00
15	Online UPS 5KVA with 4 hrs backup	Nos.	1	34,904.00	11,635.00
16	Surge protection devices (SPD)	Nos.	1	2,531.00	844.00
B.	RFID with CCTV based Weighing Control and Monitoring System				
1	HQ Server (60% weightage)	Nos.	2	35,600.00	11,867.00
2	Auto Scheduled LTO library (LTO 5/6 backup device with backup software (60% weightage)	No.	1	73,037.00	24,346.00
3	Server for Proxy & LTO backup (60% weightage)	Nos.	2	8,199.00	2,733.00
4	Area Server (60% weightage)	Nos.	11	15,880.00	5,293.00
5	RFID Tags	Nos.	4350	6.00	2.00
6	RFID reader with application software	Nos.	112	8,005.00	2,668.00
7	Boom Barrier	Nos.	112	8,319.00	2,773.00
8	Traffic Signal	Nos.	112	2,227.00	742.00
9	IP Fixed CCTV Camera	Nos.	112	5,181.00	1,727.00
10	16 Port layer-2 managed switch including rack (weighbridge)	Nos.	112	4,808.00	1,603.00
11	Online UPS 2KVA with 4 hrs backup	Nos.	112	11,780.00	3,927.00
12	Surge protection devices (SPD)	Nos.	112	3,261.00	1,087.00
13	RFID writer with application software	Nos.	52	9,574.00	3,191.00
14	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	52	742.00	247.00
15	Operator PC with 18.5" TFT monitor	Nos.	164	4,864.00	1,621.00
16	Dot Matrix Printer	Nos.	164	1,124.00	375.00
17	Server Rack	Nos.	11	3,127.00	1,042.00
18	16 Port layer-2 managed switch including rack	Nos.	22	4,808.00	1,603.00
19	A3 size Laser printer	Nos.	11	6,687.00	2,229.00
20	Operator PC with 26" TFT monitor for RFID	Nos.	11	6,453.00	2,151.00
21	8 Channel NVR with 6 TB storage & 26" Monitor	Nos.	3	28,173.00	9,391.00
22	16 Channel NVR with 12 TB storage & 26" Monitor	Nos.	8	36,364.00	12,121.00
23	Online UPS 5KVA with 4 hrs backup	Nos.	11	34,904.00	11,635.00
24	Surge protection devices (SPD)	Nos.	11	2,531.00	844.00
C.	Minimum Infrastructure and Services				
1	Area Control Room	Nos.	11	1,813,203.00	NA
2	Furniture and Fixtures	No.	12	164,352.00	NA
3	Installation & Commissioning	LS	1	18,975,929.00	NA
4	Insurance Cost	Yr.	5	632,107.00	NA
5	Training as per clause no. 6.0 of NIT	LS	1	440,709.00	NA
6	Engineer/Supervisor/Technician for support for 5 years	Nos.	12	NA	71,525.00
7	SIM Charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	2150	NA	63.00
D.	Software Solution for GPS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System				

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1	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT. Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System". 2150 nos. Trucks for VTS, 112 Weighbridges for RFID & CCTV, 11 Area Offices, 52 Project Office & CCL, HQ. The said Software Solution should be for CCL, HQ Servers as well as Respective Area Servers and Operator Work Stations.	LS	1	15,621,027.00	NA
E Miscellaneous					
	Other accessories and items not specified in BOQ but may be required for successful installation, commissioning and maintenance during contract period (breakup mentioned below)	LS			
1	a. Extra Server (configuration same as Sr. no. C3 (proxy server (page no. 72 of the NIT) required to complete the solution (required in place of external storage)	Unit	1	413,221.00	NA
	b. SMS Modem	Unit	1	41,553.00	NA
	c. SIM Card with SMS pack (to be used with SMS modem)	Unit	1	415,526.00	NA
	d. UTP/Fibre/Power cabling at weighbridge and project office	Unit	164	6,925.00	NA
	e. Patch cords for Workstation & PCs	Unit	187	208.00	NA
	f. UTM device (Sophos UTM 320, brochure attached with technical bid)	Unit	2	484,780.00	NA

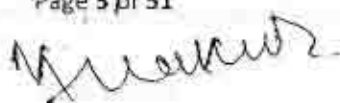
NB: Technical Specification and other Details as per Annexure- 1,2,3&4 enclosed.

Total Contractual Value: Rs 36,31,26,060.72 (Rs. Thirty Six Crore Thirty One Lakhs Twenty Six Thousand Sixty And Paise Seventy Two) Only for a period of 5 years inclusive of Service Tax.

Terms and conditions:

- 2.1 Charges:** The Unit OTC and Monthly Service Charges (inclusive all) mentioned in the scope of Service Contract shall remain firm during the currency of Service Contract. The above prices are inclusive of all taxes (except Service Tax) either Central or State or any other tax, in whatever name called, applicable to the Instant Contract.
- 2.2 Service Tax:** Service Tax shall be reimbursed on One Time Charge (OTC) and Monthly Service Charge, against submission of original Challan as proof of payment and self declaration that the same has been actually paid and not claimed anywhere else. CENVAT CREDIT shall be availed by the **Paying Authority** on Service Tax paid as per laid down provisions. The present rate of service tax is @12.36%.
- 2.3 Sales Tax:** CCL shall only be liable to reimburse the amount of CAT/VAT if any, payable by the Project Implementer on transfer of ownership as per clause 7.9, which is leviable on the consideration amount i.e. One month service charge. However, if in future the Project Implementer is burdened with any further amount of CST/VAT or any tax whatsoever on such transfer, the same shall be borne by the Project implementer only and CCL shall not be liable to reimburse the same.
- 2.4 Taxes and Duties:** The contractor shall be liable and pay all-Indian taxes, duties, insurance levies etc. but exclusive of service tax lawfully assessed against the owner or the contractor in pursuance of the contract. In addition the contractor shall be responsible for payment of all Indian duties, levies, taxes, insurance and income tax etc. lawfully assessed against the contractor for his personal income and property only.
- 3.0 Duration of Contract:**
- 3.1** The contract shall come into force from the date of commissioning and shall remain in force up to 60 months.
- 3.2** Service Charge should be firm without escalation except the escalation of Govt. Taxes, Levies and duties.
- 3.3** On expiry of the aforesaid period as per clause 3.1, the contract terminates unless it is renewed upon by the customer's request in writing for such further period and on such terms and conditions as are mutually agreed upon.


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A prior written notice of 3 months shall be given by the customer of his intension to renew the contract.

4.0 Delivery, Installation, Commissioning & Integration:

- 4.1 The supply, installation, commissioning and Integration of Turnkey Project of GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area should be completed as given below.
- 4.2 The supply, installation, commissioning and Integration of GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System at N. K. & Piparwar Area in **Phase-1** must be completed within 12 weeks from the date of acceptance of contract by the Project Implementer or hand over the site by CCL whichever is later.
- 4.3 The supply, installation, commissioning and Integration of GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System for Argada, B & K, Barka Sayal, Dhori, Hazaribagh, Kathara, Kujur, Rajhara & Rajrappa Area in **Phase - 2** should be completed within 24 weeks after one month satisfactory performance / completion of **Phase - 1** or site handover by CCL whichever is later.
- 4.4 It is to be noted that "Project Implementer" will have to complete the GPS / GPRS based Vehicle Tracking System of Phase - 1 (i.e. N. K. & Piparwar Area) within 8 weeks. The said work also covers installation of Control Room, Servers, Software Solution & requisite equipments for the said system at N. K. & Piparwar Area.
- 4.5 It is also mandatory to complete the Phase - 1 within 12 weeks. After one month satisfactory performance / completion of Phase - 1, the Phase - 2 works should be completed within 24 weeks.
- 4.6 The necessary clearance certificates if any from any statutory authority are must for the project commissioning and shall be arranged by project implementer.
- 4.7 **Penalty:** If execution of the project (supply, installation, commissioning & Integration) is delayed, LD will be imposed as indicated under LD clause. LD will be calculated as per clause 4.1 to 4.5.
- 4.8 **Deliverables:** The Technical documentation involving detailed instruction for operation and maintenance is to be delivered with all equipment supplied at no extra cost. One copy of all User manuals (hard & soft copy) will be supplied for all Hardware and Software along with any other technical literatures / leaflets for all the items deliberated in Bill of Quantity. Step by step configuration procedure of said items of BOQ etc. is to be submitted. Further Step by step Integration procedure of existing servers, if any, is also to be submitted.

5.0 Inspection, Testing and Commissioning:

- 5.1 Inspection will be carried out by the designated Project Coordinators of each area and final clearance would be given by the Chief Project coordinators located at CCL HQ.
- 5.1 All items deliberated in BOQ are to be installed in consultation with designated Project Coordinator of each area. In the case of any difference of opinion / ambiguity, the final opinion / decision of the Chief Project Coordinator, CCL HQ shall prevail.
- 5.1 Proposed Servers and PCs will be connected to LAN & WAN and the same will be tested in the presence of the designated Chief Project Coordinator, CCL HQ by logging into the server & connecting from Server to the client (user) and vice versa.
- 5.1 The Turnkey Project of GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area will be deemed to be commissioned after testing / executing the software solutions / services satisfactorily and login to the servers at HQ / Areas and also integration of these servers with existing Servers at Ashoka Project & RISC / EPIC Servers of System Department at HQ / Areas for one week. The necessary clearance certificates if required from any statutory authority are to be obtained by the Project Implementer for the said Project Commissioning.

6.0 Consignee and Paying Authority: -

SN.	Area/Unit	Consignee	Paying Authority
1.	Argada	DGM/Store I/C Regional Store, Argada Area	General Manager (F-HQ), CCL, Darbhanga House, Ranchi.
2.	B & K	DGM/Store I/C Regional Store, B & K Area	
3.	Barka Sayal	DGM/Store I/C Regional Store, B. S. Area	
4.	Dhori	DGM/Store I/C Regional Store, Dhori Area	
5.	Hazaribagh	DGM/Store I/C Regional Store, Hazaribagh Area	
6.	Kathara	DGM/Store I/C Regional Store, Kathara Area	

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7.	Kuju	DGM/Store I/C Regional Store, Kuju Area
8.	N. K.	DGM/Store I/C Regional Store, N. K. Area
9.	Piparwar	DGM/Store I/C Regional Store, Piparwar Area
10.	Rajhara	DGM/Store I/C Regional Store, Rajhara Area
11.	Rajrappa	DGM/Store I/C Regional Store, Rajrappa Area
12.	CCL, HQ	DGM (MM), Central Store, Barkakana

7.0 Payment Terms:

- 7.1 80% of one time charge (OTC) will be made within 21 days from the date of submission of clear and acceptable bills / invoices (in triplicate) after delivery of all items of each area [as stated in clause 6.0] but after submitting Performance Bank Guarantee [as stated in clause 9.0] for setting up Turnkey Project of GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area.
- 7.2 The challan (in duplicate) of items [as stated in 4.1 above] for each area [as stated in clause 6.0] should be duly signed by the designated Project Coordinators of each area.
- 7.3 Balance 20% payment for one time charge (OTC) will be made within 21 days from the date of submission of clear & acceptable bills / invoices (in triplicate) after successful commissioning of the project as stated in clause 4.1 to 4.5; duly certified by the Project Coordinators of each area [as stated in clause 6.0] and further certified by the Chief Project Coordinators located at CCL HQ.
- 7.4 For clearance of any statutory authority if required such as ETA etc., project will be treated as conditionally commissioned without these clearances and till such clearances are obtained, 5% from the MR (Monthly Service Charge) bills will be deducted / retained. In case of any penalty / fine imposed by any statutory authority for non-availability / non-submission of clearance certificate(s) during the contract period, the liability of such penalty / fine would devolve on the "Project Implementer". On the happening of such a contingency, the penalty / fine would be recovered from "Project Implementer".
- 7.5 The payment of Monthly Service Charge of Phase – 1 shall be made on pro-rata basis for the no. of vehicles & weighbridge monitored during the Phase – 1 after satisfactory performance of one month and deducting penalty, if any, shall be calculated using the unit rate of Monthly Service Charge. The payment as a whole (Phase – 1 & Phase – 2) can only be started after final commissioning of entire Turnkey Project. Any payment will be released after the submission & acceptance of Performance Bank Guarantee as per clause 9.0.
- 7.6 The Monthly Service Charge bill in triplicate shall be raised after the end of each month and the same shall be paid within 21 days of receipt and acceptance thereof. The said payment will be made on the basis of Performance Certificate (in duplicate) duly certified by the designated Project Coordinators of each area [as stated in clause 6.0] and further certified by the designated Chief Project Coordinators located at CCL HQ.
- 7.7 One time charge (OTC) should not be more than 3 months rental charge and this limit is applicable only for items covered under both OTC and MR (Monthly Service Charge). This limit of 3 months rental charge is not applicable to the Project as a whole.
- 7.8 Items covered under OTC only are Control Room with Furniture and Fixtures, Training, Software Solution, Installation and commissioning. To Upkeep and maintenance of these items is also responsibility of "Project Implementer".
- 7.9 After the expiry of rental period, project implementer will be entitled to take back all the items except those items covered solely under OTC (one time charge). CCL will have option to take the ownership of all components of Turnkey Project by paying one month Monthly Service Charge charge.
- 7.10 After the expiry of rental period, CCL would have the option to extend the contract on mutually agreed terms & conditions. For such extension(s) intimation would be given by CCL in 3 months advance.

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7.11. Future requirement within contract period, if any, will be charged as per the item rate defined in the Work Order and would be applicable for the entire contract period i.e. 5 year.

7.12. For the GPS based Vehicle tracking system and RFID & CCTV based Weighing Control and Monitoring System, The payment will be made on availability basis based on the calculation as per clause no. 15.1 to 15.5 of ANNEXURE-1". For the Minimum Infrastructure and Services (other than only OTC), the payment will be made on prorata basis of availability. For the Miscellaneous work, the payment will be made on pro rata basis of availability.

Payment shall be made by the Paying Authority, through e-payment mode. Copy of e- mandate form submitted by you for payments through electronic fund transfer system / RTGS/CBS/intra bank transfer is enclosed.

8.0 Submission of Bills:

Your bill in triplicate duly stamped and pre-receipted with signatures and seal of the company for payment should be sent to the Paying Authority for arranging payment after normal procedure as under.

- a) Your bill for 80% of one time charge (OTC) after delivery of all items of each area along with Certified copy of receipted Challan.
- b) Your bill For Balance 20% payment for one time charge (OTC) after successful commissioning of the project duly certified by the Project Coordinators of each area and further certified by the Chief Project Coordinators located at CCL HQ.
- c) Your bill for Monthly Service Charges should be raised after the end of each month along with Performance Certificate (in duplicate) duly certified by the designated Project Coordinators of each area and further certified by the designated Chief Project Coordinators located at CCL HQ.

The Bill / Invoice raised for One Time Charge (OTC) as well as Monthly Service Charge payable should contain all the information as required under Rule 4A of Service Tax Rule 1994. The Invoice must be serially numbered and must contain the following information.

- The name, address and the registration number of system provider.
- The name and address of the person receiving the taxable service (i.e. CCL)
- Description, classification and value of taxable service provided or to be provided
- The service tax payable thereon.

CCL will avail CENVAT CREDIT on payment of applicable Service Tax & Excise Duty if any. Project Implementer will have to submit necessary document to enable CCL to avail CENVAT CREDIT.

Certificate indicating that "Prices charged are not higher than those applicable to other Govt. Deptt / Undertaking/DGS&D" must be furnished along with bills.

9.0 Performance Bank Guarantee:

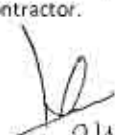
10% of the contract amount of Rs. 3,63,12,610.00 should be submitted within 30 days and before making any payment of OTC, installation & commissioning of entire project any of the form given below:

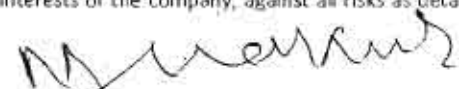
- A Bank Guarantee in the form given in the bid document as per format at ANNEXURE - "P"
- OR
- Demand Draft drawn in favour of Central Coalfields Limited on any scheduled bank payable at its branch at Ranch). The performance bank guarantee deposited in the form of Bank Guarantee shall be duly discharged and returned to the contractor on successful completion of the contract. The PBG deposit in the form of Demand Draft will be refunded at the time of completion / termination of the contract. If the PBG provided by You in the form of Bank Guarantee, same shall be issued by any Nationalized Bank. The said Performance guarantee shall be valid for tenure of five year & three months i.e. till the conclusion of the contract.

The Performance Bank Guarantee shall be released after expiry of validity period if no claim is pending.

10.0 Comprehensive Insurance:

10.1. The contractor will arrange, secure and maintain comprehensive insurance as may be necessary for all items covered in BOQ. This will protect his interests and the interests of the company, against all risks as detailed herein in the name of the Contractor.


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10.2. All premiums and other charges of the said comprehensive insurance policies shall be paid by the contractor. The form and the limit of such insurance, as defined herein together with the under-writer thereof in each case shall be acceptable to the company. However irrespective of such acceptance, the responsibility to maintain comprehensive insurance coverage on all risks at all time during transit and during the operation of contract period shall be that of the contractor alone. The contractor's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations.

10.3. Any loss or damage to the equipment, during handling, transporting, storage, erection and during the operation of the total contract period, shall be to the account of the contractor. The contractor shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/or replacement of the portion of the works damaged or lost. The contractor shall provide the company with a copy of all insurance policies and documents taken out by him in pursuance of the contract. Such copies of document shall be submitted to the company immediately after such insurance coverage but before making any payment. The contractor shall also inform the company in writing at least sixty (60) days in advance regarding the expiry, cancellation and/or change in any of such documents and ensure revalidation/renewal, etc. as may be necessary well in time.

10.4. The risk that are to be covered under the insurance shall include, but not limited to the loss or damage, theft in transit during handling, transportation, storage, erection and during the operation of entire period of the contract period. Theft, pilferage, riot civil commotion, weather conditions, accidents of all kinds, fire, etc. will be under the scope of comprehensive insurance for the entire value of the works.

10.5. All costs on account of insurance liabilities covered under the contract will be on contractor's account and will be included in contract price. However, the company may from time to time, during the period of the contract asks the contractor in writing to limit the insurance coverage risks and in such a case, the parties to the contract will agree for a mutual settlement for reduction in contract price to the extent of reduced premium amounts.

10.6. The contractor shall take full responsibility to take all precautions to prevent loss or damage to the work or part thereof for any reasons whatsoever (except for reasons which are beyond control of the contractor or act of God e.g. Flood, riots, war, earthquake, etc.) shall at his own cost to repair and make the good loss / damage to the work so that on completion, the work shall be in good order and condition and in conformity with the requirements of the contract.

10.7. The contractor shall ensure that the insurance policy / policies are kept alive till full expiry of the contract by timely payment of premiums and shall not be cancelled without the approval of the company and a provision is made to this effect in all the policies. The cost of premiums shall be borne by the contractor and it shall be deemed to have been included in the tendered rate.

11. **Price Fall Clause:** Till the completion of delivery, if you supply the items of identical description as that of CCL to any customer, the DTC and Service charges in such occasion(s) should not be lower than those of the items supplied / to be supplied to CCL. If at any time, till the completion of delivery, there is reduction in price / Service charges due to any reason whatsoever, the benefit (of such reduction) is to be passed on to CCL. You shall promptly supply such information to enable CCL to amend the contracted rates for subsequent Transactions.


12. **Special Instruction:** The essence of the Turnkey Project for setting up GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area is the successful implementation and maintenance of the project in time and the project implementer should give utmost importance to this aspect throughout the project life cycle.

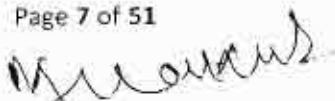
13. **Liquidated Damages (LD) for Delay in Completion:**

@ 0.5% of the entire project cost per week or part thereof as stated in clause 4.1 to 4.5 subject to a maximum limit of 10% of the entire project cost.

14. **Force Majeure:**

Project implementer shall not be liable for damages for failure to perform maintenance obligations if the failure results from Force majeure situations like natural calamities viz Floods, Earthquakes & General Strikes, Rites, Civil Commotions, Act of Terrorism, delays from statutory authorities and also refusal of Government / Statutory bodies to grant permission necessary to carry out any portion of the work. CCL will bear the actual compensation to the extent of repair / maintenance / replacement only.


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15.0 Tax Clause:

15.1 Tax Deduction at source (TDS): Income tax TDS shall be applicable under relevant provisions of Income Tax Act 1961 on payment of One Time Charge (OTC) as well as Monthly Service Charge.

15.2 The Bill / invoice raised for One Time Charge (OTC) as well as Monthly Service Charge payable should contain all the information as required under Rule 4A of Service Tax Rule 1994. The invoice must be serially numbered and must contain the following information.

- The name, address and the registration number of system provider.
- The name and address of the person receiving the taxable service (i.e. CCL)
- Description, classification and value of taxable service provided or to be provided.
- The service tax payable thereon.

15.3 CCL will avail CENVAT CREDIT on payment of applicable Service Tax & Excise Duty if any. You will have to submit necessary document to enable CCL to avail CENVAT CREDIT.

16.0 Limitation of Liability:

16.1 Notwithstanding anything to the Contrary in the Agreement or any other document, the aggregate liability of the vendor for any damage shall be limited to the Contract Price.

16.2 In no event, neither party shall be liable to the other party for any indirect, special, punitive, consequential or incidental damages including without limitation, loss of revenue, profits, business, goodwill, anticipated savings or data or third party claims.

16.3 NO Director or official or employee of Owner or Vendor shall in any way be personally bound or liable for the acts or obligations of the Owner or Vendor under the Agreement or answerable for any default or omission in the observance or performance of the acts, matters or things which are herein contained.

16.4 The Vendor shall not be entitled to any increase on the scheduled rates or any other rights or claims whatsoever by reason of any representation, explanation, statement or alleged understanding, promise or guarantees given or to have been given to him by any person.

17. INTEGRITY PACT:- You have signed the Integrity Pact issued with the NIT(Annexure Y). The Independent External Monitor nominated for implementation of the Integrity Pact for this Contract is:


Name	Address	Contact Number
Dr. B.P. Niiaratna	D-11/15, Pandara Road, New Delhi-110 003.	e-mail: dr.b.p.niiaratna@gmail.com

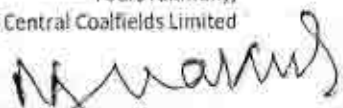
18. JURISDICTION: The Court at Ranchi in Jharkhand State only will have the jurisdiction to deal with and decide any legal matter or dispute whatsoever arising out of our contract.

19. Acceptance of Contract: The Service Contract is concluded with the issuance of this Contract. Any other terms & conditions not specified above will be governed as per our NIT.

We enclose here with two copies of the Service Contract, one copy of which should be returned to us duly stamped and signed by you as a token of acknowledgement and acceptance of the contract within 15 (Fifteen) days from the date of issue of Service Contract failing which, it will be assumed that you have accepted the Service Contract for execution.

Yours faithfully,
For & on behalf of Central Coalfields Limited


(K. Ravinder) 24.10.14
Sr. Manager (Pur)


(A.K. Thakur)
General Manager (Pur.)

End:

- (a) E Mandate Form submitted by you.
- (b) Detailed Technical Specifications & other Details, Annexure – 1,2,3&4


Copy forwarded to: -

- ✓ The General Manager (E&T) / (System) / GM(S&C) / CM (F-P&P), CCL, Ranchi.
- The CGMs/GMs, CCL, Argada /B&K/ Barka Sayal / Dhori/ Hazaribagh / Kathara / Kuju / N. K./ Piparwar/ Rajhara / Rajrappa / Barkakana
- The Depot Officer, Argada /B&K/ Barka Sayal / Dhori/ Hazaribagh / Kathara / Kuju / N. K./ Piparwar/ Rajhara / Rajrappa / Barkakana
- The General Manager (Finance), CCL, Darbhanga House, Ranchi.
- The CE(X/MIS)/ Master File.
- The Sr. E.S to CMD/ TS to DT (O) / TS to GM (MM), CCL, Ranchi.
- The CGM / GM (MM)-SECL, Bilaspur/WCL, Nagpur/NCL, Singrauli/MCL, Sambalpur/ ECL, Sanctoria/ BCCL, Dhanbad.

The Independent External Monitor for Integrity Pact for this Contract:-

Dr. B.P. Nilaratna, D-11/15, Pandara Road, New Delhi-110 003. E-mail: dr.b.p.nilaratna@gmail.com

This issues with the approval of CCL Board of Directors in its 410th Meeting held on 05.09.2014 and fund to the tune of Rs.4.00 Crore certified vide No. D/O/F/B.C./Internet Leased lines & video conf,GPRS,RFID,CCTV/RB 14-15/246/04/1142 Dated: 30.09.2014 from RB 14-15


Sr. Manager (Pur)

24.10.14


General Manager (Pur)

E Mandate Form

672



Business Services

To,
Central Coalfields Limited,
Darbhanga House,
Ranchi-834001

(1)

Ref: Authorization of all our payments through Electronic Fund Transfer System / RTGS / CBS / Intra Bank transfer

[Handwritten signature]

Dear Sir,

We hereby authorize Central Coalfields Limited to make all our payments against our bills, Refund of Earnest Money deposit and Security deposit, through Electronic fund transfer system / RTGS / CBS / Intra Bank transfer. The details for facilitating the payments are given below:-

1	NAME OF THE BENEFICIARY	Orange Business Services India Technology Pvt. Ltd
2	ADDRESS (WITH PIN CODE)	15th Floor, Vishwaroop IT park, Sector 30-A, Vashi Navi Mumbai - 400703 India.
3	TELEPHONE NO. (WITH STD CODE)	+91 22 61544700
4	BANK PARTICULARS	
(A)	BANK NAME	The Hongkong and Shanghai Banking Corporation Limited.
(B)	BANK TELEPHONE NO. (WITH STD CODE)	+91 22 4201 2011
(C)	BRANCH NAME	Barakhamba Road
(D)	BANK BRANCH CODE	051
(E)	BRANCH ADDRESS (WITH PIN CODE)	25, Birla Towers, Barakhamba Road, New Delhi - 110 001
(F)	BANK FAX NO. (WITH STD CODE)	+91 22 66538004
(G)	8 DIGIT MICR CODE OF THE BANK BRANCH	110039002
	(ENCLOSE COPY OF CANCELLED CHEQUE)	Attached
(H)	11 DIGIT IFSC CODE OF THE BENEFICIARY'S BRANCH	HSBC0110002
(I)	BANK ACCOUNT NO.	051-315841-003
(J)	BANK ACCOUNT TYPE (TICK ONE)	
	SAVING	-
	CURRENT	-
	LOAN	-
	CASH CREDIT	-
	OTHERS	-
	IF OTHERS, SPECIFY	
5	PERMANENT ACCOUNT NO. (PAN)	AALCS0027K
6	EMAIL ADDRESS FOR INTIMATION REGARDING RELEASE OF PAYMENTS	victor.john@orange.com
7	CCL VENDOR CODE	-

[Handwritten signature]
[Circular stamp]

3

Page: 01 of 1 Orange Business Services India Technology Pvt. Limited (R90 601-609, 607-608, 601 Floor, GLE South Court, Saket, New Delhi-110017)
Corporate Office: Orange Business Services India Technology Pvt. Limited (5th Floor, Vishwaroop IT Park, Sector 30-A, Vashi, Navi Mumbai-400703, India) Fax: +91 22 61544703 Orange: +91 22 61544700

[Handwritten signature]
[Handwritten signature]

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(We hereby declare that the particulars given above are correct and complete. If the transaction is delayed or credit is not affected at all for reasons of incomplete or incorrect information, we would not hold the company responsible. We also agree to bear the bank charges, if any, for enabling such transfer.



(Handwritten signature)

(Handwritten signature)

(AUTHORIZED SIGNATORY)

Name - Mr. Yogesh Kasture

Official stamp

Date: 12th Dec. 2013

BANK CERTIFICATION

It is certified that above mentioned beneficiary holds a bank account No. 051-316941-003 with our branch and the Bank particulars mentioned above are correct.

(Authorized signatory)

Authorization No:

Name:

Official stamp:

Date:

WITHOUT RESPONSIBILITY ON THE PART OF THE BANK OR THE SIGNING OFFICER, WE CONFIRM THAT THE ABOVE ACCOUNT NO. IS AS PER OUR RECORDS

(Handwritten signature)
For HSBC Bank Ltd.



(Large handwritten signature)

TECHNICAL SECTION:

1.0 Scope of Supply / Schedule of Requirement

- 1.1 M/s Orange Business Services India technology Pvt Ltd will be called "Project Implementer".
 1.2 Project Implementer is responsible for operation and maintenance for the entire Turnkey Project (including each & every item) for setting up GPS / GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area for the period of 5 years.

2.0 System Introduction:

On Behalf of Central Coalfields limited, the Project implementer is to commission and maintain the Turnkey Project for setting up GPS/GPRS based Vehicle Tracking System and RFID with CCTV based weighing control and monitoring system across CCL Command Area on rental basis for 5 years. Vehicle Tracking and Monitoring system provides an integrated Surveillance system to manage and monitor the transportation of various trucks' movement through mines.

This project shall help prevent pilferage as well as improve operational efficiency of the entire dispatch along with production system. It is proposed to implement integrated system of GPS based vehicle tracking system with RFID based infrastructure like automatic boom barriers etc. and CCTV surveillance system at weighbridges for control/monitoring.

The implementation of such system shall help further improvising the safety of workers and people working around the mines, shall improvise adherence to rules of driving by truck drivers and avoid accidents arising out of rash driving, over speeding and overloading of trucks.

The proposed vehicle tracking and monitoring system provides an integrated Surveillance system to manage and monitor the transportation of various trucks' movement through mines to CHP/Railway siding. The system prevents the enroute pilferage through continuously monitoring the movement of trucks with coal along its defined route. This will be achieved through integration of following system.

- A. GPS/GPRS based vehicle tracking system.
 B. RFID with CCTV based monitoring and weighing control system.
 C. Computerization of Project Office.

A. GPS/GPRS based vehicle tracking system

Global Positioning System is based on satellite ranging and the position of 3 or more satellite. The GPS tracking unit is a device that uses the Global Positioning System to determine the precise location of a vehicle and to record the position of the asset at regular interval. The recorded location data can be stored within the tracking unit or it may be transmitted to central location data unit through GPRS modem.

General packet radio service (GPRS) is a packet oriented mobile data service on the 2G and 3G (as available at respective locations) global cellular communication system for mobile communication (GSM). GPRS usage is typically charged based on volume of data transferred. This device will be installed in the trucks.

B. RFID with CCTV based weighing control and monitoring system

Radio frequency identification system has tags normally attached to object or vehicle for its proper identification. Each tag has a certain amount of internal memory (EEPROM) in which it stores information about the vehicle such as its serial no., registration no., owner's description, when these tag pass through a field generated by the reader, they transmit this information back to the reader, there by identifying the vehicle. RFID tag will be issued from the Project Office and all relevant information will be written through RFID writer installed at Project Office. The tag will be suitably positioned on the truck. The RFID reader is installed in weighbridge along with boom barrier and traffic signal. The RFID reader reads the truck information through RFID tag after its identification the weighment will get automatically recorded once the process is completed, the traffic signal gives green light and boom barrier will open and the truck will allow passing through the sending weighbridge to receiving weighbridge. The fixed camera installed over the platform record the level of coal in the truck. The recording shall be motion sensor based and automatic so that all events related to truck weighment at weighbridge shall be captured and store for 90 days at the NVR installed in Area office. The weight recorded in the weighbridge along with truck information will simultaneously transmit through proposed WAN network to Area office and receiving end weighbridge. When the truck reaches the receiving end weighbridge the RFID reader will identify the truck and automatically take the weighment and compares with the weighment received from sending end. Accordingly comparative weight is generated.

C. Computerization of project office

All the project offices will be provided with computer, printer and RFID writer. Information about the vehicle such as its serial no., registration no., owner's description etc. will be written by RFID writer. The same information will be updated in the Server at Area office so that information can be cross checked through RFID Reader at weighbridge and information updated in the Server. Whenever any truck is coming for loading of coal for local sale, a computerized gate pass will be issued from Weighbridges and RFID tag will be issued from the project office only. For internal transport the provision should also be given to take Electronic Print Out (EPO) in case of WAN communication failure to maintain the internal dispatch.

3.0 Technical Requirements of the System:

- 3.1 It is proposed to implement GPS/GPRS based Vehicle Tracking System for tracking of Departmental Trucks, Dumpers & Pvt. Tippers at Coal Mines of Central Coalfields Ltd. The system will primarily track the movement of 2150 nos. of Departmental Trucks, Dumpers & Pvt. Tippers which is engaged in transportation of Coal on real time basis. All relevant process data will be captured and should be stored in server simultaneously at Area (HQ) and CCL (HQ). This information should be converted into meaningful reports as required by management of CCL. GPS based tracking will enable CCL to track and monitor Departmental Trucks, Dumpers & Pvt. Tippers inside the Mine area as well as the complete route the Vehicle will follow. The GPS based tracking system will help CCL to keep track of the movement of Departmental Trucks, Dumpers & Pvt. Tippers across the journey on GIS map and provide following information and report on real time basis through GIS Map available at Central Server of CCL (HQ) as well as Area Server.

- Route deviation from defined path.
- Un-authorized stoppage.
- Abnormal delay in reaching destination.
- Total distance travelled report on shift/day/weekly/monthly basis.
- Online web enabled real time tracking of vehicle will enable each area officials to view all vehicles on single screen in Control room to utilize resources in efficient and cost effective way and prevent unwanted movement of trucks.
- The offered system should provide necessary reports to analyze operational parameter to avoid idle time of the transporting vehicles.

Following audio and/or visual alerts must be generated by the system on mobile or on screen

- Movement Alert: In case transport vehicle stops more than 5 minutes.
- Route deviation Alert: Instant SMS/e-Mail alert in case a transport vehicle deviates from the pre- defined route.
- Park Fence Alert.
- Top Speed Alert
- Tampering Alert

- 3.2 GPS based vehicle tracking system shall consists of vehicle mounted unit which comprises of an integrated GPS receiver, a packet radio modem and mobile communication network and geographical information system. This computes the current position information, speed, estimated time of arrival etc. The positional information and other data will be transmitted through GPRS to internet cloud and from internet cloud this information will be simultaneously sent to respective Area Servers as well as CCL HQ Server through the leased internet line provide by CCL.

- 3.3 The software solution of GPS (Including GIS Maps) will be installed in respective Area Servers as well as CCL HQ Server and shall be responsible for management of fleet. The respective Area Servers as well as CCL HQ Server will host the maps and database. The communication backbone will be WAN for all these operations. In case of WAN failure the GIS Map will be available through internet connectivity at Area Server. The Software solution for vehicle tracking system will process the position data received from the vehicle on real time. The position data shall be displayed on the client display system in control room of Area Office & HQ simultaneously on GIS maps. The HQ Server will host the Maps of all Areas considering CCL as a whole and positional Data will be store in Area office and HQ Server simultaneously

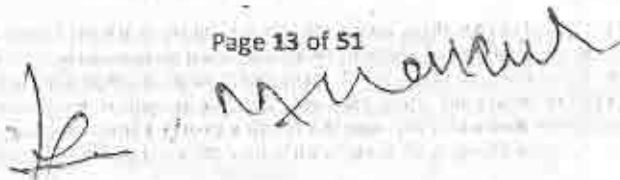
- 3.4 Maps of the lease hold area of the mines should indicates the various points such as location of dumps, coal handling plants, weighbridges, washeries, workshops, parking places, etc. between which the vehicles are expected to move and the probable routes. The system should have facility to upload these maps. There should be provision for updating number of operating vehicles and the routes assigned to them as and when the need arises. The system should have facility to upload these parameters. Timely changes should also be incorporated in GIS maps. The map should be designed CCL as a whole as well as respective Area Maps with the following is the overview of the scope of the proposed work:

1. Developing a web-based GIS system for map viewing
2. Developing a spatial decision support system

The application must have the ability to:

- View all the layers (however not limited to 18).
- Maps navigation with Geo-fencing of each Mine.
- Thematic mapping.
- Search and Query on spatial and attribute layers.
- Spatial and attribute analysis
- Reporting and statistics
- Legend view
- Customized Printing

- 3.5 An Integrated Online RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area will manage transport pass, access to Mines, weighbridges, all loading points and unloading points and ensure effective utilization of the resources by enhancing security and preventing access of unauthorized vehicle to the system. The proposed system includes management of trucks (Departmental Trucks & Pvt. Tippers). The proposed system will integrated PCs at Project Office, PCs, boom barriers, RFID readers, traffic signal and CCTV at WBs with that of Servers at respective Area Office and HQ. The RFID with CCTV system is proposed for 112 nos. of Road Weighbridges and RFID writer is proposed for writing tag from 52 nos. of project offices.



- 3.6 The proposed system should be such that each Truck will report to Project Office for getting a RFID Tag with required information (Truck Registration number, Consumer name & DO no., address and other required details in short). The RFID tag then will be suitably positioned on the each truck so that it should be traceable later on and RFID Reader can read data through RF beam. The Vehicle will only be allowed to ply once the data has been written in the RFID tag. Now trucks will go to WBs for Tare weight (weight of empty truck only).
- 3.7 In case of road sale the RFID tag can be reused by re-writing the information after completion of each trip. For each trip of road sale, the validity of RFID Tag will be mentioned in RFID Tag & Database. The software solution should be designed accordingly.
- 3.8 As the truck will reach in the WB, the motion based CCTV Camera will get activated and video recording will start. Vehicle will stop on the WB platform and RFID Reader will read the RFID Tag information. After completing identification process, the details of vehicle will be store in the RFID PC (provided in BOQ for Road WBs). Traffic signal will indicate "Green Signal" and Vehicle will be allowed through Boom Barrier after getting "Green Signal". In the mean time Tare weight will get stored in the WB PC (already provided by CCL) and Entry Pass will be generated in RFID PC. The same entry pass will be given to the Truck's Driver for loading of coal from RFID PC. Simultaneously the data exchange will take place between WB PC and RFID PC in the WB based on the APIs provided by the Project Implementer and CCL.
- 3.9 The weighing mechanism whether it is completed or in operation shall be monitored through CCTV Camera. All Cameras shall be able to get connected through TCP/IP in LAN or WAN and NVR.
- 3.10 Now Vehicle is allowed for entering into the Mines through the IN Gate for Loading of Coal. After getting loaded, the vehicle will again come to the same WB for Gross Weight. At the WBs, the same process as described above will be repeated. Gross Weight as well as Net Weight (Gross weight means Weight of the vehicle loaded with Coal and Net weight means Net Weight of the coal loaded in the vehicle) of the Vehicle will be recorded in the WB PC. Simultaneously the data exchange will take place between WB PC and RFID PC in the WB based on the APIs provided by the Project Implementer and CCL. A virtual Challan will be generated in the RFID PC with a hard copy printing facility. These data along with virtual Challan will be transmitted to the server located at Area Office and the receiving end WB simultaneously. In case of WAN failure, cross checking internal transport will be done through Virtual Challan issued from RFID PC of WB.
- 3.11 Cross Checking of the data at loading and unloading point WBs will be done through information of RFID Tag and Database of Server at Area Office.
- 3.12 In case of Road sale, a Challan with required information will be issued from WB PC at the time of Gross Weight and vehicle is allowed to go. For each trip of Road sale, the validity of RFID Tag will be mentioned in RFID Tag & Database. The software solution should be designed accordingly.
- 3.13 Existing GPS based vehicle tracking system (51 nos.) working in Piparwar Project and proposed RFID based weighing control system to be commissioned at Ashoka Project have also to be integrated with this Turnkey Project with suitable interface.
- 3.14 The software solution of the offered system shall be capable to communicate & exchange data with CoalNet Software and any ERP package.
- 3.15 Industry Standard ODBC (Open Database Connectivity) compliant technology is to be used to provide capability of integration with other industry standard solutions provided by other vendors.
- 3.16 Application Program Interfaces (APIs): The following APIs is required from the "Project Implementer":
- From HQ Servers to Existing RISC/EPIC HQ Servers of CCL (vice -a-versa if required will be provided by CCL)
 - From Respective Area Servers to Existing Respective Area RISC/EPIC Servers of CCL (vice -a-versa if required will be provided by CCL)
 - From Respective Area WB RFID PCs to Existing Respective Area WB PCs of CCL (vice -a-versa if required will be provided by CCL)
- 3.17 Each Component / Peripheral of the Systems must be compatible with each other. There shall not be any compromise on the specification.
- 3.18 Transportations of goods to individual Area Office/ Regional Store/ Central Link locations are the responsibility of Project Implementer and he will have to bear the cost involved. However the respective E&T In-Charge of Area will coordinate for smooth execution/ installation/ implementation/ integration of the turnkey project of their areas.
- 3.19 The existing CCL Tower & Mast (with permission) may be used wherever possible.
- 3.20 Other active/passive hardware or software not mentioned but required will be considered under scope of supply.
- 4.0 **Scope of Work:**
- 4.1 The "Project Implementer" is required to Design, Supply, Installation, Commissioning, Implementation, Training and Maintenance of GPS based Vehicle Tracking System for coal transportation, RFID with CCTV based Weighing Control and Monitoring system along with Boom barrier, Traffic Signal etc. and integration with existing weighbridge system on Turnkey basis in all Projects/Mines of CCL for a period of 60 months on Monthly Service Charge basis. The prospective Project Implementer s

- have to provide the necessary hardware, software and other related equipments along with the required qualified maintenance personnel to provide satisfactory maintenance support for the offered system for 60 months.
- 4.2 Installation of GPS receiver on all vehicles engaged in transportation of coal in the different command areas/mines of CCL. Whenever an existing vehicle on which GPS receiver is mounted got withdrawn from the fleet and/or replaced by another, the system provider is required to remove the GPS receiver and RF ID tag from the withdrawn vehicle and install the same on the new/replacement vehicle. In such cases, it will also be the responsibility of the system provider to integrate this GPS receiver and RF ID tag with the equipment and telecommunication gear so that the new/replaced vehicle also becomes a part of the GPS based Vehicle Tracking and RFID with CCTV Weighbridge Control and Monitoring System.
 - 4.3 Establish Control Room with furniture and fixtures in all the Area offices to monitor the movement of Vehicles and status of Road Weighbridges at the Area office round the clock 24x7 basis in all shifts through proposed system. The required space will be provided by CCL.
 - 4.4 Emergency and Urgent on-site services should be available immediately after the receipts of service call by the resident service engineers of the system provider.
 - 4.5 Maintenance of the entire system during the contract period i.e. 60 months so that it can achieve the Guaranteed 98% Availability as detailed in terms and conditions.
 - 4.6 The GPS based Vehicle Tracking system & RFID with CCTV based Weighing Control and Monitoring system shall be operative round the clock in all shifts (24x7) during the contract.
 - 4.7 The project implementer has to provide Software Solution as per CCL requirement (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 1.0 "System Introduction" & 2.0 "Technical Requirements of Proposed System" on rental basis and carryout supply, installation, commissioning and maintenance of the same during the contract period to achieve objectives specified in BOQ.
 - 4.8 The Project Implementer have to provide the necessary hardware, software and other related equipments along with the required qualified maintenance personnel to provide satisfactory maintenance support for installation, commissioning, training and maintenance of the offered system throughout 60 months contract period after successful implementation and commissioning.
 - 4.9 The Project Implementer has to submit full technical details of the offered software solution and provide technical specifications thereof as per the BOQ.
 - 4.10 If any item required for successful implementation of the offered solution is not specified in the BOQ but is considered necessary for successful implementation of the solution, the same has to be supplied / provided by the M/s Orange Business Services India technology Pvt Ltd at his own cost and expenses and no additional Monthly Service Charge charges shall be paid by CCL for such supplies.
 - 4.11 The trucks transporting coal under the provisions of e-Auction and Linkage sales are also covered in RFID access control system.
 - 4.12 The trucks (Departmental Trucks, Dumpers & Pvt. Tippers) engaged in coal transportation will not be allowed to ply without GPS Unit installed in the trucks.
 - 4.13 The trucks deployed in a particular project will not be allowed to be diverted to other projects during the complete three shifts in a day i.e. one truck deployed in one particular project will not be allowed to ply in two or more projects on the same day. However, the trucks may be diverted to other projects with a written permission from the competent authority at the day end.
 - 4.14 After the successful installation and implementation of GPS units in Trucks (Departmental Trucks, Dumpers & Pvt. Tippers) engaged in movement of Coal, same shall be maintained / replaced by the M/s Orange during the entire period of contract. However if the GPS units are damaged either intentionally or driver's fault (for outsourced trucks) the responsibility of repair and replacement will be that of the truck owner. The decision of Control Room in-charge (AGM / SO (Mining) of respective Area) for this regard will be final.
 - 4.15 Server shall be capable of handling data for GPS/GPRS system for 2150 vehicles, RFID with CCTV system for 112 nos. of Road Weighbridge and RFID writer for 52 nos. of Project Office. There should be a provision for handling data for additional 25% of GPS/GPRS based Vehicle Tracking System & RFID with CCTV based Weighing Control and Monitoring System which may be brought under scope of work in future. The server shall have the facility to generate SMS alert & email for concerned official.
 - 4.16 The details of vehicle should be loaded within 30 seconds from the time a user enters the Queries, in his screen in both Area Offices and HQ. The maximum no. of concurrent users for VTS System per Area Office would be 10 and for HQ would be 25.
 - 4.17 The Project Implementer should note that availability of GPRS network over the entire operating area across CCL command Area is not guaranteed. The prospective Project Implementer must make a survey of the entire area, where offered Vehicle Tracking System has to work, to ensure the availability of GPRS network from leading mobile service provider before submitting the bid and submit the bid based on the best service provided by individual service provider in each area.
 - 4.18 Project Implementer has to maintain and operate whole project on Hand Holding basis for the period of 5 years.

- 4.19 All the hardware and software of the proposed system must be IPv6 compatible.
- 4.20 The vehicle/tipper assigned to particular mine or group of mines shall be indicated separately.
- 4.21 The equipments / components being quoted should be **Brand New**; no refurbished / old equipments shall be used for quoting.
- 4.22 Hindrance register should be maintained for recording the hindrances. This shall be maintained on day to day basis and should be signed by both parties. Disputes if any should be decided by Project Coordinator or authority higher than him which should be binding on the contractor. In case of dispute, decision should be conveyed within 15 days from the dispute.
- 5.0 **Training:** Project Implementer will provide the following trainings
- a) For each (GPS and RFID with CCTV) of the system installed by you are required to train the CCL's technical and end-user officials/staff to enable them to effectively manage and use the system. The training and accompanying materials shall be provided in English/Hindi. You shall provide a detailed operations and user manuals for each (GPS and RFID with CCTV) of the system. The training should include all the relevant items required to operate the systems by the end user and the operation and management of GPS based vehicle tracking system and RFID with CCTV based weighing control and monitoring system. The training shall cover all aspects of proposed networking equipments, GPS units, RFID Reader and Writer, Network management, Network administration and troubleshooting etc. The details shall be discussed mutually and agreed upon. The training shall be conducted for a period of not less than 30 days and the dates shall be decided by mutual consent. The training is to be conducted on-site at Respective Areas and CCL (HQ) for all levels which includes:
- Operators
 - Supervisors
 - Project Coordinator / System Administrator
- Note: The hands on of training for operators / supervisors must be conducted at respective WBs.**
- b) Training on advance system maintenance and administration shall be arranged by the tenderer at Tenderer's premises/tenderer's designated place or at the respective OEM designated place (in India or in abroad) for 4 – personnel of CCL for 5 working days incase at the tenderer premises/tenderer's designated place or 2 days at each of the OEM designated place. All the travel, lodging & boarding expenses for the training at Tenderer's premises/tenderer's designated place or at the respective OEM designated place (in India or in abroad) will be borne by the tenderer/ OEM.
- c) The tenderer may offer the cost of the training accordingly in their offer.
- 6.0 **Scope of Maintenance:**
- 6.1 Comprehensive maintenance work is to be done by the M/s Orange Business Services India technology Pvt Ltd or by its authorized agency
- 6.2 Comprehensive maintenance work covers those items explained in BOQ and supplied by the M/s Orange Business Services India technology Pvt Ltd against the contract.
- 6.3 M/s Orange Business Services India technology Pvt Ltd will carry out all routine schedule maintenance jobs at the required locations and providing all labour, all spare parts, inspection & supervision services related to the above.
- 6.4 Maintaining the system to achieve guaranteed availability as per contract will be the responsibility of Project Implementer, otherwise penalty will be applicable as per penalty Terms & Conditions.
- 6.5 Free maintenance for all hardware & software services and software upgrades shall be provided by the M/s Orange Business Services India technology Pvt Ltd. during the entire rental period.
- 6.6 The response time to attend a maintenance complaint/breakdown call at site shall not exceed 4 hrs. Thus supplier will respond and commence repair work on the equipment within 4 hrs. of being notified about the system malfunction either by repair or replace.
- 6.7 The periodicity of preventive maintenance shall be decided by the designated Chief Project Coordinator of CCL and the Project Implementer as per requirement but it must be at least once in a month and shall be carried out during normal working days.
- 6.8 All spare parts and components have to be supplied and installed free of cost at site during the period of contract by the Project Implementer. Printing media i.e. paper, printer ribbons, ink cartridges, toner cartridges shall only be treated as consumables and the same shall be provided by CCL during the 60 months rental period.
- 6.9 No other items, except as mentioned above, shall be considered as consumables. Print heads for dot matrix / laser printers and UPS battery or such other parts not included in the list of consumable items given above shall have to be supplied by the Project Implementer free of cost as and when needed.
- 6.10 Project Implementer's responsibility for maintenance shall be the maintenance / replacement of each and every spares / components including Battery in case of UPS, for entire rental period (i.e. 5 years or 60 months).
- 7.0 **Work & Safety regulations:**
- 7.1 The Project Implementer shall ensure proper safety of all the workmen, materials plant and equipment belonging to him or the company or to others, working at or near the site. The contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislation and the Project Coordinator as he may deem necessary.
- 7.2 The Project Implementer will notify well in advance to the Project Coordinator of his intention to bring to the site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals which may involve hazards. The Project

- Coordinator shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the contractor shall strictly adhere to and comply with such instructions.
- 7.3 All equipment used in construction and erection by contractor shall meet Indian, International Standards and where such standards do not exist, the contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the contractor in accordance with manufacturer's operation manual and safety instructions and per Guidelines/Rules of the Company in this regard.
- 7.4 The Project Implementer shall provide suitable safety equipment of prescribed standard to all employee and workmen according to the need, as may be directed by Project Coordinator who will also have right to examine these safety equipment to determine their suitability, reliability, acceptability and adaptability.
- 7.5 The Project Implementer shall provide safe working conditions to all workmen and employees at the site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings, stairs, ladders etc. shall be erected under the control and supervision of an experienced and competent person. For erection, good and standard quality of material only shall be used by the contractor.
- 7.6 The Project Implementer shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the owner or other contractors under any circumstances, whatsoever, unless expressly permitted in writing by the Company to handle such fuses, wiring or electrical equipment.
- 7.7 Before the contractor connects any electrical appliances to any plug or socket belonging to the other contractor or owner, he shall:
- Satisfy the engineer that the appliances is in good working condition
 - Inform the engineer of the maximum current rating, voltage and phases of the appliances.
 - Obtain permission of the engineer detailing the sockets to which the appliances may be connected.
- 7.8 The Engineer will not grant permission to connect until he is satisfied that:
- The appliance is in good condition and is fitted with a suitable plug
 - The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.
- 7.9 No electric cable in use by the contractor/owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.
- 7.10 No repair work shall be carried out on any live equipment. The equipment must be declared safe by Project Coordinator and a permit to work shall be issued by Project Coordinator before any repair work is carried out by the contractor. While working on electric lines/equipments whether alive or dead, suitable type and sufficient quantity of tools will have to be provided by contractor to electricians/workmen/officers.
- 7.11 In case, any accident occurs during the construction/erection or other associated activities undertaken by the contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the contractor to promptly inform the same to the company's Project Coordinator in prescribed form and also to all the authorities envisaged under the applicable laws.
- 7.12 The Project Coordinator shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove short comings promptly. The Project Implementer after stopping the specific work, can, if felt necessary, appeal against the order of stoppage of work to the General Manager of the project within 3 days of such stoppage of work and decision of the project G.M. in this respect shall be conclusive and binding on the Project Implementer.
- 7.13 The Project Implementer shall not be entitled for any damages/compensation for stoppage of work due to safety reasons as provided and the period of such stoppage of work will not be taken as an extension of time for completion of work and will not be the ground for waiver of levy of liquidated damages.
- 7.14 If the Project Implementer does not take all safety precautions and/or fails to comply with the safety rules as prescribed by the company or under the applicable laws for the safety of the equipment and plant and for the safety of personnel and the contractor does not prevent hazardous conditions which cause injury to his own employees or employees of other contractors, or the company employees or any other person who are at site or adjacent thereto, the contractor shall be responsible for payment of compensation under the relevant provisions of the workmen's compensation act and rules framed there under or any other applicable laws as applicable from time to time.

8.0 Suspension, Cancellation & Foreclosure of Service Contract:

CCL shall, in addition to other remedial steps to be taken as provided in the conditions of Service Contract be entitled to cancel the Service Contract in full or in part, if the supplier:

- 8.1 Notwithstanding anything contained hereinbefore, if the successful Project Implementer / supplier fails to perform its contractual obligation and/or make breach of the contract in any form and/or make delay in progress and if CCL is of the

opinion that the successful Project Implementer / supplier is not in a position to complete the work within schedule time or within a reasonable extended period, in such case CCL shall be entitled without prejudice to its right to fulfillment, to engage other at the risk and cost of the successful Project Implementer /supplier and to claim the difference in price and adjust / recovery thereof from the dues of security deposit or the performance bank guarantee or to recover / adjust from the dues of the successful Project Implementer / supplier from CCL or from other subsidiary company of Coal India Limited, Kolkata.

- 8.2 If the Project Implementer are under liquidation either by a resolution passed by the company or by an order of court, not being voluntary liquidation proceedings for the purpose of amalgamation or re-organization, or a receiver or manager is appointed by the court on the application by the debenture holders of the company, if any.
- 8.3 If the Project Implementer offers or give or agree to give to any person in service of the company or to any other person on his behalf any gift or consideration of any kind as an inducement or reward to act or acts of favour in relation to the obtaining or execution of his contract for the company.
- 8.4 Obtain a contract with company as a result of ring tendering or other non-bonafide methods of competitive tendering or transfers, subjects, assigns the entire work or any portion thereof without the prior approval in writing from CCL or its authorized representative.
- 8.5 Makes default in proceeding with the works with due diligence and continues to do so even after a notice in writing from the Project Coordinator, then on the expiry of the period as specified in the notice.
- 8.6 Commits default / breach in complying with any of the terms and conditions of the contract and do not remedy it or fails to take effective steps for the remedy to the satisfaction of the Project Coordinator, then on the expiry of the period as may be specified by the Project Coordinator in a notice in writing.
- 8.7 Fails to complete the work or items of work with individual dates of completion, on or before the date/dates of completion or as extended by the company, then on the expiry of the period as may be specified by the Project Coordinator in a notice in writing.
- 8.8 Shall offer or give or agree to give any person in the service of the company or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for act/acts of favour in relation to the obtaining or execution of this or any other contract for the company.
- 8.9 Obtains a contract with the company as a result of ring tendering or other non-bonafide method of competitive tendering.
- 8.10 Transfers, sublets, assign the entire work or any portion thereof without the prior approval in writing from the Project Coordinator. The Project Coordinator may, by giving a written notice, cancel the whole contract or portion of it in default.
- On cancellation of the Service Contract or on termination of the Service Contract, for reasons as specified above, CCL or its authorized representative will have the powers.

- To determine the amount to be recovered from the Project Implementer for completing the remaining installation work or in the event of the remaining work is not to be completed the loss/damage suffered, thereof, if any, by the company, after giving credit for the value of the work executed by the supplier up to the time of cancellation less on a/c payments made till that date and value of contractor's materials etc. taken possession by CCL after cancellation of the contract.
- To recover the amount determined as above, if any, from any money due to the supplier on any account or under any other contract and in the event of any shortfall, the Project Implementer shall be called upon to pay the same on demand.

- 9.0 Minimum manpower requirement at CCL (HQ) Ranchi is to post one Engineer who will be the overall in-charge of the project and one Supervisor/Technician in each area who will look after preventive and corrective maintenance of the system exclusively for CCL and its command area. He should be able to sort out both Hardware and software related problems / breakdown of the project. The qualification & experience requirement for Engineer and Supervisor / Technician for the above said job should be as follows:

Qualification of Engineer at HQ:

- Degree in Electronics and Communication / Computer Science / Information Technology / Electrical with 2 years experience and must be CCNA certified.

OR

Diploma in Electronics and Communication / Computer Science / Information Technology / Electrical with 3 years experience in networking field and must be CCNA certified.

Qualification of Supervisor / Technician at Each Area:

- Diploma in Electronics and Communication / Computer Science / Information Technology / Electrical with 1 year experience in networking field and must be CCNA certified.

OR

ITI in Electronics and Communication / Computer Science / Information Technology / Electrical with 3 years experience of maintenance

Note: Besides the minimum manpower requirement in CCL as described above, the Project Implementer may deploy more

manpower for the maintenance during the contract period to attend and revive the breakdown/fault within 4 hours after getting information of breakdown/fault.

10. Location & Volume of Work:

- A. CCL Command Area: Argada, B&K, Barka Sayal, Dhori, Hsazirbagh, Kathara, Kuju, N. K., Piparwar, Rajhara & Rajrappa. Currently 52 nos. of Project Offices are working in different areas of CCL.
- B. Total No. of Weighbridge: 112 nos. of weighbridge are proposed for RFID system. RFID system at weighbridge consist RFID Reader, CCTV, Traffic Signal, Boom Barrier. The additional Road weighbridges required to meet total of 112 nos. will be installed by E&M Department of CCL.
- C. Coal Transporting Vehicles: Currently 2150 nos. of Trucks and Pvt. Tipper are engaged in Coal Transportation from Mines to Washery / Railway siding.

11.0 Patent Rights:

- 11.1. The Project implementer shall indemnify the CCL against all 3rd party claims of software piracy & infringement of intellectual property rights. In the event of any claim asserted by a third party of infringement of copyright, patent, trademark or industrial design rights arising from the use of the Goods and services or any part thereof in India, the Project Implementer shall act expeditiously to extinguish such claim, if the Project implementer fails to comply and CCL is compelled to pay compensation to a third party resulting from such infringement, the successful Project implementer shall be responsible for the compensation including all expenses, court costs and lawyer fees to CCL.
- 11.2. The System provider and their Personnel shall not disclose any proprietary or confidential information relating to the Project Services, this contract or the employer's business or operations without the prior written consent of the Employer. System provider shall sign an Integrity Pact as per format provided in the tender document.

12.0 Quality Assurance:

The contractor shall carry out and complete the work in every respect in accordance with the contract and shall ensure that the work conforms strictly to the instructions of the Project Coordinator. The Project Coordinator may issue, from time to time, further detailed instructions / directions in writing to the contractor. All such instructions / directions shall be consistent with the contract documents and should be reasonably inferable there from, along with clarifications / explanations thereof, if necessary.

13.0 Completion Certificate / Defect Liability Certificate:

On completion of the work and notifying the same by the contractor to the Project Coordinator, Completion Certificate shall be issued by the Project Coordinator only in the event the work is completed satisfactorily in every respect. Payment of final bill shall be made on completion of the contract and refund of Security deposit shall, however, be made as per relevant clause of the contract.

14.0 Techno Commercial Terms & Conditions:

- 14.1 The project implementer should do the Liaisoning with any statutory authority for obtaining all the necessary clearances such as ETA etc. Tenderer should also indicate the license fees etc. in the offer which CCL has to pay to the concerned Govt. Organizations. Arrangement for its payment will be the responsibility of the Supplier (Project implementer). The copy of Equipment Type Approval (ETA) shall be submitted for RFID Reader & RFID Writer along with Technical Bid.
- 14.2 The software solution of the offered system shall be capable to communicate & exchange data with CoalNet Software and any ERP package. It shall have provision of Up gradation whenever required during 5 years period without any extra cost.
- 14.3 Industry Standard ODBC (Open Database Connectivity) compliant technology is to be used to provide capability of integration with other industry standard solutions provided by other vendors.
- 14.4 integration of all GPS devices with the web-enabled VTS application on the CCL website through a secured link which is also to be incorporated by the system provider.
- 14.5 The ownership of all the data captured and reports generated by the system during entire contract period shall remain with CCL and the same be made available to CCL in soft copy for future uses.
- 14.6 The CCL management shall have right to increase or decrease the quantity of GPS receiver installed in the vehicle as well as RFID with CCTV system as and when required by CCL management.

15.0 Availability (Uptime) and Regulation of Rentals:

- 15.1 Project Implementer assures a minimum availability (Uptime) of 98% for each system (GPS & RFID with CCTV) of the said project. The available time will be estimated separately for each system.
- 15.2 Turnkey Project downtime will be reckoned round the clock (24x7). Maximum Grace Period to attend & revive the breakdown will be 4 hours after getting information. For e.g. if the down time starts at 12.00 hours on a day and extends

up to 11.00 hours the following working day, the downtime would be calculated as below:

First day: from 12.00 hrs to 12.00 hrs (i.e. 12.00 hrs).
 Second day: from 12.00 hrs to 11.00 hrs (i.e. 11.00 hrs).
 Total downtime: (23 - 4) hours = 19 hrs

- 15.3 **Availability Provision for GPS/ GPRS based Vehicle Tracking System:** The system provider shall guarantee that the system supplied pursuant to this contract shall be available for use of CCL and shall meet the performance criteria in accordance with the terms & conditions of the guaranteed availability as outlines below. The guaranteed availability for the each "GPS/ GPRS based Vehicle Tracking System" shall not be less than 98% calculated on monthly average basis and in no case shall fall below 75%.

Availability during the month shall be calculated as follows:

$$\% \text{ Daily availability} = \frac{24 \times M - \text{TBD}}{24 \times M} \times 100$$

Where:

M = GPS mounted vehicles to be monitored in a day
 TBD = Total sum of hours in a day during which individual vehicle is not monitored.

$$\% \text{ Monthly Availability} = \frac{\text{Sum of \% Daily availability during the month}}{\text{No. of days in a month}}$$

Example: Since the system is expected to work round the clock, each GPS receiver mounted vehicle is expected to be monitored 24 hours per day for say 2150 number of such vehicles deployed in a day. Out of these 2150 vehicles if 20 are not monitored (under breakdown) for two hour on a day and 15 are not monitored (under breakdown) for one hour on the same day then the percent availability during that day will be as follows:

$$\% \text{ Daily Availability} = \frac{24 \times 2150 - (20 \times 2 + 15 \times 1)}{24 \times 2150} \times 100 = 99.89$$

$$\% \text{ Monthly Availability} = \frac{\text{Sum of \% Daily availability during the month}}{\text{No. of days in the month}}$$

- 15.4 **Availability Provision for RFID with CCTV based Weighing Control and Monitoring System:**

The system provider shall guarantee that the system supplied pursuant to this contract shall be available for use of CCL and shall meet the performance criteria in accordance with the terms & conditions of the guaranteed availability as outlines below. The guaranteed availability for the entire "RFID with CCTV based Weighing Control and Monitoring System" shall not be less than 98% calculated on monthly average basis and in no case shall fall below 75%.

Availability during the month shall be calculated as follows:

$$\% \text{ Daily availability} = \frac{24 \times N - \text{TBD}}{24 \times N} \times 100$$

Where:

N = No. of WBs in which RFID with CCTV based Weighing Control and Monitoring System operated in a day
 TBD = Total sum of hours in a day during which individual WBs in which RFID with CCTV based weighing control and monitoring system is not functioning

Note: Suppose there are 4 WBs in one Project Office and 2 WBs are not functioning for 5 Hrs. due to some problem, thus these 2 WBs will be considered as individual WB break down. If there is some problem with RFID writer for 3 Hrs. of that Project Office, due to this, vehicles are waiting in Project Office for RFID Tag and WBs are idle then TBD will be considered for all 4 WBs.

$$\% \text{ Monthly Availability} = \frac{\text{Sum of \% Daily availability during the month}}{\text{No. of days in a month}}$$

Example: Since the system is expected to work round the clock, RFID with CCTV based weighing control and monitoring system is expected to be monitored 24 hours per day for say 112 number of such weighbridge deployed in a day. Out of these 112 RFID with CCTV based weighing control and monitoring system if 5 are under breakdown for two hour on a day and RFID writer of one Project Office having 6 WBs is under breakdown for 1 hour on the same day then the percent availability during that day will be as follows:

$$\% \text{ Daily Availability} = \frac{24 \times 112 - (5 \times 2 + 6 \times 1)}{24 \times 112} \times 100 = 99.40$$

$$\% \text{ Monthly Availability} = \frac{\text{Sum of \% Daily availability during the month}}{\text{No. of days in the month}}$$

15.5 Penalty Clause:

- In case availability of Turnkey Project for falls below 98%, the Monthly Service Charge charges payable by CCL will be reduced by ONE percent for each One percent reduction in availability, e.g. 5% reduction for 93% availability. However, no Monthly Service Charge will be payable for availability below 75%.
- If the availability goes below 75% continuously for 3 months, an amount equal to Monthly Service Charge will be deducted as penalty in 4th month from Project Implementer's Performance Bank Guarantee.
- If the availability still goes below 75% in 4th, 5th & 6th month, the deduction of an amount equal to Monthly Service Charge from Project Implementer's Performance Bank Guarantee as penalty will continue till 6th month.
- Again if the availability further goes below 75% in 7th month, CCL is free to forfeit remaining Project Implementer's Performance Bank Guarantee and the Service Contract will be terminated.

15.6 In case, any of the components of each system is out of order then the affected system will be considered to be under breakdown.

15.7 No bonus or additional sums shall be payable if the availability is more than 98%.

15.8 It shall be the responsibility of the Project Implementer to make necessary adjustments and / or repairs to keep the systems as per specification in good working condition.

15.9 If the machine down time is anticipated to continue over to the next 5 working days, the defective System / Components shall be replaced by a suitable System / Components of the same or higher configuration.

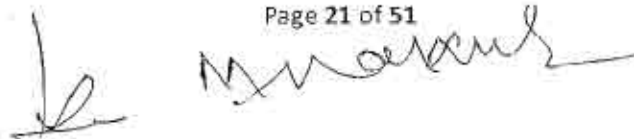
15.10 CCL shall be responsible for ensuring proper use of the system, its management and supervision by qualified trained personnel. The monthly Service Charge should be firm without escalation inclusive of all taxes, levies, duties etc except service tax for which the You has to submit the documentary evidence for claiming reimbursement as per existing rules during the entire project life cycle, which is in no case less than 5 years. During the rental period, adjustments towards change in statutory taxes and duties like Service tax etc may be made by CCL subject to production of documentary evidence regarding such changes.

15.11 Any equipment found broken, defective, malfunctioning, under-functioning will have to be repaired/replaced by the Project Implementer at no extra cost to CCL during the entire project life cycle.

15.12 It shall be the responsibility of the project implementer to make necessary adjustments and/or repairs/maintenance to keep the Turnkey Project in CCL as per specification / requirement in proper and satisfactory working condition.

15.13 The Project Implementer & CCL will decide the periodicity of maintenance and it should not be less than once in a month.

15.14 The Project Implementer should assure that all breakdown calls shall be attended at the earliest but not more than 12 hours and will endeavor to keep all the components of Turnkey Project in CCL in fully operational condition.



15.15 By components of Turnkey Project in CCL, CCL mean all the items listed in ANNEXURE - "G1".

15.16 Project Implementer's responsibility for maintenance shall be the maintenance / replacement of each and every spares / components including Battery in case of UPS, for entire rental period (i.e. 5 years or 60 months).

 *M. Narasimha*

Bill of Quantity (BOQ) Area Wise

Overview of ARGADA Area

SN.	Particulars	Nos	Details	
1.	Project	4	Gidi A, Gidi C, Sirka/Argada&Gidwashery	
2.	Mines	6	Gidi A, Gidi C, Religara, Sirka O/C, Sirka U/G, &Argada U/G	
3.	Washery	1	Gidi Washery	
4.	Road Weighbridge	8	WB-1	Gidi C
			WB-2	Religaria
			WB-3	Sirka ** (Mechanical WB to be replaced with Electronic WB)
			WB-4	Argada UG **
			WB-5	Gidi Washery - I
			WB-6	Gidi Washery - II
			WB-7	Gidi - A
			WB-8	Argada (LEO)
5.	Vehicle for VTS	120	52 nos. for Trucks.	
			68 nos. for PVT Tippers.	

** Additional Requirement of Road WB is 2 nos. against Mechanical WB

ARGADA Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	120	52 nos. for Trucks. 68 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	250	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	8	8 nos. for weighbridges.
A.4	Boom barrier	Nos.	8	8 nos. for weighbridges.
A.5	Traffic Signal	Nos.	8	8 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	8	8 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	8	8 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	8	8 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	8	8 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	4	4 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	4	4 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	12	8 nos. for weighbridges, 4 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	12	8 nos. for weighbridges, 4 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 120 nos. Trucks for VTS, 8 Weighbridge for RFID & CCTV, 1 Area Offices & 4 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	8 channel NVR with 6 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 3 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		

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C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	120	As per the no. of Trucks.

Overview of B & K Area

SN.	Particulars	Nos.	Details	
1.	Project	6	Giridih, Karo (Karo OC & Karo OC new), Bokaro, KhasMahal (KMP & KSP-2), Kargali (OC & UC), Kargali Washery.	
2.	Mines	9	Bokaro OC, Kargali OC, Kargali UG, Karo OC, KhasMahal OC, Karo Spl. UG, Giridih OC, kabribad OC, Konar OC.	
3.	Washery	1	Kargali washery	
4.	Road Weighbridge	15	WB-1	Khasmahal OCP.
			WB-2	Kargali Washery - I **
			WB-3	Kargali Washery - II
			WB-4	Giridih
			WB-5	Karo
			WB-6	Jarandih
			WB-7	Karo
			WB-8	KhasMahal - I
			WB-9	KhasMahal - II
			WB-10	Giridih - I
			WB-11	Giridih - II
			WB-12	Bokaro
			WB-13	GM Unit
			WB-14	Konar - I
			WB-15	Konar - II
5.	Vehicle for VTS	173	62 nos. for Trucks	
			111 nos. for Pvt. Tripper.	

** Additional Requirement of Road WB is 1 no. against converted Electronic WB.

B & K Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	173	62 nos. for Trucks. 111 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	350	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	15	15 nos. for weighbridges.
A.4	Boom barrier	Nos.	15	15 nos. for weighbridges.
A.5	Traffic Signal	Nos.	15	15 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	15	15 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	15	15 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	15	15 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	15	15 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	6	6 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	6	6 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	21	15 nos. for weighbridges. 6 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	21	15 nos. for weighbridges. 6 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System"	No.	1	

	173 nos. Trucks for VTS, 15 Weighbridge for RFID & CCTV, 1 Area Offices & 6 Project Office			
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution detail in B.2.) on private APN and Private IP for 5 years	Nos.	173	As per the no. of Trucks.

Overview of BARKA SAYAL Area

SN.	Particulars	Nos.	Details	
1.	Project	5	Bhurkunda, Sayal-D, Urimari O/C, Birsa O/C, Saunda-D U/G.	
2.	Mines	8	Bhurkunda O/C, Bhurkunda U/G, Sayal-D U/G, Urimari U/G, Urimari O/C, Birsa O/C, Saunda-D U/G, Central Saunda U/G	
3.	Washery	Nil		
4.	Road Weighbridge	10	WB-1	Urimari - I **
			WB-2	Bhurkunda - I
			WB-3	Urimari - II
			WB-4	Urimari - III
			WB-5	Urimari - IV
			WB-6	Bhurkunda - II
			WB-7	Central Saunda
			WB-8	Saunda D - I
			WB-9	Birsa - I
			WB-10	Birsa - II
5.	Vehicle for VTS	115	50 nos. for Trucks.	
			65 nos. for PVT Tippers.	

** Additional Requirement of Road WB is 1 no. against converted Electronic WB.

BARKA SAYAL Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	115	50 nos. for Trucks. 65 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	250	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	10	10 nos. for weighbridges.
A.4	Boom barrier	Nos.	10	10 nos. for weighbridges.
A.5	Traffic Signal	Nos.	10	10 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	10	10 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	10	10 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	10	10 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	10	10 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	5	5 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	5	5 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	15	10 nos. for weighbridges. 5 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	15	10 nos. for weighbridges. 5 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	

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B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 115 nos. Trucks for VTS, 10 Weighbridge for RFID & CCTV, 1 Area Offices & 5 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years.	Nos.	115	As per the no. of Trucks.

Overview of DHORI Area

SN.	Particulars	Nos.	Details																												
1.	Project	5	Amla, Dhori East, DhoriKhas UG, SDQ-1(Kalyani), & SDQ-3																												
2.	Mines	6	Amla OC, Dhori East OC, SDQ-1 OC (Kalyani), SDQ-3 OC, Tarmi OC, & DhoriKhas UG																												
3.	Washery	Nil																													
4.	Road Weighbridge	14	<table border="1"> <tr><td>WB-1</td><td>SDQ-1-I</td></tr> <tr><td>WB-2</td><td>SDQ-1-II</td></tr> <tr><td>WB-3</td><td>SDQ-3-I Tarmi</td></tr> <tr><td>WB-4</td><td>SDQ-3-II Makolli</td></tr> <tr><td>WB-5</td><td>Amla-I</td></tr> <tr><td>WB-6</td><td>Amla-II</td></tr> <tr><td>WB-7</td><td>DhoriKalyani</td></tr> <tr><td>WB-8</td><td>Amla-I (New)</td></tr> <tr><td>WB-9</td><td>Amla-II (New)</td></tr> <tr><td>WB-10</td><td>SDQ-3-I (New)</td></tr> <tr><td>WB-11</td><td>SDQ-3-II (New)</td></tr> <tr><td>WB-12</td><td>Pichra</td></tr> <tr><td>WB-13</td><td>Arwal</td></tr> <tr><td>WB-14</td><td>Dhori (LEO)</td></tr> </table>	WB-1	SDQ-1-I	WB-2	SDQ-1-II	WB-3	SDQ-3-I Tarmi	WB-4	SDQ-3-II Makolli	WB-5	Amla-I	WB-6	Amla-II	WB-7	DhoriKalyani	WB-8	Amla-I (New)	WB-9	Amla-II (New)	WB-10	SDQ-3-I (New)	WB-11	SDQ-3-II (New)	WB-12	Pichra	WB-13	Arwal	WB-14	Dhori (LEO)
WB-1	SDQ-1-I																														
WB-2	SDQ-1-II																														
WB-3	SDQ-3-I Tarmi																														
WB-4	SDQ-3-II Makolli																														
WB-5	Amla-I																														
WB-6	Amla-II																														
WB-7	DhoriKalyani																														
WB-8	Amla-I (New)																														
WB-9	Amla-II (New)																														
WB-10	SDQ-3-I (New)																														
WB-11	SDQ-3-II (New)																														
WB-12	Pichra																														
WB-13	Arwal																														
WB-14	Dhori (LEO)																														
5.	Vehicle for VTS	172	<table border="1"> <tr><td>72 nos. for Trucks</td></tr> <tr><td>100 nos. for Pvt. Tripper</td></tr> </table>	72 nos. for Trucks	100 nos. for Pvt. Tripper																										
72 nos. for Trucks																															
100 nos. for Pvt. Tripper																															

DHORI Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	172	72 nos. for Trucks. 100 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	350	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	14	14 nos. for weighbridges.
A.4	Boom barrier	Nos.	14	14 nos. for weighbridges.
A.5	Traffic Signal	Nos.	14	14 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	14	14 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	14	14 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	14	14 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	14	14 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	5	5 nos. for Project Office

A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	5	5 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	19	14 nos. for weighbridges. 5 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	19	14 nos. for weighbridges. 5 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 172 nos. Trucks for VTS, 14 Weighbridge for RFID & CCTV, 1 Area Offices & 5 Project Office.	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	172	As per the no. of Trucks.

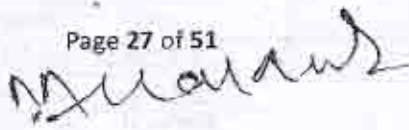
Overview of HAZARIBAGH Area

SN.	Particulars	Nos.	Details	
1.	Project	7	Parej OC, Tapin North OC, Tapin South OC, Jharkhand OC, Kedla UG, Kedla OC, Kedla Washery & (R. A. Shop)	
2.	Mines	6	Parej OC, Tapin North OC, Tapin South OC, Jharkhand OC, Kedla OC & Kedla UG	
3.	Washery	1	Kedla Washery	
4.	Road Weighbridge	11	WB-1	Kedla OCP **
			WB-2	Tapin South
			WB-3	Tapin North
			WB-4	Parej East
			WB-5	Jharkhand - I
			WB-6	Kedla washery Raw coal
			WB-7	Kedla washery washed coal
			WB-8	Tapin South
			WB-9	Jharkhand - II
			WB-10	Hazaribagh - I
			WB-11	Hazaribagh - II
5.	Vehicle for VTS	252	72 nos. For Trucks	
			180 nos. For Pvt. Tripper	

** Additional Requirement of Road WB is 1 no. against converted Electronic WB.

HAZARIBAGH Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	252	72 nos. for Trucks.



A.2	RFID Tags	Nos.	500	180 nos. for PVT Tippers With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	11	11 nos. for weighbridges.
A.4	Beam barrier	Nos.	11	11 nos. for weighbridges.
A.5	Traffic Signal	Nos.	11	11 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	11	11 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	11	11 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	11	11 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	11	11 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	7	7 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	7	7 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	18	11 nos. for weighbridges 7 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	18	11 nos. for weighbridges. 7 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT. Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 252 nos. Trucks for VTS, 11 Weighbridge for RFID & CCTV, 1 Area Offices & 7 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years.	Nos	252	As per the no. of Trucks

Overview of KATHARA Area

SN.	Particulars	Nos.	Details
1.	Project	5	Jharandih, Kathara, Swang, Swang Washery & Kathara Washery
2.	Mines	6	Jharandih UG, Jharandih OC, Kathara OC, Govindpur UG, Swang UG, Swang OC
3.	Washery	2	Swang Washery & Kathara Washery
4.	Road Weighbridge	11	WB-1 Kathara Washery
			WB-2 Kathara Washery
			WB-3 Swang Washery
			WB-4 Swang Washery
			WB-5 Govindpur
			WB-6 Jharandih - I
			WB-7 Jharandih - II
			WB-8 Hasnapani
			WB-9 Swang - I
			WB-10 Swang - II
			WB-11 Swang - III
5.	Vehicle for VTS	224	60 nos. for Trucks 164 nos. for Pvt. Tripper

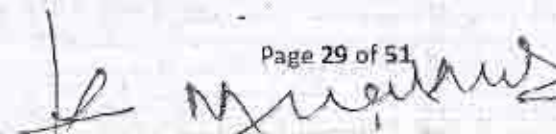
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KATHARA Area Bill of Quantity:

SN	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	224	60 nos. for Trucks. 164 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	450	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	11	11 nos. for weighbridges
A.4	Boom barrier	Nos.	11	11 nos. for weighbridges
A.5	Traffic Signal	Nos.	11	11 nos. for weighbridges
A.6	IP Fixed CCTV Camera	Nos.	11	11 nos. for weighbridges
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	11	11 nos. for weighbridges
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	11	11 nos. for weighbridges
A.9	Surge protection devices (SPD)	Nos.	11	11 nos. for weighbridges
A.10	RFID Writer with application software	Nos.	5	5 nos. for Project Office.
A.11	interactive UPS 1 KVA with 4 hrs. backup	Nos.	5	5 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	16	11 nos. for weighbridges. 5 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	16	11 nos. for weighbridges. 5 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (Including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 224 nos. Trucks for VTS, 11 Weighbridge for RFID & CCTV, 1 Area Offices & 3 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LED Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	224	As per the no. of Trucks.

Overview of KUJU Area

SN.	Particulars	Nos.	Details
1.	Project	7	Sarubera, Ara, Kuju, Topa, Pundra, Pundi & Karma
2.	Mines	8	Sarubera UG, Kuju UG, Hasagara OC, Topa UG, Topa OC, Pundra OC, Pundi OC & Karma OC
3.	Washery	Nil	
4.	Road Weighbridge	10	WB-1 Ara Feeder Breaker WB-2 Ara Check Post ** WB-3 Topa - I WB-4 Topa - II WB-5 Pundi - I ** WB-6 Pundi - II WB-7 Karma WB-8 Pindra



			WB-9	Kuju - I
			WB-10	Kuju - II
5.	Vehicle for VTS	383	34 nos. for Trucks	
			349 nos. for Pvt. Tripper	

** Additional Requirement of Road WB is 2 nos. against Mechanical WB.

KUJU Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	383	34 nos. for Trucks 349 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	750	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	10	10 nos. for weighbridges.
A.4	Boom barrier	Nos.	10	10 nos. for weighbridges.
A.5	Traffic Signal	Nos.	10	10 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	10	10 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	10	10 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	10	10 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	10	10 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	7	7 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	7	7 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	17	10 nos. for weighbridges 7 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	17	10 nos. for weighbridges, 7 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 383 nos. Trucks for VTS, 10 Weighbridge for RFID & CCTV, 1 Area Offices & 7 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	383	As per the no. of Trucks.

Overview of N. K. Area

SN.	Particulars	Nos.	Details	
1.	Project	5	Dakra OC, KDH OC, Rohini OC, Purnadih OC, Churi UG	
2.	Mines	5	Dakra OC, KDH OC, Rohini OC, Purnadih OC, Churi UG	
3.	Washery	Nil		
4.	Road weighbridge	10	WB-1	Rohini
			WB-2	Churi
			WB-3	KDH New
			WB-4	Dakra
			WB-5	Purnadih

			WB-6	KDH Old **
			WB-7	Purnadih
			WB-8	Darka - I *
			WB-9	Darka - II *
			WB-10	Rohini *
5.	Vehicle for VTS	198	72	nos. for Trucks
			126	nos. for Pvt. Tripper

*New Additional Requirement for implementing both way weighments.

** Additional Requirement of Road WB is 1 no. against old Electronic WB.

N. K. Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	198	72 nos. for Trucks. 126 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	400	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	10	10 nos. for weighbridges.
A.4	Boom barrier	Nos.	10	10 nos. for weighbridges.
A.5	Traffic Signal	Nos.	10	10 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	10	10 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	10	10 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	10	10 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	10	10 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	5	3 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	5	5 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	15	10 nos. for weighbridges. 5 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	15	10 nos. for weighbridges. 5 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (Including licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 198 nos. Trucks for VTS, 10 Weighbridge for RFID & CCTV, 1 Area Offices & 5 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2.) on private APN and Private IP for 5 years	Nos.	198	As per the no. of Trucks.

Overview of PIPARWAR Area

SN.	Particulars	Nos.	Details
1.	Project	4	Piparwar O/C, Ashok O/C, Bachra U/G & CHP/CPP
2.	Mines	3	Piparwar O/C, Ashok O/C, Bachra U/G
3.	Washery	1	CHP/CPP, PPR
4.	Road Weighbridge	22	WB-1, Kalyanpur CHP/CPP

			WB-2	Piparwar CHP/CPP - I
			WB-3	Piparwar CHP/CPP - II
			WB-4	Piparwar Mine - I
			WB-5	Piparwar Mine - II
			WB-6	Ashoka - I
			WB-7	Ashoka - II
			WB-8	Ashoka - III
			WB-9	Ashoka - I (RFID)
			WB-10	Ashoka - II additional
			WB-11	Ashoka - III additional
			WB-12	Ashoka - IV additional
			WB-13	Ashoka near FB
			WB-14	RCM siding (RFID)
			WB-15	RCM siding (RFID)
			WB-16	Piparwar Dump hopper
			WB-17	Piparwar Pilot Mine
			WB-18	Piparwar LEO
			WB-19	Bachra Siding *
			WB-20	Bachra Siding *
			WB-21	CHP/CPP *
			WB-22	CHP/CPP *
5.	Vehicle for VTS	398	38 nos. for Trucks	
			350 nos. for Pvt. Tipper	

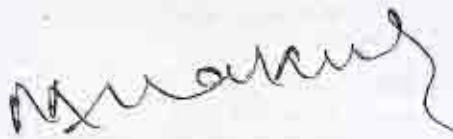
*New Additional Requirement for implementing both way weighment - 4 nos.

Note: Work Order has been placed for RFID system - 6 nos. in 6 nos. of Road Weighbridges and GPS system - 51 nos. in 51 trucks in Piparwar Area. This RFID system at Ashoka Project and GPS system at Piparwar Project should be integrated with VTS/ RFID/ CCTV system.

PIPARWAR Area Bill of Quantity

SN.	Descriptions	UoM	Qty	Remarks
A	Weigh Bridges & Project Offices			
A.1	GPS/GPRS Tracker	Nos.	398	38 nos. for Trucks. 350 nos. for Pvt. Tippers.
A.2	RFID Tags	Nos.	800	With the provision of reserve tags.
A.3	RFID Reader with application software	Nos.	15	15 nos. for weighbridges.
A.4	Boom barrier	Nos.	15	15 nos. for weighbridges.
A.5	Traffic Signal	Nos.	15	15 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	15	15 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	15	15 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	15	15 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	15	15 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	4	4 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	4	4 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	20	16 nos. for weighbridges. 4 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	20	16 nos. for weighbridges. 4 nos. for Project Office.
B	VTS Control Room At Area Office			
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 398 nos. Trucks for VTS, 15 Weighbridge for RFID & CCTV, 1 Area Offices & 4 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	

B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	16 channel NVR with 12 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C	Minimum Infrastructure & Services			
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	L5		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	L5		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	398	As per the no. of Trucks.

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Service Contract No. 000-22-1-03-15- 174 (Vehicle Tracking System)

Dated: 24.10.2014

Overview of RAJHARA Area

SN.	Particulars	Nos.	Details	
1.	Project	2	Rajhara OC & Tetariakhar OC	
2.	Mines	2	Rajhara OC & Tetariakhar OC	
3.	Washery	Nil		
4.	Road Weighbridge	4	WB-1	Rajhara OCP (Mechanical)**
			WB-2	Tetariakhar - I
			WB-3	Tetariakhar - II
			WB-4	Tetariakhar - III
5.	Vehicle for VTS	69	09 For Trucks	
			60 for Tripper	

** Additional Requirement of Road WB is 1 no. against Mechanical WB.

RAJHARA Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	69	9 nos. for Trucks. 60 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	150	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	4	4 nos. for weighbridges.
A.4	Boom barrier	Nos.	4	4 nos. for weighbridges.
A.5	Traffic Signal	Nos.	4	4 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	4	4 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	4	4 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	4	4 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	4	4 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	2	2 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	2	2 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	6	4 nos. for weighbridges. 2 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	6	4 nos. for weighbridges. 2 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 69 nos. Trucks for VTS, 4 Weighbridge for RFID & CCTV, 1 Area Offices & 2 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	8 channel NVR with 6 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	69	As per the no. of Trucks.

Overview of RAJRAPPA Area

SN.	Particulars	Nos.	Details	
1	Project	2	Rajrapa O/C & Rajrapa Washery	
2	Mines	1	Rajrapa O/C	
3	Washery	1	Rajrapa	
4	Road Weighbridge	3	WB-1	Rajrapa Check Post
			WB-2	Rajrapa Washery - I
			WB-3	Rajrapa Washery - II
5	Vehicle for VTS	46	35 nos. for Trucks + 1 no. for water sprinkle.	
			10 nos. for PVT Tippers.	

RAJRAPPA Area Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. Weigh Bridges & Project Offices				
A.1	GPS/GPRS Tracker	Nos.	46	35 nos. for Trucks 10 nos. for PVT Tippers.
A.2	RFID Tags	Nos.	100	With the provision of reserve tags
A.3	RFID Reader with application software	Nos.	3	3 nos. for weighbridges.
A.4	Boom barrier	Nos.	3	3 nos. for weighbridges.
A.5	Traffic Signal	Nos.	3	3 nos. for weighbridges.
A.6	IP Fixed CCTV Camera	Nos.	3	3 nos. for weighbridges.
A.7	16 Port Layer-2 Managed Switch including Rack (Weighbridge)	Nos.	3	3 nos. for weighbridges.
A.8	Online UPS 2 KVA with 4 hrs. backup	Nos.	3	3 nos. for weighbridges.
A.9	Surge protection devices (SPD)	Nos.	3	3 nos. for weighbridges.
A.10	RFID Writer with application software	Nos.	2	2 nos. for Project Office.
A.11	Interactive UPS 1 KVA with 4 hrs. backup	Nos.	2	2 nos. for Project Office.
A.12	Operator PC with 18.5" TFT monitor	Nos.	5	3 nos. for weighbridges. 2 nos. for Project Office.
A.13	Dot Matrix Printer	Nos.	5	3 nos. for weighbridges. 2 nos. for Project Office.
B. VTS Control Room At Area Office				
B.1	Area Server	No.	1	
B.2	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" 46 nos. Trucks for VTS, 3 Weighbridge for RFID & CCTV, 1 Area Offices & 2 Project Office	No.	1	
B.3	Server Rack	No.	1	
B.4	16 Port Layer-2 Managed Switch including Rack	Nos.	2	
B.5	Operator Work Station (Without Monitor)	No.	1	
B.6	42" LCD Screen (As Workstation Monitor)	No.	1	
B.7	A3 size Laser Printer	No.	1	
B.8	Operator PC with 26" TFT Monitor for RFID	No.	1	
B.9	8 channel NVR with 6 TB storage & 26" Monitor	No.	1	
B.10	Online UPS 5 KVA with 4 hrs. backup	No.	1	
B.11	Surge protection devices (SPD)	No.	1	
C. Minimum Infrastructure & Services				
C.1	Area Control Room with furniture and fixtures	No.	1	
C.2	Installation & Commissioning	LS		
C.3	Insurance Cost	Yr.	5	
C.4	Training as per clause no. 6.0 of NIT	LS		
C.5	Supervisor/Technician for support for 5 Years	No.	1	For maintenance & support
C.6	SIM charges (as per software solution dealt in B.2) on private APN and Private IP for 5 years	Nos.	46	As per the no. of Trucks,

CCL (HQ) Bill of Quantity:

SN.	Descriptions	UoM	Qty	Remarks
A. CCL (HQ)				
A.1	HQ Server	Nos.	2	
A.2	Auto Scheduled LTO Library (LTO 5/6) Backup device with Backup software	No.	1	

A.3	Server for Proxy & LTO Backup	Nos.	2
A.4	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System introduction" & 3.0 "Technical Requirements of Proposed System" 2150 nos. Trucks for VTS, 112 Weighbridges for RFID & CCTV, 11 Area Offices, 52 Project Office & CCL HQ.	Nos.	2
A.5	GIS Maps of all Areas	No.	1
A.6	16 Port Layer-2 Managed Switch including Rack	Nos.	2
A.7	Server Rack	No.	1
A.8	Operator Work Station (Without Monitor)	No.	1
A.9	42" LCD Screen (As Workstation Monitor)	No.	1
A.10	Operator PC with 26" TFT Monitor	No.	1
A.11	A4 size Laser Printer	No.	1
A.12	A3 size Laser Printer	No.	1
A.13	52" LCD Dashboard + MIS application for the Dashboard	No.	1
A.14	Online UPS 5KVA with 4 hrs. backup	No.	1
A.15	Surge protection devices (SPD)	No.	1
B.	Minimum Infrastructure & Services		
B.1	Furniture and Fixtures	No.	1
B.2	Installation & Commissioning	LS	
B.3	Insurance Cost	Yr.	5
B.4	Training as per clause no. 6.D of NIT	LS	
B.5	One Engineer for support for 5 Years	No.	1

Note:

1. Suitable control room not more than 200 sq. ft. in Area Offices to be constructed by the "Project implementer" with furniture and fixture, sufficient electrical wiring (concealed) and fittings etc.
2. All the proposed additional weighbridges will be installed by CCL along with Weighment Software.
3. 10 Mbps internet lease line of CCL (HQ) will be made available for VTS application.
4. 2 Mbps expandable to 4 Mbps internet lease line at all areas will be arranged by CCL for VTS application.
5. Replicate software for VTS and RFID information for the Area and HQ Server will be provided by party.

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Detailed Technical Specification with Make & Model:

SN.	Item	Technical Specification
A.	Project Offices & Weighbridges	
A1.	GPS/GPRS Tracker Make-DAN, Model-B101 (OR) Make- AC Tech Model- AVL-T50	<p>The GPS Unit shall be housed in locked suitable enclosure such that it can be fixed on the dashboard of the vehicle with necessary opening for egress & ingress of cables, antennas etc. GPS/GPRS Tracker should be following specification or higher.</p> <p>General Features:</p> <ul style="list-style-type: none"> • GPS (Location, speed, heading, timestamp) data polling and sending frequency capacity 1 minute. • Suitable for mining & dusty condition. • Location on demand on GPRS/SMS • Memory to store min 10000 positional tag. <p>GPS Specs:</p> <ul style="list-style-type: none"> • GPS Receiver: 16 Channel or more • Sensitivity: better than -160 dBm • Accuracy: Less than 10 mtr (2dRMS) <p>GPRS Communication:</p> <ul style="list-style-type: none"> • In-Built dual GPRS module/modem. • GPRS class 10 or above. • Should support all - SMS, Voice, Data, GPRS, TCP/IP, and FTP. <p>Power Supply:</p> <ul style="list-style-type: none"> • Input voltage range: 9.0 to 48.0 Volts. <p>Battery Backup:</p> <ul style="list-style-type: none"> • Suitable battery of 800 mAh (min.) for 8 hrs. or more in active mode including LED display. <p>Environmental Condition:</p> <ul style="list-style-type: none"> • Temperature Range: -5°C to +55°C • Humidity Level: 5% to 95% non-condensing. <p>Antenna:</p> <ul style="list-style-type: none"> • Should have internal GPRS antenna & should not be mounted in open to avoid tampering. • Should have internal GPS antenna & should not be mounted in open to avoid tampering. <p>Additional Feature:</p> <ul style="list-style-type: none"> • Status LED's to Indicate Power, GPS and GPRS status • Over the air configuration of parameters • Remote administration over the air. • Enclosure Protection: IP 65 or above documentary evidence from statutory body/Govt. Accredited laboratory may please be furnished in support of the same. • The unit should operate from 12 to 24 volts battery of the vehicle. • Tampering Alert.
A2.	RFID Tag Make-Omnia, Model-Innova Tag	<p>RFID Tag for Vehicle with following specification or higher:</p> <ul style="list-style-type: none"> • Operating Frequency: 860-960MHz, (Should be de-licensed) • Chip Type: EPC class 1 Gen 2 compliant up to 512 bits, Data retention of 10 years, Write endurance 100000 cycles • Storage Temp: -40°C to +70°C • Operating Temp: -5°C to +55°C • Ingress Protection: IP 65 • Operating mode: Passive (battery-less transponder) • Flexible Read / Write Range: up to 8-10m • Rugged construction for high durability • Use: Attachment by screws with the help of two holes. • Environment: Metallic
A3.	RFID Reader with Application Software Make-Thing Magic, Model- Astra EX RFID AS-EX-EU-POE	<p>Long Range UHF RFID Reader with built-in Antenna and IP 65 for capturing information from RFID Tags fixed on Trucks. RFID Reader should be with Water Proof Cover with IP 65 Protection Class. RFID Reader should be installed in the metallic pipe at appropriate height. The pipe should be properly grouted and protected in suitable enclosure. Application Software and other necessary accessories should be provided along with ETA approval. The RFID Reader should have the following specification or higher:</p> <ul style="list-style-type: none"> • Transponder Protocol: EPC Global - Gen 2 (ISO 1800-6C), Anti-Collision, Advanced Anti-Jamming • Antenna: Integrated monostatic or Bi-static with Option to add external Antenna • RF Power Output: From 5 dBm to 30 dBm (1 W), +/- 1.0 dBm accuracy • Frequency: 865.6-867.6 MHz or Any other frequencies approved by WPC India • Data Control Interface: 10/100 Base-T Ethernet interface, Serial RS232 port; • GPIOs: 4 Inputs & 4 Outputs • External DC Power: 10-30 VDC supply voltage.


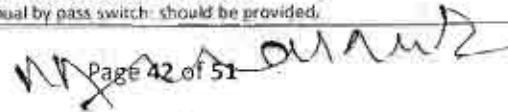
		<ul style="list-style-type: none"> • Maximum DC power:40W • Operating temperature: From -5°C to +55°C • Storage Temperature:From -40°C to +70°C • DRAM Memory:64 MB • Flash Memory:32 MB • TAG Buffer:More than 50,000 tags • Minimum TAG Read Rate:Over 150 tags/second • Minimum TAG Read Distance: 5 to 8 mtrs. • Network Protocols:Should Support DHCP, TCP/IP, DNS, SNMP, SNTP (Simple Network Time Protocol), IPV6
A4.	Boom Barrier Make:BCI, Model:L1000(SV)	<p>Boom Barrier is to restrict and Routing of trucks. Boom Barrier to be controlled by GPIO with RFID Reader identifying authorized vehicle. Speed Breaker to be made before Boom Barrier to restrict speed of Trucks. Boom Barrier should be properly grouted. The Boom Barrier should have following specification or higher:</p> <ul style="list-style-type: none"> • Power Supply:AC 230 V • Power Frequency:50 Hz • Electro-motor rating frequency:230 W • Boom Length:6 meter • Boom Opening Time:3-5 sec • Running Noise:< 60 dB • Construction Material:Cast Aluminium or Steel Made Cabinet • Operating Temperature:-5°C to +55°C • Humidity:5% to 95% (Non-Condensing) • Protection Grade:IP 65 • Communication:Relay interface to connect with any Access Control or R.F. Identification Reader device.
A5.	Traffic Signal Make: AMS Model: TL001/TL003/IB001/TSP002	<p>Traffic Signal to be mounted to Pole. All accessories including mounting pole with High Strength. Pole should be of 7.5 meter length straight pole (Class B Medium) MS Pipe of ISI Mark and protected in suitable enclosure.</p>
A6.	IP Fixed CCTV Camera Make: Hikvision Model: DS-2CD2612F-I	<p>The outdoor dome camera shall be registered with DG5&D or Any Brand with Type Test Report from any NABL approved Govt. Lab.it should be installed in the metallic pipe at appropriate height. The pipe should be properly grouted and camera should be protected in suitable enclosure. The CCTV Camera should have following specification or higher.</p> <ul style="list-style-type: none"> • Image Sensor: 1/2" or 1/3" CMOS/CCD, Dual sensor or better • Resolution: 1.3 Megapixel or better for Full HD picture quality • Video/Image Compression: Motion JPEG or MxPEG or MPEG 4 Part 2 or Part 10 (H.264) • Sensitivity: 1.0 Lux for Colour and 0.001 Lux for B/W or better • Ingress Protection: IP-65 • IR Illuminator: Built-in or External in housing • Frame Rate: 12 FPS or higher • Lens: Should be built-in super wide angle lens • Signal Process: Digital Signal Process • Streaming: Dual compressed stream • Horizontal View angle of Lens: Should be variable as per site conditions from 90 degree to 15 degree (as per mounting locations) to provide 180 degree Field of View • Zoom: Digital zoom: 8X or better • Operating Temperature: Between -5°C to +55°C or better • Network Port: 10/100 Base Tx
A7.	16 Port Layer -2 Managed Switch including Rack Make - HP Model: 2920-24G	<p>16 Port Layer -2 Managed Switch including Rack should have following specification or higher.</p> <p>A. Architecture:</p> <ul style="list-style-type: none"> • The switch should have 16 x 10/100/1000 Base T Interfaces • Should have at least 32 Gbps switching fabric • MAC address table of 4000 entries minimum <p>B. High Availability:</p> <ul style="list-style-type: none"> • Should support IEEE 802.3ad link Aggregation Control Protocol • Should support IEEE 802.1s Multiple spanning Tree Protocol • Should support redundant Power Supply <p>C. Layer 2 features:</p> <ul style="list-style-type: none"> • Should support IEEE 802.1Q and 256 VLAN simultaneously • Should support GARP VLAN Registration Protocol allowing automatic leaving and dynamic assignment of VLANs • Should support IGMP • Should support IPV6 from day -1 <p>D. Security:</p> <ul style="list-style-type: none"> • Should support port security and MAC address lock out • Should support Access Control lists (ACLs) to provide IP layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port • Should Support Web-based authentication and MAC-based authentication. • VLAN based ACL (VACL)

		<ul style="list-style-type: none"> • Port based ACL (PACL) E. QoS: <ul style="list-style-type: none"> • Layer 2 QoS • Hardware queues per port: 8 • Should Support Traffic Prioritization, Rate limiting. F. Manageability: <ul style="list-style-type: none"> • Should support sFlow / netFlow / jflow for traffic monitoring • Should support mirroring • Should support command authorization leveraging RADIUS to link a custom list of CLI commands to individual network administrator's login • Should support Multiple configuration files • Should support SNMPv1, v2 & v3
A8.	RFID Writer with application software Make: ThingMagic Model: Astra EX RFID A6-EX-ELI-PQI	<p>RFID Writer to be used to program the RFID Tag. RFID Writer Application Software and other necessary accessories should be provided along with ETA approval. The RFID Writer should have the following specification or higher:</p> <ul style="list-style-type: none"> • Transponder Protocol: EPC Global – Gen 2 (ISO 1800-6C), Anti-Collision, Advanced Anti-Tamming • Antenna: Internal linear polarized antenna with peak Gain 1 dBi • Frequency: 865.6-867.6 MHz or Any other frequencies approved by WPC India • Data Control Interface: 10/100 Base-T Ethernet interface, Serial RS232 port • GPIOs: 4 Inputs & 4 Outputs • External DC Power: 15- 30 VDC supply voltage. • Operating temperature: From -5C to +55C • Storage Temperature: From -40C to +85C • Network Protocols: Should Support DHCP, TCP/IP, DNS, SNMP, SNTP (Simple Network Time Protocol), IPV6 • Powered by: USB connection to notebook or desktop PC • Tag Writing Distance: Up to 2 feet • High impact plastic case
A9.	Operator PC with 18.5" TFT monitor Make: HP Model: 8300MT PC	<p>Operator PC with 18.5" TFT should have following specification or higher.</p> <p>Processor: Intel core i5 2400, 3.2GHz, 6M Cache, 5.0GT/s DMI or higher Chipset: Intel Q67 Express chipset or higher Motherboard: Intel/OEM motherboard Memory: 4 GB DDR-III 1066/1333 MHz dual channel Expandable upto 32 GB with 4 Memory slots Hard Disk Drive: 500 GB SATA II 3.0Gbps with 6 SATA Ports Optical Drive: 24X SATA DVD Writer Graphics: Integrated Intel High Definition Graphics Memory Ethernet: Integrated 10/100/1000 Mbps Ethernet controller with PXE and WOL support Bays: 2*Front Accessible 5.25", 1*Front Accessible 3.5", 1*Internal 3.5" Slots: 4 PCI/PCI express slot I/O Ports: Rear : 1 PS/2, 1 Serial, 1 VGA, 1 RJ-45, 4 USB , 1 DVI-D port Front : 2 USB Audio Port: Front : 1 Audio out Rear : 1 Line In, 1 Line Out, 1 MIC In Power Supply: 250 W ATX or higher Surge Protected 85% or higher Power Supply Monitor: 18.5" Color TFT/LED with TCD 05 & 1366 x 768 resolution with Internal speakers Keyboard: OEM 107 keys Mechanical KBD with Rupee symbol Mouse: 2 Button Optical USB mouse with scroll Operating system: Windows 7 Professional Preloaded with Recovery Media Management Features: OEM's Browser based desktop management software with following features.</p> <ul style="list-style-type: none"> • Inventory of assets like motherboard, memory, hard disk etc. • Asset tracking & management. • Alerts on client's machine. • Out of band management through Intel's active management Technology <p>Recovery S/W: OEM's Recovery S/W/Protection Tool significantly increases the system up time in following conditions.</p> <ul style="list-style-type: none"> • Accidental File / Folder deletion or overwrite. • System down at critical moments. • System corruption by viruses, spy-wares or Trojans. • Accidental formatting of the any of the hard disk partitions <p>Security Features: Power on Password, Serial, Parallel, USB interface lock through BIOS, Chassis Intrusion and padlock support, TPM 1.2 support Compliance: DM1, ACPI & RoHS Certificates: Machine : Windows 7 certified, Linux certified, FCC and Energy star compliance.</p>
A10.	Dot Matrix Printer Make: TVSE Model: MSP 355	<p>Dot Matrix Printer or Latest of equivalent or higher specs.</p> <ol style="list-style-type: none"> a) 24 pin, 136 col, 360 cps b) 360 cps print speed @ High Speed Draft 12 cpi c) 300 cps print speed @ Draft 12 cpi

A11.	Interactive UPS 1 KVA with 4 hrs. backup Make: UNILINE Model: Smartline (OR) Make: Tiny Tritron Model: ST-1K	Interactive UPS 1KVA should have following specification or higher. a) Input Voltage:140 to 300 V b) Input Frequency: 50 Hz +/- 5% c) Output Voltage: 230 V +/- 5% d) Output Frequency: 50 Hz +/- 0.5% (Battery mode) e) Output Wave form Modified Sine wave / Quasi Sine wave f) Transfer Time: < 5 milliseconds g) AVR Voltage: 190 V – 250 V h) Battery: Inbuilt SMF i) 12 V - 7 AH or higher X 4 Nos.
A12.	Online UPS 2KVA with 4 hrs. backup Make: UNILINE Model: Greenline (OR) Make: Tiny Tritron Model: TT-2K	Online UPS 2 KVA should have following specification or higher. VA Rating : 2 K VA a) Inverter technology: IGBT BASED PWM TECHNOLOGY b) Noise level: Less than 45 dB c) Operating Temperature : 0° to 40° C d) Humidity : 10% - 90% Non-condensing e) Harmonic Distortion: Less than < 3% for linear load & less than < 5% for non linear load. f) Output Waveform : Sinusoidal g) Cold Start Feature : Should be provided h) Generator compatibility : Should be provided even with Genset having distorted wave form & frequency fluctuations (more than 45 Hz) i) Default Software : WINDOWS / UNIX Bundled j) RS 232 Port (SNMP): 1 No. k) Product compliance to CE, ISO 9000 and IEC 62040-1 UPS INPUT : a) Input Voltage 160V AC to 280V AC b) Input Frequency Range : 50 Hz ± 10% c) Input over voltage protection : Should be provided d) Input under voltage protection : Should be provided UPS OUTPUT : a) Output Voltage : 230V AC single phase b) Regulation : 230V AC ± 1% c) Output frequency : 50.0Hz ± 0.2Hz DSP controlled d) Transient response : ± 10% with 100% load of P.F 0.8% e) Load Power Factor : 0.7 Lagging f) Short circuit protection: should be provided. g) Output over voltage protection: should be provided h) Output under voltage protection: should be provided. i) Efficiency: Better than 85%. j) Battery low: UPS should shut down. k) Over load: UPS should shut down. l) Manual by pass switch: should be provided. m) Indicators : Mains ON, Battery Charging, Battery Low, Inverter On, Output low & High Voltage, UPS overload, UPS on by pass n) Digital Metering : AC Input / Output Voltage, AC Input / Output Current, Battery Charge/Discharge Current or Battery Capacity, Battery Charging Voltage, Frequency Input / Output o) Alarms (Audible) : Mains failure Battery low Overload p) Sealed Maintenance Free (SMF) Battery : 12 V - 42 AH X 10 X 2 Nos. or equivalent / higher VAH for 2 KVA q) Placed on Battery rack made of Mild Steel.
A13.	Surge protection devices (SPD) Make: DEHN Model: DVA CSP 3P 100 FM	All Type 1 / Class 'B' - 3Ø - minimum 7 Modes Surge Protective Devices (SPD) shall be manufactured by a single ISO-9001 registered company normally engaged in the design, development and manufacture of such devices for electrical and electronic system equipment protection. The hardwired surge protective device shall have specifications or higher • A 50kA surge current rating, I _{max} , as a minimum or higher & better. • The Maximum Continuous Operating Voltage (MCOV) shall not exceed 25% of the Nominal Voltage (system voltage) in the configuration being used. • A NEMA 4X or Equivalent enclosure suitable for indoor or outdoor installation. • Supplied wire length that does not exceed 18 inches. • Use of SurgePDD™ Module thermal disconnects technology. • Shall have bi-color LED status indicators. • Have an operating temperature range of -40°C to +85°C. • Nominal Discharge Current (In) of 20kA
B.	VTS Control Room at Area Office	
B1.	Area Server Make: HP Model: DL 360 e Gen8	Area Server should have following specification or higher. CPU: Server should be quoted with 2 Nos. Intel Xeon Hex core processor. The Frequency should be minimum 2.2 GHz. OS Support: Support for 64-bit operating system (Windows/Unix/Linux) as

		<p>applicable</p> <p>Memory: 48 GB RAM DDR3 RAM with ECC memory expandable up to 128 GB (4 GB per Core)</p> <p>HDD: 4x1TB SAS/ SATA/ NL-SAS HDDs. HDDs should be scalable to minimum of 8 Nos.</p> <p>Controller: Integrated RAID controller & hot plug HDD with RAID 0,1</p> <p>Networking features: 1 dual port Ethernet card minimum 1Gbps</p> <p>Optical drive: Internal DVD Drive with latest speed</p> <p>Form Factor: 2U Rack Mountable Server or lower</p> <p>Redundant power: Redundant Power Supply</p>
82.	Should be provided by Party. Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" for each Area.	
83.	Server Rack Make: VALRACK/WQ/MTS	42 U Server Rack with required accessories.
84.	16 Port Layer – 2 Managed Switch including Rack Make - HP Model: 2920-24G	Same as A7 above.
85.	Operator Work Station Make: HP Model: z620 work station	<p>Operator Work Station should have following specification or higher:</p> <p>CPU: Server should be quoted with: Intel Xeon Quad core processor. The Frequency should be minimum 2.2 GHz</p> <p>OS Support: Support for 64-bit operating system (Windows/Unix/Linux) as applicable</p> <p>Memory: 16 GB RAM DDR3 RAM with ECC memory expandable up to 128 GB</p> <p>HDD: 2* 300 GB SAS/SATA/NL-SAS HDDs</p> <p>Controller: Integrated RAID controller & hot plug HDD with RAID 0,1</p> <p>Networking features: 1 dual port Ethernet card minimum 1Gbps</p> <p>Optical drive: DVD Drive with latest speed (Internal/external)</p> <p>Form Factor: 2U Rack Mountable Server or lower</p> <p>Redundant power: Redundant Power Supply</p>
86.	42" LCD Screen Make: Samsung Model: ME 46C (OR) Make: Delta Model: LW-4688 5R IC	<p>42" LCD Screen with following specification or higher</p> <ul style="list-style-type: none"> • Aspect Ratio: 16:9 • Brightness: 400 cd/m2 or better • Contrast Ratio: 1200: 1 or better • Display Area: 42" • Native Resolution: 1920 x 1080 (FHD) • Panel Technology: IPS • Viewing Angle: 178°/178° • External Control: RS232C, RJ45 • Power supply: 150 to 280 V, 50 Hz
87.	A3 size printer Make: HP Model: Laserjet435nw (OR) Make: Canon Model: LBP 3500DN	<p>A3 size Printer with following specification or higher.</p> <ul style="list-style-type: none"> • Resolution (in dpi): Mono 600x600 • Paper Size: A3/A4 • Print speed in PPM (A4 Size): 24 • Port: 1 USB • Memory (in MB): 8 MB, • Network card 10/100: YES, Duplexing
88.	Operator PC with 26" TFT Monitor for RFID Make: HP Model: 8300 CMT	<p>Operator PC with 26" TFT should have following specification or higher.</p> <p>Processor: Intel core i7 2600 3.4GHz, 8MB L3 Cache or higher</p> <p>Chipset: Intel Q67 Express chipset or higher</p> <p>Motherboard: Intel/OEM motherboard</p> <p>Memory: 8 GB DDR-III 1066/1333 MHz dual channel Expandable upto 32 GB with 4 Memory slots</p> <p>Hard Disk Drive: 1 TB GB SATA II 3.0Gbps with 6 SATA Ports</p> <p>Optical Drive: 24X SATA DVD Writer</p> <p>Graphics: 2 GB NVIDIA GEFORCE GRAPHICS CARD</p> <p>Ethernet: Integrated 10/100/1000 Mbps Ethernet controller with PXE and WOL support</p> <p>Bays: 1*Front Accessible 5.25", 1*Front Accessible 3.5", 1*Internal 3.5"</p> <p>Slots: 4 PCI/PCI express slot</p> <p>I/O Ports: Rear : 1 PS/2, 1 Serial, 1 VGA, 1 RJ-45, 4 USB , 1 DVI-D port; Front : 2 USB</p> <p>Audio Port: Front : 1 Audio out; Rear : 1 Line In, 1 Line Out, 1 MIC In</p> <p>Power Supply: 250 W ATX or higher, Surge Protected 85% or higher Power Supply</p> <p>Monitor: 26" Color TFT with TCO 05 & 1366 x 768 resolution with internal speakers</p> <p>Keyboard: OEM 107 keys Mechanical KBD with Rupee symbol</p> <p>Mouse: 2 Button Optical USB mouse with scroll</p> <p>Operating system: Windows 7 Professional Preloaded with Recovery Media</p> <p>Management Features: OEM's Browser based desktop management software with following features.</p> <ul style="list-style-type: none"> • Inventory of assets like motherboard, memory, hard disk etc. • Asset tracking & management. • Alerts on client's machine.

		<ul style="list-style-type: none"> • Out of band management through Intel's active management technology Recovery S/W: OEM's Recovery S/W/Protection Tool significantly increases the system up time in following conditions: <ul style="list-style-type: none"> • Accidental File / Folder deletion or overwrite. • System down at critical moments. • System corruption by viruses, spy-wares or Trojans. • Accidental formatting of the any of the hard disk partitions Security Features: Power on Password, Serial, Parallel, USB interface lock through BIOS, Chassis intrusion and padlock support, TPM 1.2 support Compliance: DMI , ACPI & RoHS Certificates: Machine: Windows 7 certified, Linux certified, FCC and Energy star compliance.
B9.	8/16 channel NVR with 6/12 TB storage & 26" monitor Make: Hikvision Model: DS-9664NI-RH/ST	<p>Shall be registered with DGS&D or Any brand with Type Test Report from any NABL approved Govt. Lab. It should have following specification or higher.</p> <ul style="list-style-type: none"> • Minimum Channel : 8/16 Channel (Expandable upto 32 and 64 Channels) • Channel Division: 1x1, 2x2, 3x3, 4x4 • Full Screen : Full Screen in the Client S/W • Page: Multi Monitor Support, Video Window and Electronic Map on two separate monitors. • OSD Text: Yes • PTZ Control: PTZ Control using mouse & GUI • Video Network: H.264/MJPEG-4/MJPEG • Audio: Two-way Audio (G.711/G.72B) • Multiple camera search: Multiple camera search at the same time • Search: Date, Time, Event, Log • Play: Forward, Backward, adjustable playback speed • Total Management: Group add/delete/edit, Group management • Camera: Add/Edit/Delete Use Master account/ Specific account • Schedule: Recording schedule support • Camera Notification: Spot (POP up Window) on Event • Configuration: Configuration (Remote Server Setup) • Still image: JPEG • VCA: Crossing line, Intrusion Detection, Object counting, Tampering, Object Removal • E-Map: JPEG/BMP Support • Disk Interface: SCSI/SAS/SATAII • Internal Storage Capacity: Minimum of 6 TB each NVR • Storage Expansion: Expandable upto minimum 32 TB internally or externally. • Redundancy Options: RAID 5 or better • Recording Setting: Event Triggered, Schedule Triggered
B10.	Online UPS 5 KVA with 4 hrs. backup Make: UNILINE Model: Maxipower (OR) Make: Tiny Teitron Model: TT-5K	<p>Online UPS 5 KVA should have following specification or higher.</p> <p>VA Rating : 5 KVA</p> <ol style="list-style-type: none"> a) Inverter technology: IGBT BASED PWM TECHNOLOGY b) Noise level: Less than 45 dB c) Operating Temperature : 0° to 40° C d) Humidity : 10% - 90% Non condensing e) Harmonic Distortion: Less than < 3% for linear load & less than < 5% for non linear load. f) Output Waveform Sinusoidal g) Cold Start Feature : Should be provided h) Generator compatibility : Should be provided even with Genset having distorted wave form & frequency fluctuations (more than 45 Hz) i) Default Software : WINDOWS / UNIX Bundled j) RS 232 Port (SNMP) : 1 No. k) Product compliance to CE, ISO 9000 and IEC 62040-1 <p>UPS INPUT :</p> <ol style="list-style-type: none"> a) Input Voltage : 160V AC to 280V AC b) Input Frequency Range : 50 Hz ± 10% c) Input over voltage protection : Should be provided d) Input under voltage protection : Should be provided <p>UPS OUTPUT :</p> <ol style="list-style-type: none"> a) Output Voltage : 230V AC single phase b) Regulation : 230V AC ± 1% c) Output frequency : 50.0Hz ± 0.2Hz d) Transient response : ± 10% with 100% load of P.F 0.8% e) Load Power Factor : 0.7 Lagging f) Short circuit protection: should be provided. g) Output over voltage protection: should be provided. h) Output under voltage protection: should be provided. i) Efficiency: Better than 85% j) Battery low: UPS should shut down. k) Over load: UPS should shut down. l) Manual by pass switch: should be provided.

		<p>m) Indicators - Mains ON, Battery Charging, Battery Low, Inverter On, Output Low & High Voltage, UPS overload, UPS on by pass</p> <p>n) Digital Metering : AC Input / Output Voltage, AC Input / Output Current, Battery Charge/Discharge Current or Battery Capacity, Battery Charging Voltage, Frequency Input / Output</p> <p>o) Alarms (Audible) - Mains failure Battery low Overload</p> <p>p) Sealed Maintenance Free (SMF) Battery : 12 V - 75 AH X 20 X 2 Nos. or equivalent / higher VAH for 5 KVA</p> <p>q) Placed on Battery rack made of Mild Steel.</p>
B11.	Surge protection devices (SPD) Make: DEHN Model: DVA CSP 3P 100 FM	Same as A13 above.
B12.	Control Room	<p>Scope of work includes construction of Control Room for Vehicle Tracking System. Size of the Rooms will be 3.6mx3.0m & 3.6mx2.5m with height and other details as per the attached diagram in ANNEXURE - "D".</p> <p>Complete electrical wiring consisting of wiring of AC supply and fitting of electrical with two ceiling fans, 6 Tube Lights Fittings of reputed make Bajaj/Anchor/Philips. The complete concealed wiring is to be carried out with main switch/MCB and Switch Board with Switches & Sockets as per the need of equipment for setting up GPS/GPRS based Vehicle Tracking System and RFID with CCTV based Weighing Control and Monitoring System across CCL Command Area.</p> <p>Construction of thick brick wall including plastering, painting etc. The roof of the building will be RCC. Construction of suitable earth pit as per Indian standard including fitting GI pipes, copper wire, copper plate, charcoal, sand, salt, etc. will be made for protecting all Electronic Equipments. Proper lightning arrestor is to be provided to take care of lightning strikes with separate earth pit with 1 Ω resistance. To achieve this, if required, more earth pit shall be constructed.</p> <p>Painting of the inside and outside of the cabin by minimum 2 coats of coarse plastic emulsion paints. The cabins door shall be provided with ISI approved door closure. The windows and doors will be of flush type.</p> <p>False roofing, Vinyl flooring, Providing Doormats, POP wall finishing, Closed Glass windows with aluminium frame for Dust free environment. Fixing of air conditioners and other civil work.</p>
B13.	Furniture & Fixtures	<p>a) 1.5 Ton Split Air Conditioner Minimum BEE 3 Star with Stabilizer - 2 nos.</p> <p>b) Table T9 (54"x27") Godrej Make - 1 no.</p> <p>c) Revolving Chair mid back PCH-7202R Godrej Make - 2 nos.</p> <p>d) Armed Cane Chair CH-7 Godrej Make - 5 nos.</p> <p>e) Almirah Store well plain with 4 shelves 78"x36"x19" Godrej Make - 1 no.</p> <p>f) Computer Table C-2 Godrej Make - 2 nos.</p>
C. Technical Specification for CCL HQ		
C1.	HQ Server Make: HP Model: DL 560 Gen8 + D2600 Disk Enclosure	<p>HQ Server with following specification or higher:</p> <p>CPU: Server should be quoted with 4 Nos. Intel Xeon processors Hex core. The frequency should be minimum 2.2 GHz or more.</p> <p>OS Support: Support for 64-bit operating system (Windows/Unix/Linux) as applicable.</p> <p>Memory: 96 GB RAM DDR3 RAM with ECC memory expandable up to 192 GB</p> <p>HDD Bays: Minimum usable 20TB (internal/external) in Raid 5 with one hot spare and the disk type as SAS/SATA/NL-SAS support</p> <p>Controller: Integrated RAID controller & hot plug HDD with RAID levels 5</p> <p>Networking features: 1 Dual port Ethernet card minimum 1 Gbps</p> <p>SAN Connectivity: Dual port HBA card with minimum 8Gbps per port, along with the required cables for connectivity to Storage Subsystem</p> <p>Optical drive: Internal DVD Drive with latest speed</p> <p>Form Factor: 2U Rack Mountable Server or lower</p> <p>Power supply: Redundant Power Supply</p>
C2.	Auto Scheduled LTO Library (LTO 5/6) Backup device with Backup software Make: HP Model: MSL 6480 + Data Protector Backup Software	<p>Auto Scheduled LTO Library should have following specification or higher.</p> <p>Form Factor: 4U</p> <p>No. of Drives: 1 Full Height, expandable up to 5 Full Height drives within box or by adding expansion modules</p> <p>Drive Technology: LTO5 with upto 140 MB/s data transfer rate</p> <p>No. of Slots: 30 slots and expandable up to 200 slots by adding modules</p> <p>Drive Interface: Fiber Channel, 8Gbps</p> <p>Capacity Native: 40 TB and expandable up to 200TB</p> <p>Capacity Compressed: 80TB and expandable up to 400TB</p> <p>Performance Native: 500GB/hr per drive</p> <p>Performance Compressed: 1000GB/hr per drive</p> <p>Backup Software: The backup software should be Windows & Linux compatible.</p> <p>• The software should be able to take back up from one RHEL/Windows server running any other database server.</p>

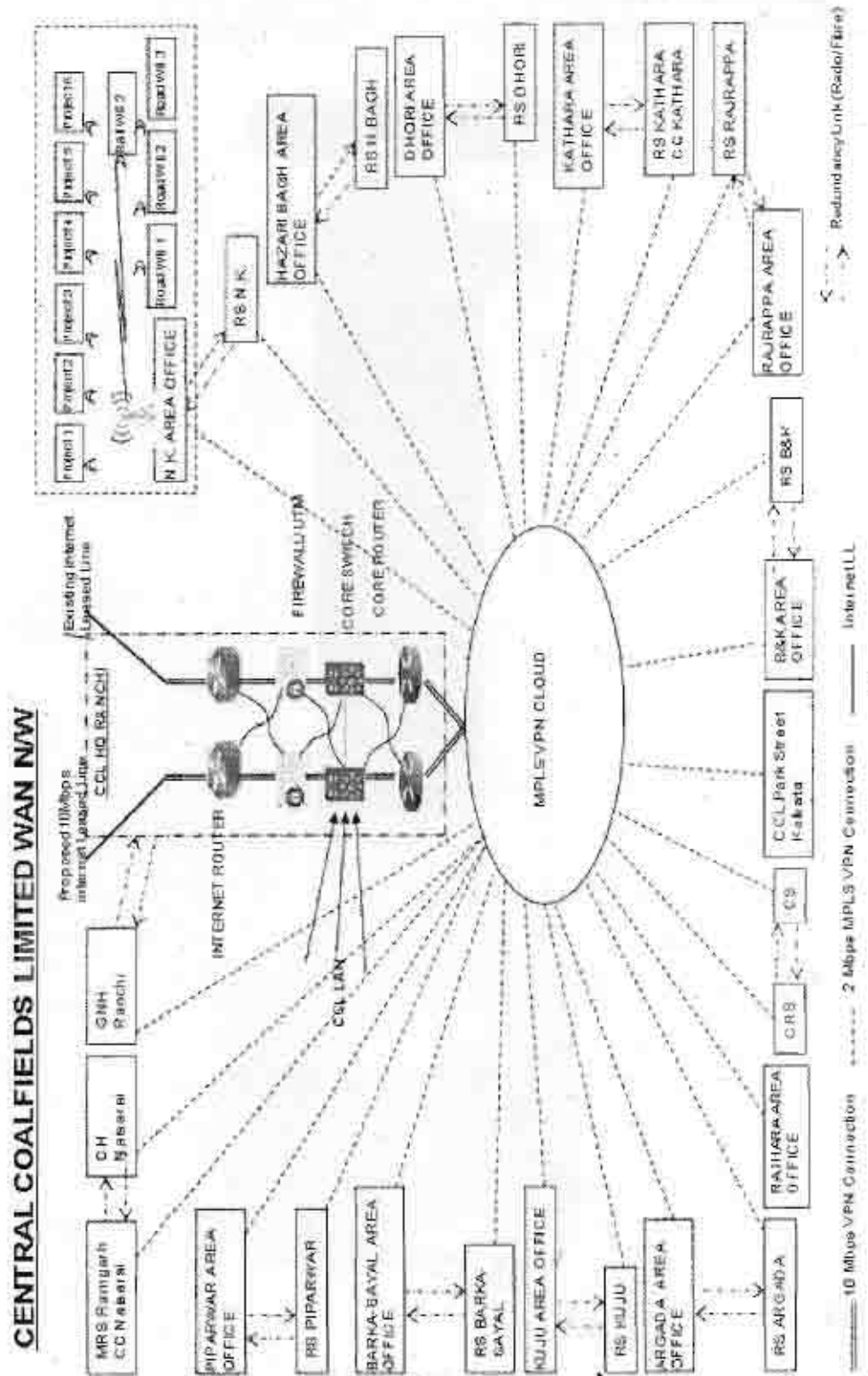
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		<ul style="list-style-type: none"> The backup software should be able to take backup on tape library. The backup software should be able to take backup of SAN.
C3.	Server for Proxy & LTO Backup Make: HP Model: DL 360e Gen8	<p>Server with following specification or higher:</p> <p>CPU: Server should be quoted with Intel Xeon Quad core processor. The frequency should be minimum 2.2 GHz</p> <p>OS Support: Support for 64-bit operating system (Windows/Unix/Linux) as applicable</p> <p>Memory: 16 GB RAM DDR3 RAM with ECC memory expandable up to 128 GB</p> <p>HDD: 2* 300 GB SAS/SATA/NL-SAS HDDs</p> <p>Controller: Integrated RAID controller & hot plug HDD with RAID 0,1</p> <p>Networking features: 1 dual port Ethernet card minimum 1Gbps</p> <p>Optical driver: DVD Drive with latest speed (internal/external)</p> <p>Form Factor: 2U Rack Mountable Server or lower</p> <p>Redundant power: Redundant Power Supply</p>
C4.	Should be provided by Party.	
	Software Solution (including Licenses of OS, DB, Maps etc. and Security) Required for GPS, RFID & CCTV as described in NIT Clause no. 2.0 "System Introduction" & 3.0 "Technical Requirements of Proposed System" for CCL HQ.	
C5.	GIS Maps of all Areas	<p>Project Implementer will do this in detail for CCL. Maps of each Area considering CCL as a whole should be provided by Project Implementer:</p> <ol style="list-style-type: none"> Developing a web based GIS system for map viewing Developing a spatial decision support system Updating GIS Map at regular intervals. <p>The application must have the ability to:</p> <ul style="list-style-type: none"> View all the layers (however not limited to 18). Maps navigation with Geo-fencing of each Mine. Thematic mapping Search and Query on spatial and attribute layers Spatial and attribute analysis. Reporting and statistics Legend view Customized Printing
C6.	16 Port Layer – 2 Managed Switch including Rack Make - HP Model: 2920-24G	Same as A7 above.
C7.	Server Rack Make: VALRACK/WQ/MTS	Same as B3 above.
C8.	Operator Work Station Make: HP Model: z620 work station	Same as B5 above.
C9.	42" LCD Screen Make: Samsung Model: ME46C (OR) Make: Delta Model: LW-4688 SR IC	Same as B6 above.
C10.	Operator PC with 28" TFT Monitor for RFID Make: HP Model: 8300 CMT	Same as B8 above.
C11.	A4 size printer Make: HP Model: Laserjet 1606dn (OR) Make: Canon Model: LBP 6300DN	<p>A4 size Printer with following specification or higher.</p> <ul style="list-style-type: none"> Resolution (in dpi): Mono 600x500 Paper Size: A4 Print speed in PPM (A4 Size): 24 Port: 1 USB Memory (in MB): 8 MB. Network card 10/100: YES, Duplexing
C12.	A3 size printer Make: HP Model: Laserjet 435nw (OR) Make: Canon Model: LBP 3500DN	Same as B7 above.
C13.	52" LCD Dashboard - MIS application for the Dashboard Make: Samsung Model: ME55C (OR) Make: Delta Model: LW-558R SR IC	<p>52" LCD Dashboard with following specification or higher:</p> <ul style="list-style-type: none"> Aspect Ratio: 16:9 Viewing Angle: 178°/178° Size: 52 inch or Higher Resolution: 1920 x 1080 Full HD Backlight: CFL/LED Brightness: 400 NITS min. Contrast: 1200 : 1 or better Power supply: 150 to 280 V, 50 Hz

C14.	Online UPS 5 KVA with 4 hrs backup Make: UNILINE Model: Maxipower (OR) Make: Tiny Triton Model: TT-5K	Same as B10 above.
C15.	Surge protection devices (SPD) Make: DEHN Model: DVA CSP 3P 100 FM	Same as A13 above.

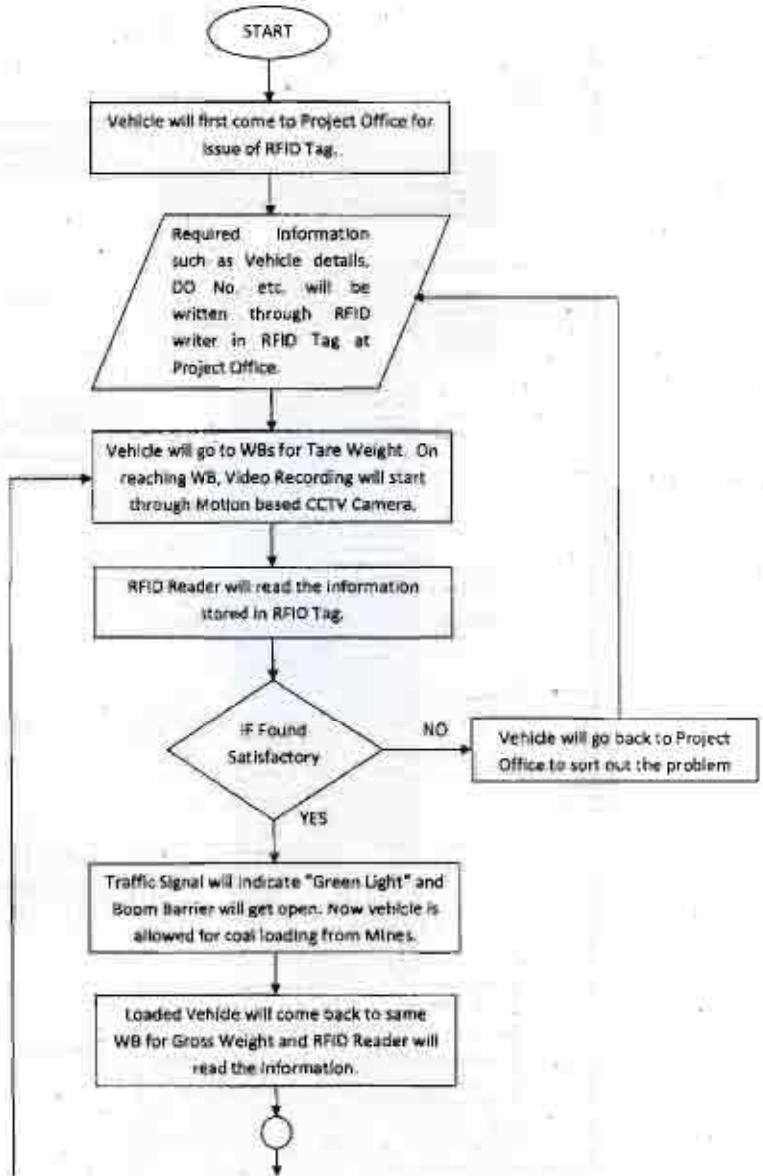
 M. Narayana

Diagrams / Schematic Diagram of WAN / Flow Chart / Layouts

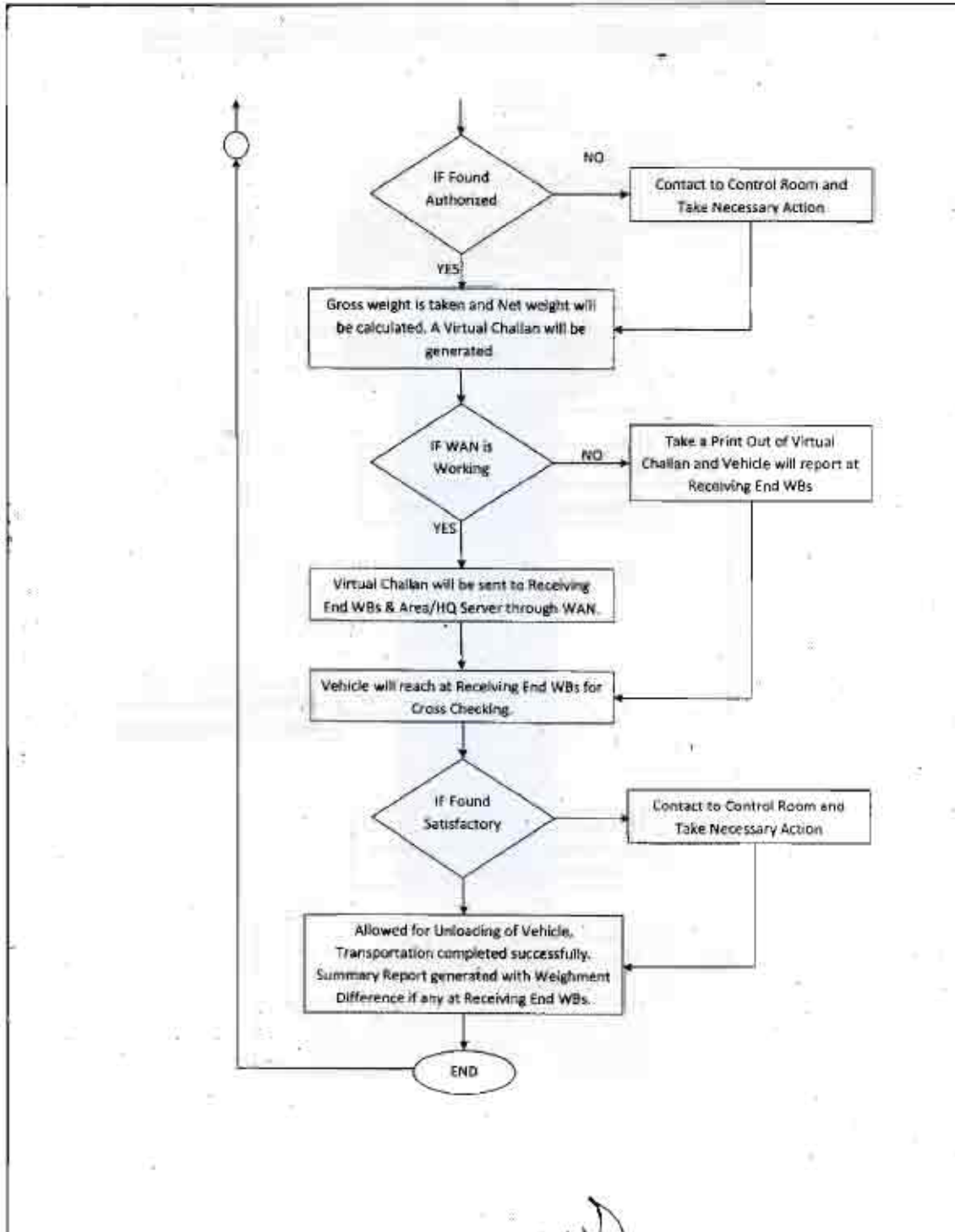


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FLOW CHART for Turnkey Project: RFID with CCTV Weighing Control



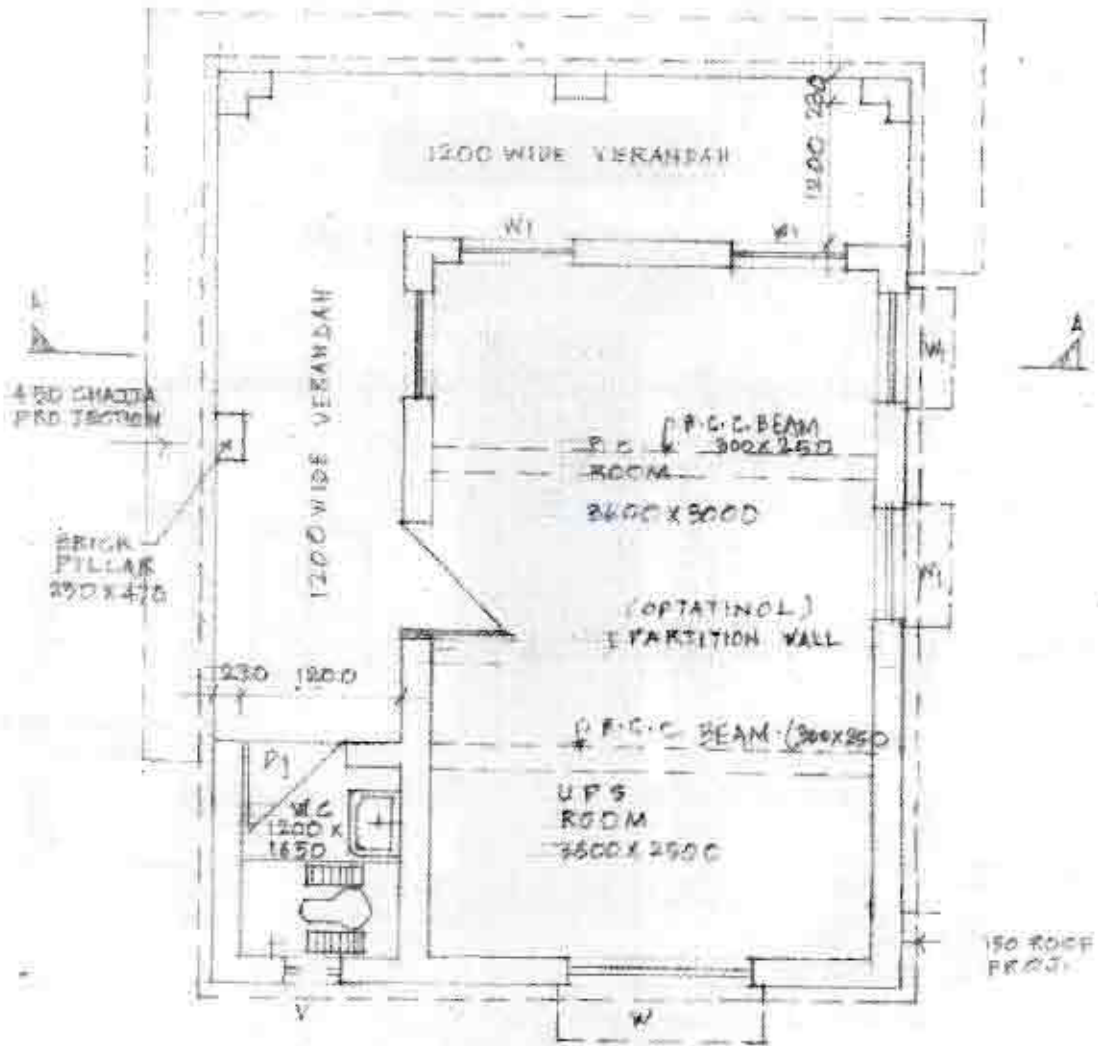
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Agreement

CONTROL ROOM FOR VTS AT AHA

Fig-1



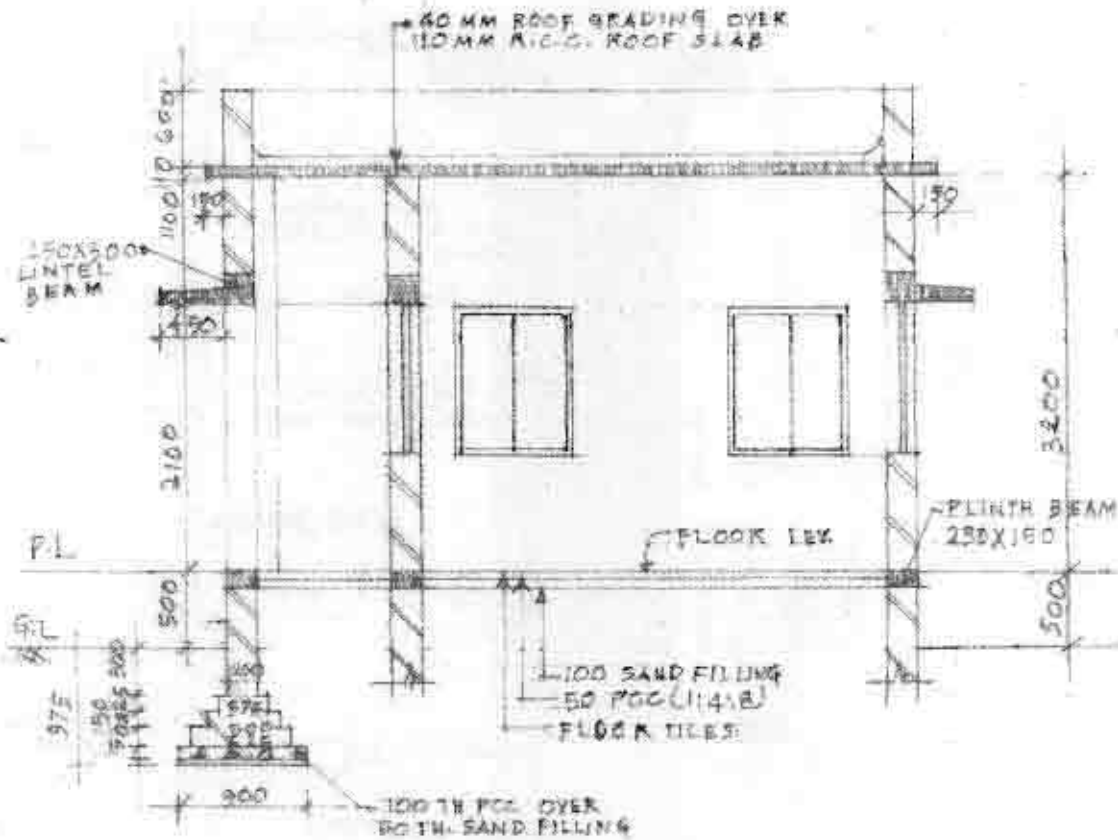
PROPOSED PLAN

SCALE: 1:50

M. M. M. M.

CONTROL ROOM FOR VTS AT AHD

B-2



SECTION - AA
SCALE: 1:50

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B-3

SCHEDULE OF DOORS WINDOWS & VENT.

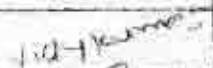

SL NO	TYPE	WIDTH	HEIGHT	GILL	REMARKS
1.	D	1000	2100	±00	
2.	D	750	2100	±00	
3.	W	1350	1200	+900	
4.	W	900	1200	+900	
5.	V	450	450	+1650	

NOTE

FOUNDATION DETAILS OF WALL HAS BEEN SHOWN CONSIDERING FIRM GROUND HAVING BEARING CAPACITY MORE THAN 15T/M²

WELL ENCLOSED CONTROL ROOM FOR VEHICLE TRACKING SYSTEM FOR C.C. LTD.

DRG NO: G.M.C/2013/004
SCALE AS SHOWN
DATE: 7.10.2013

M. JHA CHIEF DIMAS	
VICKY KUMAR M. T. (C)	
A.K. SINGH SR. MANAGER (C)	
A.K. SINGH C.M. (C)	



CIVIL ENGINEERING DEPT.
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(A SUBSIDIARY OF COAL INDIA LTD.)
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