Notice for Pre-NIT meeting

WCL is in the process of procurement of new IT infrastructure in place of the existing old infrastructure through GeM Portal.

Draft NIT document is enclosed is herewith for ready reference. Interested Bidders are requested to send their comments/suggestions @ email id: vsgajbhiye@coalindia.in by 10th January 2024 5.00 pm.

Interested Bidders are requested to send their authorized representative (maximum 2 representatives) to attend the Pre-NIT meeting scheduled to be held in the office of GM(MM) Pur HOD, WCL Hqrs, Coal Estate, Civil Lines, Nagpur on 12th January 2024 at 11:00 am.

Enclosed: Draft NIT document

Introduction:

Western Coalfields Limited (WCL) is one of the eight Subsidiary Companies of Coal India Limited (CIL) which is under administrative control of Ministry of Coal. The Company incorporated under the Companies Act, 1956 has its registered office at Coal Estate, Civil Lines, Nagpur–440001. WCL has been conferred "Miniratna" status on 15th March'2007. It has mining operation spread over the states of Maharashtra (in Nagpur, Chandrapur &Yavatmal Districts) and Madhya Pradesh (in Betul and Chhindawara Districts).

Western Coal Fields intend to install new IT infrastructure in place of the existing old infrastructure of IT initiatives including additional requirement with new robust & scalable systems having cutting edge technologies across their mining locations spread over the states of Maharashtra (in Nagpur, Chandrapur & Yavatmal Districts) and Madhya Pradesh (in Betul and Chhindawara Districts).

Key objective of this project is implementation and maintenance of RFID and ANPR based boom barrier access control system at check posts/entry-exit of mines, Integrated RFID and ANPR based weighment automation system at all Road weighbridges ,Centralised CCTV Surveillance system at all check posts weighbridges and other vulnerable locations, RFID and ANPR based boom barrier access control system at check posts/entry-exit of mines, Integrated Area control rooms at all area HQs with its integration of IP Radio network and establishment of Integrated Command & Control Centre for entire WCL at WCL HQ for monitoring and tracking of all vehicles entering and exiting the WCL areas/mines as well as it weighment to ensure entry of authorised vehicles only and to track and monitor the coal transportation etc from various sources(mines/stocks) to destinations (sidings etc.) and at other vulnerable locations to avoid any intermittent coal pilferage / theft of coal from mines or during transportation.

Scope of Work

The scope of work includes the following.

1. The bidder is required to design, develop, supply all related hardware & software materials, installation, integration, testing and commissioning for implementing Integrated RFID and ANPR based weighment automation system at all Road weighbridges ,Centralised CCTV Surveillance system at all check posts, weighbridges and other vulnerable locations, RFID and ANPR based boom barrier access control system at check posts/entry-exit of mines RFID and Integrated Area control rooms at all area HQs with its integration of IP Radio network and establishment of Integrated Command & Control Centre for entire WCL at WCL HQ.

2. Design, Supply, Installation, Commissioning & Maintenance of CCTV Cameras having video analytics based on edge technology along with required NVRs/ Storage devices, software and other associated system at various vulnerable locations i.e. Check Posts/Mine-Entry-Exit Points, Weighbridges, sidings and other vulnerable loctions etc. to capture the image of truck / vehicles & its live streaming and video recording across WCL.

3. Design, Supply, Installation and commissioning of RFID & ANPR based Boom Barrier access control system along with associated system at various Entry & Exit Check posts across WCL. The proposed solution should have the provisioning of local registration and local authentication at check posts during the network failure with suitable software and hardware along with report generation and provisioning of display of vehicle numbers with authentication of RFID Tags at check posts.

4. Design, Supply, Installation and Commissioning of RFID and ANPR based weighment automation system including weighbridge centering system and all other necessary software for weighbridges.
5. Design, Supply, Installation, Testing & Commissioning of RF based IP radio Network infrastructure including point to point Radios connecting each AHQ with its Sub Areas, point to multi point radio base stations at each Sub Areas and CPE radios at weighbridges, & at the mine entry / exit check post & sidings including erection of towers, cabling ,surge protection, lightening arrestor, earthing and other associated system and accessories as mentioned in the bid for integration of centralised CCTV surveillance system and RFID system , Boom barrier system, weigh bridge automation etc. from different end units/locations at mines to Area HQ control room across WCL. The existing 15 mtr tower at check posts and weigh bridges will be repaired and utilised for installation of CPEs.

6. The RFID system and weighbridges will also be connected to Area control room with the existing MPLS network on primary network or any available ILL/any other network. The offered RFID boom barrier system at check post may also be connected with the existing MPLS network from the nearest MPLS location.

7. Establishment of Integrated Area control room at all Area HQs and Integrated Command Control Centre (including supply of all hardware & software components etc.) at WCL HQ for monitoring and effective functioning of Centralized CCTV surveillance system and RFID based access systems at check posts, road weighbridges and other locations. Also, 24x7 centralised live monitoring and recording of all the IP Cameras, to be installed as proposed and existing IP cameras at different locations across WCL, from ICCC, WCL HQ with AI & ML based video analytics as mentioned in the bid.

   The proposed ICCC will be established at the present ICCC for e-surveillance centre at WCL HQ. The existing LED wall of 16 x 6.75 ft (12 x 55 "LED panel) at existing ICCC for e surveillance at WCL HQ will be utilized for live monitoring etc for the proposed ICCC, WCL HQ. The proposed ICCC solution at WCL HQ shall be integrated with existing Video wall and servers at present ICCC e-surveillance, WCL HQ.

8. Supply, Installation, Testing & Commissioning of Video Management server, VMS software for viewing of live and recorded feed of CCTV cameras (to be installed and existing) at different locations of areas including edge analytics at each Area HQ of ten different areas.

9. Supply Installation Testing & Commissioning of Network Management software for monitoring of breakdowns, uptime, downtime etc. of CCTV cameras, IP radio network, RFID network, weighbridge network and all other IP network devices Checkpost and weigh bridges etc and necessary Video analytics tools and generation of alarms/alerts based on it at all areas and WCL HQ. The necessary reports as per SLA required to be generated from NMS.

10. Design, develop, deploy and maintain an Integrated Command & Control Centre (ICCC) platform including development of standardized WCL specific application for remote monitoring and decision support system including dashboards, control/commands for CCTV surveillance, RFID system, Boom barriers Access Control system, GPS based Vehicle Tracking System, RFID based weighment system and other applications as mentioned in the bid.

11. Integration of following systems at Area HQ control room with suitable applications and servers as well as ICCC application platform and servers at WCL HQ control room:

    - RFID & ANPR based boom barrier access control system at mine entry/exit check posts.
    - RFID & ANPR based weighment automation system at all Road weighbridges.
    - CCTV surveillance system with VMS along with edge analytics at Area control room.
    - Centralized CCTV surveillance system of WCL at ICCC, WCL HQ.
    - VMS and AI based video analytics at ICCC.
    - NMS at all areas and WCL HQ.

- Existing CCTV Cameras (PTZ, Fixed etc.) at coal stocks, mine viewpoints, sidings , stores, hospitals etc.
- Existing GPS-GPRS based vehicle tracking system (VTS) of WCL.
- Existing SAP ERP System of WCL
- SMS/Email Gateway from ICCC

12. Integrated Centralized Command & Control Centre will oversee the entire mine operations within the purview of the Scope of Work of this document.

13. Scope of work includes provisioning of SMS/E-mail gateway for sending various notifications/alerts on various platform generated on real time basis from ICCC.

14. It is the responsibility of the successful bidder to provide SIM cards for GPRS services for QR cum RFID readers and same is covered in scope of work.

15. Each of the Area control centers at areas will be integrated with proposed ICCC solution, at WCL HQ and will share relevant data with respect to pre-defined KPIs and parameters required to be visualized at central level to keep a close track of the operations.

16. The Integrated Command Control Center application software should support integration with different types of Maps, GIS Maps of area (Google maps / Digital maps / Customized maps licenses) to be provided by the successful bidder at their cost. License cost for using the map service of Google or any third party if required, needs to be provisioned by SI.

17. Supply, Installation, Testing & Commissioning of ICCC application on along with web based as well as mobile access.

18. The proposal shall be submitted on turnkey basis execution and the bidder should submit the offer for the supply of all hardware and software as required for RF ID based Boom Barrier access control system, RFID system at weighbridges, Weighbridge centering system, weighment software, CCTV surveillance system including ANPR at the weighbridges, Check Post & other vulnerable locations, servers, work stations, software, VMS with edge analytics at area control room, centralized RFID, VMS application , AI based video analytics and ICCC software platform with hardware and software at WCL HQ for centralised monitoring, functioning of all the system, live monitoring and recording all the IP cameras video footage with AI video analytics , IP Radio network , all other associated hardware and software , erection of towers, etc. as mentioned in the bid. This includes 5 years comprehensive CAMC after one year warranty for the offered complete system.

19. Operation & Maintenance support for a period of five (5) years after completion of one year warranty from the date of successful Go- Live/commissioning of the project.

    During Warranty & CAMC period, the vendor should deploy for smooth operation of the system with onsite maintenance support comprising minimum two service engineers at Ballarpur, Wani, Nagpur areas and minimum one service engineer at Chandrapur, Umrer, Wani North, Majri, Patherkera, Kanhan and Pench areas and one project manager, one service engineer and one application support engineer at WCL HQ to ensure availability of complete system in WCL as per SLA. The successful bidder will provide name and contract number of service engineers deployed including identy document. In case of the deployed engineers are on leave, it is the responsibility of bidder to provide the substitute as required.

20. The bidder will conduct physical survey & feasibility study in in all the Areas / sites to make actual for assessing the requirement and also for tower height assessment for radios with radio link engineering and appraise themselves fully on the site condition before submitting the offer. The bidder shall carry out site survey at their own cost.

21. It shall be the responsibility of the successful bidder and also covered in the scope of work to integrate with other third-party application i.e. ERP application, GPS based VTS systems, and such requirement(s) come during the contract period without any additional cost to WCL.

22. It shall also be the responsibility of the succesful bidder and covered in the scope of work to integrate the existing Fixed/Dome/PTZ IP cameras with the proposed VMS solution at Area HQ and WCL HQ. The scope of work includes integration of proposed CCTV cameras with the existing i2V make VMS and AI based video analytics at WCLHQ. Also the proposed ICCC and VMS should be integrated on seamless basis with the existing i2V make VMS and Video analytics without any additional cost to WCL.

23. The seamless integration of proposed technical solution with the existing i2VVMS and AI based analytics at ICCC for e surveillance, WCL HQ shall enable/facilitate for monitoring, viewing and play back of any combination/selection/ group of cameras from both the existing VMS and proposed VMS.

24. It is the responsibility of the successful bidder and also covered in the scope of work to obtain the necessary APIs/SDKs etc. from the existing vendors of WCL for its integration of the existing systems (GPS/GPRS based VTS, VMS and AI based video analytics etc) with the proposed solution without any additional cost to WCL. Accordingly, WCL shall intimate to the existing vendors.

25. All the other items, hardwares & softwares as required to complete installation, successful commissioning and handover of the total system shall be part of the scope of work of the bidder.

26. The bidder must submit an undertaking to provide comprehensive service support with spares for all the tendered items for 5 years after one year warranty.

27. The bidder must execute a SLA agreement as per the terms & conditions as mentioned in the bid..

28. The bidder shall impart training of 2 weeks at the site for at least 5 persons in each Areas of WCL.

29. The bidder should submit technical write up and technical literature / brochure of all major components (RFID Reader, Boom barrier based access control systems, PC's, Work Station, Server, VMS,NVR, ICCC, IP Radios, IP Cameras, UPS & Towers) along with system block diagram mentioning solution of the offered system including system integration in support of justification of various features / parameters / specifications of the system to meet the requirement stipulated in this document along with the bid.

30. Bidder must submit all the software with source code used in the system in soft copy /CD ROM and all manuals for maintenance, administration (2 hard copy & 2 soft copy) at the time of commissioning.

31. The products/equipment proposed/offered should be rugged and proven for 24x7 working in dusty environment of coal mines.

32. Provision for user-based response on various exception/alerts with time stamp.

33. The proposed solution including hardware and software for the RFID based boom barrier system, CCTV system and Network connectivity should have standards of RFID/Boom barrier system implemented at NHAI corridors.

34. The offered solution should have the capacity to add-on the components if any new requirement(s) come during the contract period without any additional cost to WCL.

35. All the proposed IP devices should be IPv6 ready from day one.

36. All the Central servers and all applications/softwares including storages at WCL HQ/ Area Hqs shall be cloud ready from day one i.e. entire system or any part of it can be migrated as a DR to cloud in future at any point of time during the contract period, if required by WCL.

37. It shall be the responsibility of the successful bidder to integrate the proposed system seamlessly through any upcoming/future networking infrastructure of WCL without any additional cost to WCL.

38. It shall be the responsibility of successful bidder and covered in the scope of work for dismantling of existing old 51 meter/ 42 meter / 30 meters guide mast/towers of WCL after installation & commissioning of proposed new solution.

39. The successful bidder shall ensure that functioning & operation of the existing IT-Initiative system in WCL shall not be disturbed till the proposed solution is commissioned and handed over.

System Requirement

It is to note that for the proposed system requirement, there are 11 Locations which includes 10 Nos. of AHQ and 1 No. Western Coal Fields headquarters spread over the states of Maharashtra (in Nagpur, Chandrapur & Yavatmal Districts) and Madhya Pradesh (in Betul and Chhindawara Districts).

The mining activities are sub divided into Areas (Total 10 nos) which have further sub areas covering multiple mines. There are check posts at mine entry and exit, weigh bridges and other important establishments at mines. The connectivity from AHQ to Sub areas shall be through proposed point to point (PTP) IP Radio network. The connectivity from Sub Areas to mine offices, checkposts and weighbridges and other locations shall be through IP Radio Network i.e PTP and PTMP with CPES.

Each AHQ would be further integrated with the WCL HQ through existing MPLS /ILL connectivity.

The system requirement of centralised CCTV surveillance system, RFID Boom barrier access control system, RFID weigh bridge automation system, IP Radio network integration comprises following components at different locations.

1. Centralised CCTV surveillance system:

Centralised CCTV surveillance system with IP cameras, ANPR cameras and NVR and other associated system shall be installed at strategically important locations of WCL like Weigh bridges, check posts and other vulnerable locations etc. as per WCL requirement. Each location would be connected to Area's command Control Center via IP Radio network. Each location would be Live monitored & analysed through video management solution (VMS) hardware and application and video edge analytic solution to be installed at each area command control room. Video footage of these locations would be stored at each area control room for period of minimum 45 days.

There will be provision of On-site Network video recorders (NVR) at CCTV sites to monitor and preserve the footage locally. Also, in case of any failure or interruption of network, the Camera shall automatically start

recording on Edge Storage Memory Card at resolution and frames per second as required and when the network recovers, the Video data shall automatically be transferred to External Storage Device/Server/NVR installed at respective Control Command Center of Area and Hq without any impact on the system operations.

The VMS server and VMS application at each area control room will also to be integrated with existing cameras at different locations of areas for live monitoring and recording. The VMS including all cameras at areas will be integrated at ICCC, WCL HQ for live monitoring and recording and AI & ML based video analytics with the existing ILL services as mentioned in the bid.

The servers/hardware and software will be installed at WCL HQ for VMS and AI & ML based Video analytics for centralised live monitoring and recording of 750 cameras including seamless integration of existing i2V VMS and Video analytics.

2. RFID & ANPR based Boom barrier access control system:

Supply and Installation of Integrated RFID system at checkpost comprises of RFID based boom barrier system, Automatic Number Plate recognition CCTV surveillance system, work station, suitable local application and other associated system at Mines entry/exit Check-post of area to allow authorised vehicles in to mine area. This system would be connected to Area command control center as well as centralized server at Hq command control center & its data base via proposed IP Radio network and existing MPLS/ILL network. The system shall also capture vehicle information data written in RFID Tags affixed on the wind screen of vehicles through the RFID reader.

The said system would help in two factor authentication (RFID & Automatic number Plate Recognition). Integrated RFID based boom barrier system and ANPR system to be installed at check post and entry exit of area/mine should have capability to run on stand alone in case of network failure and able to identify vehicles at particular check post.

One ANPR camera at each Check-post entry/exit shall capture vehicle number and top view /cover the over all surveillance of inward and outward moving vehicles. The system shall also perform OCR (Optical Character Recognition) of the license plate characters (English alpha-numeric characters in standard fonts) at each Check-post/entry-exit. The System shall store JPEG image of vehicle and license plate and enter the license plate number into DBMS like MySql, PostgreSQL etc. or any other user specified database along with date timestamp, its location details. The system shall be robust to variation in number plates in terms of font, size, contrast and color and should work with good accuracy. The system processing should be real time, i.e., Instant recognition of license number plates. The proposed technical solution shall also include provisioning of acrylic sticker of vehicle registration number on wind shield of each vehicle for capturing vehicle number through ANPR.

The proposed technical solution should have provision for enable and disable of ANPR authentication at any check post during any difficulties and at that time vehicle authentication shall be done only through RFID tags. There should also be provision in the system to allow only RFID authentication to road sale vehicles if required by WCL.

3. RFID and ANPR based weighment automation system

IP cameras Fixed , Dome and ANPR, RFID Reader, weighbridge centering system, work station, integrated RFID, Weighment and ANPR application software, IP Radio and other associated system will be installed at each weigh bridge for RFID based weighment integration and CCTV surveillance. The proposed system at weigh bridge will be integrated with AHQ server/VMS with the IP radio/ existing MPLS VPN Network and WCL HQ with the existing MPLS VPN/ILL Network. The weighment data is to be transferred to central server at WCL HQ/ERP server on real time basis with the existing MPLS VPN Network. The proposed solution should have provision to enable and disable of ANPR authentication at any Road weigh bridge during any difficulties (ANPR failure/ network failure etc.) and at that time vehicle authentication shall be done only through RFID tags. There should also be provision in the system to allow only RFID authentication to road sale vehicles if required by WCL

The status of weighment vehicle position on platform, ready for weighment, overload, and weighment details shall be displayed on the variable display as per WCL requirement.

The proposed system should have a database of load carrying capacity (can be mentioned during vehicle registration or can be fetched from mparihan etc. via integration) of loading vehicles so that over loading can be checked during weighment and alert can be shown on variable display at weighbridge for effective operation of man less weighbridges. Accordingly, the system shall have capability to integrate with any state/central govt. portals if required for capturing details/authorisation of vehicles i.e. mparivahan etc. without any additional cost to WCL.

4. IP Radio Network /Network connectivity:

Point to Point (PTP) RF based IP radio Network infrastructure will be installed connecting each AHQ with its Sub Areas, point to point /point to multi point radio base stations at each Sub Areas and CPE radios will be installed at weighbridges, & at the mine entry / exit check post & sidings and other locations including erection of towers, cabling ,surge protection,lightening protection, earthing and other associated system and accessories as mentioned in the bid for integration of centralised CCTV surveillance system, RFID system etc , Boom barriers, weigh bridges from different end units/locations at mines to Area HQ control room across WCL. The existing 15 mtr tower at check post, weigh bridges and other locations will be repaired and utilised for installation of CPEs.

The RFID system and weighbridges will also be connected Area control room with the existing MPLS network on primary network. The offered RFID boom barrier system at check post may also be connected with the existing MPLS network from the nearest MPLS location.. Each AHQ would be further integrated with the WCL HQ through existing MPLS /ILL connectivity.

The proposed network connectivity/Switches at end locations (check posts, weighbridges) should have capability of failover and load balancing over heterogeneous uplink media using the proposed radio link and existing MPLS link/ ILL/OFC. The same shall also ensure QoS for network traffic as per WCL requirement.

5. Command control room at areas and WCL HQ:

Integrated Area HQ servers at area control room will have overall mine level controls and analytics by integrating with existing and proposed systems. The servers/hardware, storage, network switches, firewall, LED Wall, RFID application, Weighbridge application and VMS and edge analytics application with all other associated system will be installed area control room. All the IP cameras, RFID Readers, Boom barriers at check posts and weigh bridges including other associated system will be integrated to Area control room for centralised monitoring of IP cameras, recording and video edge analytics as well as control of RFID based system at check posts and weighbridges and monitoring of alarms/alerts and report generation anomalies, RFID based system/weighment and other customised report of field operation as per WCL requirement. The area control room shall have access to ICCC platform proposed at WCL HQ for monitoring of different functionalities including dash boards etc. of that particular area.

The servers/hardware including firewall , storage, network switches and software for VMS, Video analytics, centralised RFID application and ICCC platform and other associated system will be installed at ICCC , WCL HQ for centralised live monitoring and recording of 750 cameras including seamless integration of existing I2V VMS, Video analytics and also to be integrated with existing systems like ERP, GPS/GPRS based VTS and other applications through the APIs, SDKs without any additional cost to WCL. It is the responsibly of bidder and covered in the scope of work to obtain the APIs and SDKs from the existing vendors for integration with the proposed ICCC platform.

All Area HQ control room operators and other important users in WCL areas and WCL HQ shall have access to the features and functionalities of ICCC at WCL HQ with user acces control limited to the respective area requirement or full access of ICCC as per WCL requirement.

Mode of Operation flow of Transportation:

1. RFID based Boom Barrier System

The Permanent RFID Tags shall be provided to the Internal coal carrying vehicles and Temporary RFID tags shall be provided to the Road sale vehicles before allowing into the mine area, at any suitable location including check posts/weigh bridges. The necessary information such as truck registration number, consumer/Transporter name, Permit details, driver details, address and other required details as per WCL requirement to be recorded into the system and RFID Tag. The permanent RFID Tag will be affixed suitably on each truck wind shield so that it should be retrievable later on by RFID Reader.

The Boom barrier should normally be in closed condition with traffic light in red condition. Whenever any vehicle approaches the Mine entry gate, RFID reader is to read the RFID tag on the vehicle for vehicle details. The ANPR camera installed at Check post shall capture the vehicle number. The live video feed shall be displayed in the work station. The system should have a Local Processing Unit (Controller/ PC Workstation), which shall authenticate the vehicle on the basis of RFID Tag information and vehicle details from video image of ANPR camera with data base from the AHQ server/ICCC WCL HQ. On the basis of authentication, the signal light should become green and boom barrier should be opened to allow the authorised vehicle into the mine area. A QR based entry receipt along with a trip no. shall be generated for vehicle. The vehicle number from RFID tag and ANPR camera should be compared and matched for authentication for opening of boom barrier. If there is no Tag or not a valid tag on the Truck then the RF ID Reader sent a signal to the controller not to open the boom barrier and vehicle will be sent back. In case of network failure, local authentication should be available with suitable software in Check post work station/PC or through SIM based Handheld RFID Tag reader from AHQ server / ICCC WCL HQ server and same may be uploaded/updated at AHQ server/WCL HQ server subsequently after restoration of network.

On the basis of authentication, QR based challan shall be prepared at check post and print out of the same shall be handed over the truck driver. The QR challan can be verified at any place in the mine area using QR/RF reader by security personnel for authentication of the vehicle in the mine area with proper display of vehicle information on QR cum RFID reader as per WCL requirement. After completion of authentication vehicle is entered into the mine area, now proceed to weigh bridge first/tare weighment. The IR/Photo optical sensor zone will detect the passing of vehicle and same is triggered to the controller for closing the boom barrier.

In case of RFID/ANPR authentication failure at check post, the vehicle will be sent back. Also, the black listed vehicles if any registered in the data base of the system at AHQ/ WCL HQ server, the same will not be allowed and it should be displayed in the displayed at check post.

FASTag based solution may also be used in addition to the proposed RFID based ACCESS CONTROL system for optimal results and reduced congestions. It may be noted that FASTag solution will only work for vehicles/equipment with a FASTag. For this, any kind of integration with NHAI/NPCI etc. shall be taken care by the bidder which shall be covered in the scope of successful bidder.

All the IP cameras at checkpost shall be integrated to AHQ VMS server through IP Radio network for viewing and recording at AHQ including local view on display/work station display and recording through the proposed NVR at checkpost. The RFID reader shall be integrated with the existing MPLS network and through IP Radio network as standby

The video recording of ANPR camera should be available at checkpost NVR/work station for a period of min . 15 days

Similarly, whenever the vehicle approaches the Mine exit gate after loading and weighment completion, the RFID and ANPR details will be authenticated again for opening of boom barrier to proceed to siding.

The necessary reports should be generated at check post from server including with local application in case of network failure /date base from AHQ server/WCL HQ. The reports may be in respect of list of in and out vehicles at the check post vehicle wise, transporter wise and customised as per WCL requirement including the list of vehicles plying in the mine area at any given point of time. It is to note that with generation of necessary reports with customisation as per WCL requirement, the paper work/ manual intervention if any shall be avoided at check post.

2. RFID – Weighbridge

There should be one RFID Reader, one ANPR (Automatic Number Plate Recognition) Camera at the Road weighbridge platform for capturing vehicle details and images, one Fixed IP camera for top view of vehicle, one IP dome camera inside the road weigh bridge. The overview camera on top of the WB should be for overall surveillance. Weighbridge centring system should be installed to ensure for proper positioning of vehicle on the platform to enable weighment. All controllers, cameras etc would be IP enabled and connect to a common network switch.

The system at WB room should have a work station integrated with WB application, RFID application, ANPR application for RFID based weighment integration without any manual intervention for entering vehicle number and vehicle details.

Weighbridge automation system identifies the vehicles on the weighbridge using RFID tag information through RFID reader and vehicle information through ANPR vehicle image for authentication of vehicle without any manual intervention. The authentication shall be done after due verification from local vehicle data base/centralised data base. Integrated weighment and RFID software makes coal weighment & vehicle identification completely man less by automatically recognizing through RFID Reader and order details through RFID Tag on the windshield of truck. It also uses sensors, LED Display and traffic lights to guide the driver about the correct position of vehicles and weighment status with the weighbridge centering system. The ANPR camera captures the vehicle image with vehicle number and same shall be integrated with integrated weighment/RFID software to provide challan with vehicle image.

FASTag based solution may also be used in addition to the proposed RFID based system at all weighbridges for optimal results and reduced congestions. It may be noted that FASTag solution will only work for vehicles/equipment with a FASTag.

After completing the identification process, image capturing and weighment operation, a virtual challan would pop in PC at WB with the details of vehicle, transporter, order and tare weight etc. and video image of the truck/vehicle with number details shall be embedded on the challan along with QR code.

Now the vehicle shall proceed to loading area of mines. After getting loaded the truck/vehicle comes back again to the weighbridge, where the identification and weighment process shall be done as mentioned above. The final challan is popped up in the WB PC, the gross weight is now recorded in the challan with vehicle image and QR code. The print out of the challan is handed over to the truck/vehicle driver. The vehicle and gross weighment details may also be triggered/flaged at destination weighbridge for reconciliation.

Vehicle now proceeds towards exit check post for siding where it is again authenticated, after authentication, the vehicle is allowed to move towards siding. In case if any vehicle approaches without taking any final weighment from the last weighbridge, the boom barrier will not be opened at exit gate and system will immediately generate an alert and will be displayed at display board /work station display at check post. The system shall also send same alert to the predefined designed officer for necessary corrective action with proper log in to the system.

At the siding check post also, the vehicle is authenticated by RFID Rader, boom barrier opened and vehicle moves on the WB platform and gross weight of vehicle is recorded. The gross weight of the vehicle at the mine and sidings WB is cross checked and difference in weight if any is recorded. The coal now dumps at coal yard. The truck now comes back to the WB platform after getting authenticated, the tare weight of the truck is recorded on the same virtual challan. Net weight of coal should also be recorded in each virtual challan. If any discrepancies found, exception alerts and report will be generated.

In case of any abnormal delay in reaching loaded vehicle from mine WB to Siding WB, an alert and report may be generated from system for corrective action.

There are two types of vehicles running in mines, 1. Internal coal carrying vehicle and 2. Road sale vehicles. The internal coal carrying follows all three steps from the above steps and road sale vehicle only follows steps mentioned at point 1 & 2 as road sale vehicle do not unload at sidings.

In case of road sale the temporary RFID tag can be reused 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. The road sales truck driver shall report to mine/sub area office for getting temporary RF ID tag. The officer at the mine/sub area office shall record the information of the truck like truck registration no. Consumer no, permit details etc. Based on the information stored on the Area server and a temporary RF ID card having a unique no mapped with the information collected is issued to the truck driver. Now the truck moves to the mines through entry check post. The validity of the temporary RFID shall be expired as soon as the road sale vehcile is exit from the checkpost. The driver returns the same at checpost.

Wherever vehciles are having RFID tags of WCL as well as FASTag in such cases system should identify only WCL RFID Tag for authentication.

In case of network failure, local authentication should be available with suitable software in weighbridge work station as well as through SIM based Handheld RFID Tag reader from AHQ server / ICCC WCL HQ server and same may be uploaded/updated at AHQ server/WCL HQ server subsequently after restoration of network.

All the IP cameras at Weighbridge shall be integrated to AHQ VMS server through IP Radio network for viewing and recording at AHQ. The RFID reader shall be integrated with the existing MPLS network and through IP Radio network as standby.

The local viewing as well as video recording of all the cameras should also be available at check post NVR/work station for a period of min. 15 days.

3. ANPR, RFID and weighment application requirement:

The system shall support real-time detection of vehicles at the deployed locations, recording each vehicle, reading its number plate, reading its RFID tag, database lookup from the system server and triggering of alarms/alerts based on the vehicle status and category as specified by the database. The system usage shall be privilege driven using password authentication.
ANPR cameras installed at all entry and exit points shall record and identify all entering and outgoing vehicles.
The system shall perform OCR (Optical Character Recognition) of the license plate characters (English alpha-numeric characters in standard fonts) through ANPR application at each Check-post/entry-exit and weighbridges.
The System shall store JPEG image of vehicle and license plate and enter the license plate number into DBMS like MySql, PostgreSQL etc. or any other user specified database along with date and timestamp, its location details.
The system shall be robust to variation in number plates in terms of font, size, contrast and colour and should work with good accuracy.
The system processing should be real time, i.e., Instant recognition of license number plates.
The system shall also capture vehicle information data written in RFID Tags affixed on the wind screen of vehicles through the RFID reader.
After capturing the RFID data and ANPR data, system shall compare both data to whether vehicle number in both data are same or not.
If vehicle number in both data i.e. ANPR data & RFID data, are same and if vehicle information also present in master control room data base & assigned to pass through that check-post, then signaling system installed at each check-post shall turn green ->QR based entry receipt with trip no. shall be generated with vehicle details > Boom barrier shall open -> vehicle will be allowed to enter the mines premises through that check-post.
If vehicle number in both data i.e. ANPR data & RFID data, are same and if vehicle information also present in master control room data base & but it is not assigned to pass through that check-post, then signaling system installed at each check-post shall turn Red -> Boom barrier shall remain close -> vehicle will not be allowed to enter the mines premises through that check-post and its information in the form of alert will be shown in variable display at Check post as well as at concerned area control room and at Hq control room.
If there will be any mismatch between three data i.e. RFID data, ANPR data & Master control room data base, then system shall generate alerts regarding that in Check-post its self and in concerned area control room as well as at Hq control room -> Signaling system installed at check post shall turn red -> Boom barrier shall remain close -> Vehicle will not be allowed to pass through Check-post.
Integrated system should have ability to blacklist/hotlist vehicles (Vehicle number via ANPR data/ RFID tag numbers) in order to block entry or exit. The blacklist so created shall be consolidated at the master control room and replicated across all check posts and all the road weighbridges to ensure that any blacklisted vehicle is unable to gain access through any check-post, at any road weighbridge and mine area location.
Integrated system should have ability to mark the vehicle loaded or unloaded at the check-post, if required by the operator posted at check post /system authorization by authorized person entry/exit but its log should be generated in the system for safety and to prevent any misuse.
Integrated system should have ability of generating report of all vehicles that have entered/Exited during a specified time slot; (date, time wise) List of all vehicles that are within premises (i.e, Entered but not exited yet) ; List of all vehicles that are within the premises for more than a user specified time limit; Incidence list of any particular vehicle showing how many times and when that vehicle has entered/exited the premises; Provision to generate an Alert if a vehicle that is marked a 'Not permitted' appears at the Entry/exit gate & at the road weighbridge; Provision of additional customised reports as per WCL requirement which will be finalized in consultation with concerned users during implementation and during contract period.

The bidder is required to provide hand held QR cum RFID reader with sim-based data connectivity feature for vehicle identification through QR Receipt /RFID Tag which shall be deployed at various coal dumps & railway sidings of WCL or any location within the Mine premises as per requirement of WCL. The QR cum RFID reader may also deployed at check post and weighbridges for reading vehicle details through RFID tags in case of network failure. These Hand held QR cum RFID readers shall also be integrated with proposed integrated RFID based access control system.
Hand-held QR cum RFID reader should also have functionality to mark/tag vehicle loaded by its operator when the loaded vehicle departs from any coal dump after loading of coal, Will help in instant identification of any vehicle with RFID tag plying in mines area.
• The RFID tag will be of read - write type and shall be used for vehicles engaged in coal transportation to Railway sidings / washeries and for road sale of coal to various E- auction / FSA / MOU coal consumers or any other vehicle required by WCL. • The tag will be of passive nature, tamper-proof & non-cloneable. If tag is destroyed or lost, fresh tag to be issued with record of reasons & details as per previous tag. Lost & mutilated tags will be deactivated prior to activation of new tags. WCL RFID TAG will be registered initially in proposed system before assignment to vehicles. • The tag will be unique to each vehicle and will be linked with the database to carry following information (incorporated in the RFID database):
i. Vehicle registration no.
ii. Type of Vehicle (Internal / Roadsale).
iii. Registered laden weight of the vehicle in metric tons / kgs. and no. of wheels of the tipper.
iv. Provision to enter name of the owner of the vehicle with address, Email, contact no etc.
v. Provision to enter name of the driver and address with contact no shift wise. Photo uploading facility of drivers (If required).
vi. Name and address of the transporter / coal consumer with contact no, Email id etc.
vii. Details of the transporting work order/sales delivery work order indicating work order no and date, party details, quantity of transportation/ sale, grade of coal, source and destination for lifting of coal, validity start and end date of the order, value of the order., etc.
viii. Validity of the tag (start date to end date)
ix. Trip cycle in hrs. /day to be ascertained & indicated in database.
x. In case of road sale, one weighbridge code with name to be provided, in case of coal transporting minimum two weighbridge code & weighbridge name to be provided.
Once the truck is assigned with the aforementioned details through the central application and a registered RFID tag is assigned to particular vehicle. After the RFID tags is assigned to vehicle and confirmation to this effect is given by the system, the vehicle will be permitted to enter the mines and all the associate details from database shall be automatically accessible in at check posts, weighbridges, handheld QR cum RFID readers for its authentication.
The system should also have provision alternatively for writing the above vehicle information into the RFID Tag and database using the RFID writer on to RFID database, with the help of suitable intermediate software if required by WCL.

Vehicles carrying explosives or any other material, where weighment is required, or any other vehicle as desired by WCL, that vehicle is to be issued RFID tag and register with the RFID data base for information and record.
In case of other vulnerable locations (other than WBs), the vehicle details should be captured, stored (locally if required) and transferred to master control room at Hq. The type of Check-post/entry exit challan (if required by WCL management during installation & commissioning phase or during contract tenure period) being generated: entry/exit, time of arrival/departure along with details of weighment done at weighbridges and loading status of vehicles should be clearly reflected in the entry-exit gate challan
Passive RFID Tags and reflective acrylic stickers with standardized font shall be pasted onto the windshield of vehicles to facilitate automated data entry and auto-identification of vehicles with the help of installed systems.
Yellow-coloured radium acrylic sticker of size (4" X 16") with 4” large size black-coloured standardized font displaying the vehicle registration number needs to be affixed on top of the windshield so that the clear view of the vehicle registration number can be recorded through CCTV camera or through ANPR system installed at weighbridges and entry / exit barriers. It will be bidders responsibility to supply and affix Passive RFID Tags & Vehicle registration number sticker on wind screen of vehicles.
The bidder is required to develop Integrated weighment, RFID & CCTV software for the deployment at road weighbridges (currently running & upcoming) of WCL by incorporating all the presently running features with a data sending capability to servers along with integration with SAP as required by WCL. The whole system should integrate with Access control system going to be deployed at check-post & entry exit of mines. Any changes required in the integrated software during contract period will be done by the Bidder with no additional cost. The developed integrated software should be independent to hardware make & model and capable of integrating with presently deployed weighbridge hardware and RFID hardware at running road weighbridges of WCL as well as must have capability to integrate with any other make & model WB, RFID hardware (to be deployed at any road weighbridges during contract period).
Integrated vehicle access control system should have capability to define the route chart of any vehicle like one vehicle is allowed through only particular check post(s) and have only permission to pass through specific road weighbridge(s) and only allowed to exit through particular check post(s). And this feature should be user programmable and set according to as per requirement of WCL.
System should have the option to create multiple user logins with limited access.
RFID Tags will be installed in all the vehicles entering the mines including tippers (Roadsale, Internal, others) and Administration vehicles. Application must distinguish between the two.
Register RFID Tags uniquely on all the vehicles. System must identify and prevent issuing of two RFID tags to the same vehicle or two vehicles the same RFID Tag.
Assignment of RFID tags to vehicles should be user based access control and with password protection.
Each buyer is currently assigned a DO against which it collects the material from the mines. He is only authorized to pick material of a particular grade from a particular weighbridge. Based on this information, entry should be restricted in un-authorized mines/yards.
RFID Application should have separate screens with user defined inputs for Check-post/ Entry & Exit, Road Weigh Bridge etc.
System will have step-wise work flow. If a previous step is missing, entry should be restricted at the next step. Any vehicle can be blocked before proceeding to the next stage of entry, tare weighment, gross weighment and exit cycle.
Hierarchical provision to edit/delete the information.

Provision for generation of automatic E-mail alerts or SMS alerts or both type alerts of all the exceptions generated such as excess time in loading, loading beyond permissible limits, wrong grade of material entered, Previous step missing etc. (as per requirement of WCL).
Application and reports must be accessible over web. It should have a web-based UI for MIS reporting and a web/desktop application for operators.
RFID application must be capable of integrating with the SAP system of Coal India. The data may be imported from the SAP API and the weighment/challan data (in a specified format) shall be posted into SAP system.
RFID Applications installed on various gates and weighbridges must be time-synced.
Capable to generate any customized report as per the requirement of WCL without any additional cost to WCL.
RFID based weighment application software should be able to fetch the weighment data automatically from the digitizer. No manual entry of weight, whatsoever, under any circumstances is to be allowed.
RFID based weighment application software must display the weighment exactly as it is read from the weigh-bridge on to the computer screen.
As per requirement, WCL downloads Sales Order from SAP (in excel format). The Sales Order has all the details of the coal to be shipped like party name, Shipping Address, Rates, Various Taxes, Grade of coal, Validity Date, Quantity etc. This SO/DO information should be directly imported (from the excel file) into RFID based weighment application software or from an API link of SAP system (or in some other manner, as desired by WCL). Weighment is to be done by the weighbridge software which is in turn also integrated with CCTV system. Against each weighment an API call is to be made to the SAP system and on receiving success message from SAP weighment is to be saved. In cases of revision of taxes, levies, price, change of grade revised price shall be made available through SAP which has to be fetched through a seperate API and updated in the weighbridge software accordingly.
Note: - The format of SO/DO & all the necessary details shall be shared with the bidder during execution of the project (if required). The successful bidder shall willingly comply and provide a weighment software as per the prevailing requirements of WCL.
The SO/DOs will be assigned to each weigh-bridge. Coal should be allowed to be lifted only from authorized weighbridges for a particular SO/DO. Provision to allow gross weighment only from the weighbridge where the Tare weight has to been made. In exceptional cases with the approval of Nodal officer, WCL gross weighment to be allowed from other weighbridge of same mine.
Weighbridge centering system shall be installed at all the weighbridges as mentioned in scope of work/bid.
During 1st (Tare) weighment, driver comes down from the vehicle, weighment shall be captured only if : 1. Vehicle is placed on weighbridge platform as per the weighbridge centering system. 2. It cross checks that vehicle entered in mine through RFID based boom barrier system and its trip no. is generated at check post. After that CCTV will capture the images of front and top view of the vehicle.
Against each second weighment an API call is to be made to the SAP system and only on receiving success message, weighment information along with CCTV images will be printed & generated on the acknowledgment slip as per requirement of WCL.
No manual entry of vehicle nos. shall be allowed in any circumstances (except any system authorisation by authorised personal of WCL) Only RFID Tags read nos. is to be auto- captured and displayed on the screen/variable display.

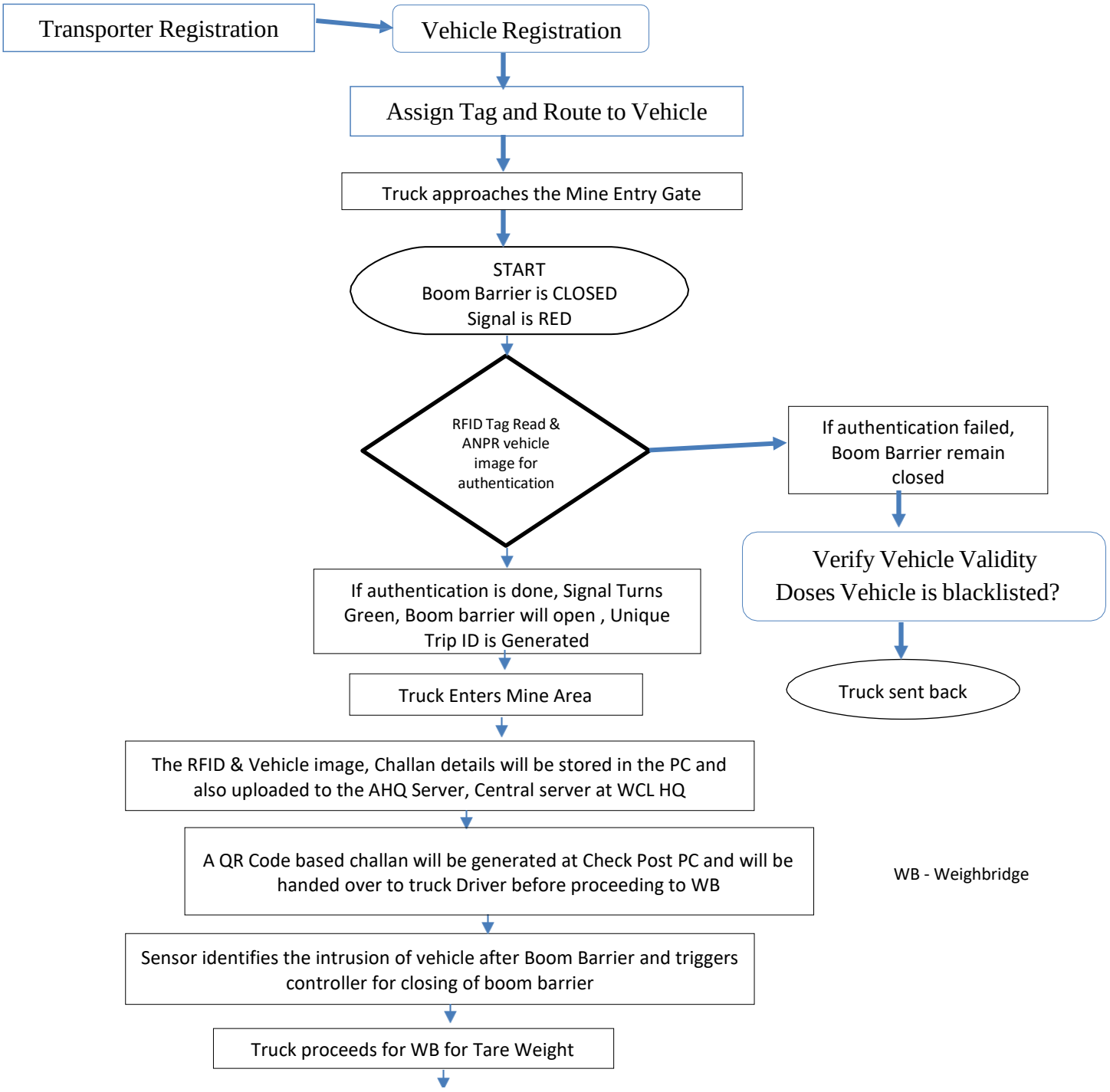
It shall also reflect the vehicle no. on display captured through ANPR and if required by WCL, vehicle no. shall be displayed on software display for weighment after cross verification of vehicle nos. captured through RFID and ANPR. In case of mismatch weighment shall not be allowed.
In case of all network failures vehicle no and other details shall be captured from QR receipt generated at entry check post. In any case whatsoever vehicle details shall not be entered manually.
Two consecutive vehicles should not be allowed to be weighed till the digitizer goes to zero.
Flexibility setup time difference between weighment of same vehicles after a certain time-gap only. The average time taken by the vehicle to reach and come back from a particular destination along a particular route should be considered in calculating the time-difference.
Disallow weighment of vehicles if – vehicle is blacklisted, unauthorized entry in mines, vehicle appears for weighment before scheduled time difference.
Vehicles with expired SO/DO validity status should not be allowed to enter or get weighed.
Vehicles with lapsed SO/DO (i.e. where the allotted quantity has been lifted) should not be allowed to get weighed.
All the entries shall be Auto-filled against a particular SO/DO (like party, grade, transporter, party etc.) upon reading a vehicle RFID Tag at weighbridge.
For Weighment at both ends (Stock yard and sidings), weighment process will be followed as mentioned above and If there is a difference in Net weight exceeds a threshold, its alerts should be sent to Integrated command control centre (ICCC) and to designated officials (as required) as well as generation of necessary reports.
In case of raw coal transfer from Mines to Washery, at washery end a Purchase Order (generated in SAP) is to be downloaded directly into the weighbridge software or should be fetched from SAP through an API link. Likewise, the sales process, Raw Coal is to be received against the Purchase Order with the API call to be done during the second weighment in Washery and on receipt of success message weighment slip is to be generated. (if required by WCL during the period of contract).
Average of tare weight – The system should keep record of last 5 tare weights recorded of a vehicle (if required by WCL). If the latest tare weight is beyond the threshold its weighment must not be allowed. Proper error message is to be displayed. Weight exceeding RLW weight should not be allowed for weighment.
RFID based weighment application software should not allow more number of vehicles against a Sales Order than those allotted for the day. Weekly allotment details should be fetched directly from the server/SAP system and no manual intervention in allotment is to be allowed.
For Roadsale vehicles, in any case weighment shall not allowed more than the quantity allotted in SO/DO.
Changing the date and time of the PC, should not be allowed and should be password-protected as it might affect the time of record of weighment.
Posting of data from sites to central database should occur on real time. (except in case of all network failure, in such cases data shall be stored locally and after network is restored same shall be updated at central server with original time stamp.)
The proposed system should have capability to manage the following weighment related operations and reporting: 1) Realtime Centrailsied reporting and updates of each weighment transaction of vehicles at AHQ and WCL HQ 2) In case of weighbridge failure at any mine weighment can be made possible from any of the any weighbridges within that mine for Road sale and Internal coal carrying vehciles

The Integrated Weighbridge Automation Software System should be customizable throughout the contract duration in order to accommodate and facilitate dispatch operation of WCL.
Capable to generate any customized report as per the requirement of WCL.
Successful bidder is required to create a web based online portal which will show the consolidated weighment information of WCL like daily road dispatch area wise, weighbridge wise, consumer wise, coal type wise, error reports etc, internal coal transportation reports along with dashboard. The dashboard should be interactive. This portal should also be shown at AHQ as well as at ICCC, WCL HQ.
In order to streamline the movement of only authorised vehicles in mines area, Successful bidder is required to develop a web based online portal for vehicle registration by the concerned SO/DO holder & transporter.
1. At Present, Sales Orders are generated through SAP in WCL which have to be downloaded through importing or through API link into RFID based weighment application software along with provision to upload authorization letter.
2. Plant wise weekly allotment schedule is being prepared by concerned Area Sales Managers in SAP which is also to be imported into RFID based weighment application software or to be fetched from SAP through API link and incorporation of required checks as suggested by WCL.
3. Successful bidder is required to design web based online portal in such a way that it should have the provision to fetch the master data of consumer wise Sales Orders and their allotment schedule either through data already downloaded into RFID based weighment application software or through API link directly from SAP or through master data uploading by concerned sales officials.
4. Coal Consumers should have the provision to register through OTP based authentication in the proposed web based online portal. The Proposed Portal should have provision to fetch master list of consumers (along with their details such as registered Email Id, Mobile number etc.) through API from SAP or by any other means and should also have a screen to enter consumer master details by the concerned officials.
5. Only authenticated Consumers should be allowed to login at web based online portal and the portal should display the Sales Orders along with their weekly schedule against the logged-in consumer. After that, Consumer will fill vehicle details like vehicle registration number, driver details etc., going to deployed by them against the Sales Orders and their respective allotment schedule.
6. Successful bidder is required to integrate above mentioned web based online portal to proposed Access control system and Weighment system. And only those vehicles are going to be allowed to enter mine area through designated check post, through designated weighbridge on a given date whose vehicle registration number along with other details has been entered by the coal consumer/transporter against their sales order and allotment schedule.
7. Successful bidder is required to create separate login for area officials who will upload the details of vehicles engaged in internal coal transportation in excel format or any other format as required. Uploaded details of vehicles engaged in internal coal transportation should also be integrated with Proposed Access control system.
8. Successful bidder is required to create separate login for uploading the details of vehicles engaged in miscellaneous activities in excel format or any other format as required. Uploaded details of vehicles engaged in miscellaneous activities should also be integrated with Proposed Access control system.
9. Any web application developed by the bidder for this project should be secured using:
▪ Input validation to ensure that all user input is properly validated to prevent malicious data from being entered into the system.
▪ Implementation of secure authentication and authorization system to ensure that only authorized users can access the application.

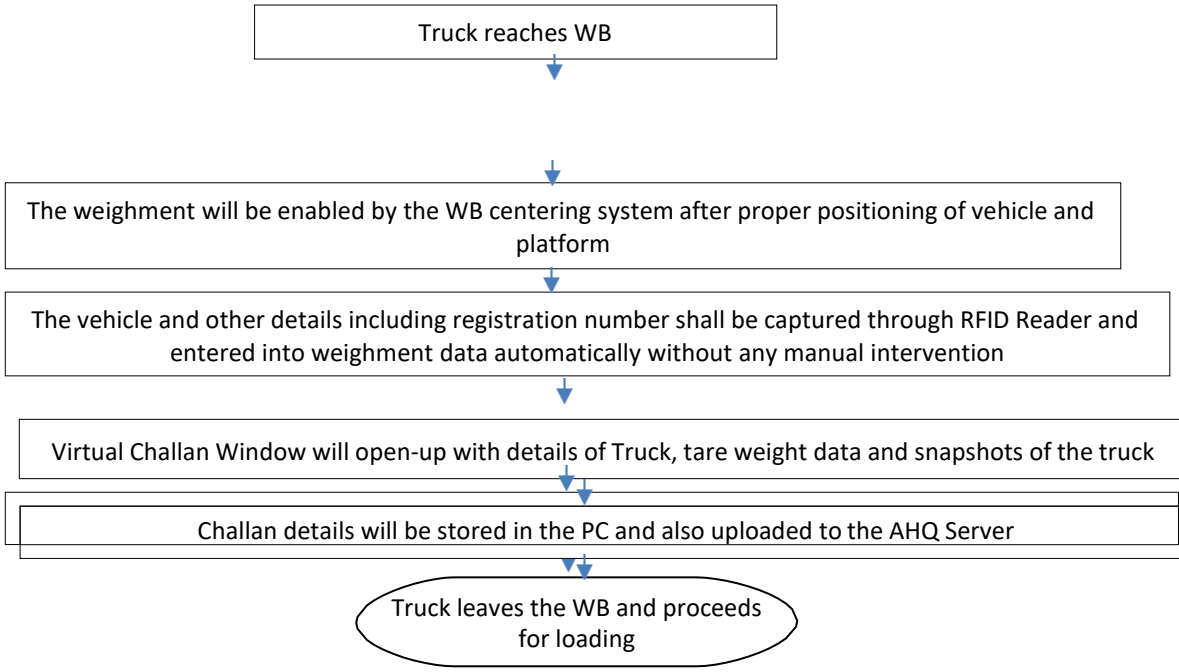
▪ Use encryption to protect sensitive data, both in transit and at rest.
▪ Implementation of secure session management to prevent session hacking and protect against other session-related attacks.
▪ Regularly patch and update to keep the web application and all underlying software and libraries up-to-date with the latest security patches to protect against known vulnerabilities.
▪ The performance of developed web portal should be such that when user moves from one page to other page, it shall be instantaneous changeover. (i.e. this aspect of performance would be equivalent or comparable with any good Indian banking website.) and bidder should ensure round the clock availability of portal.

Transportation flow chart

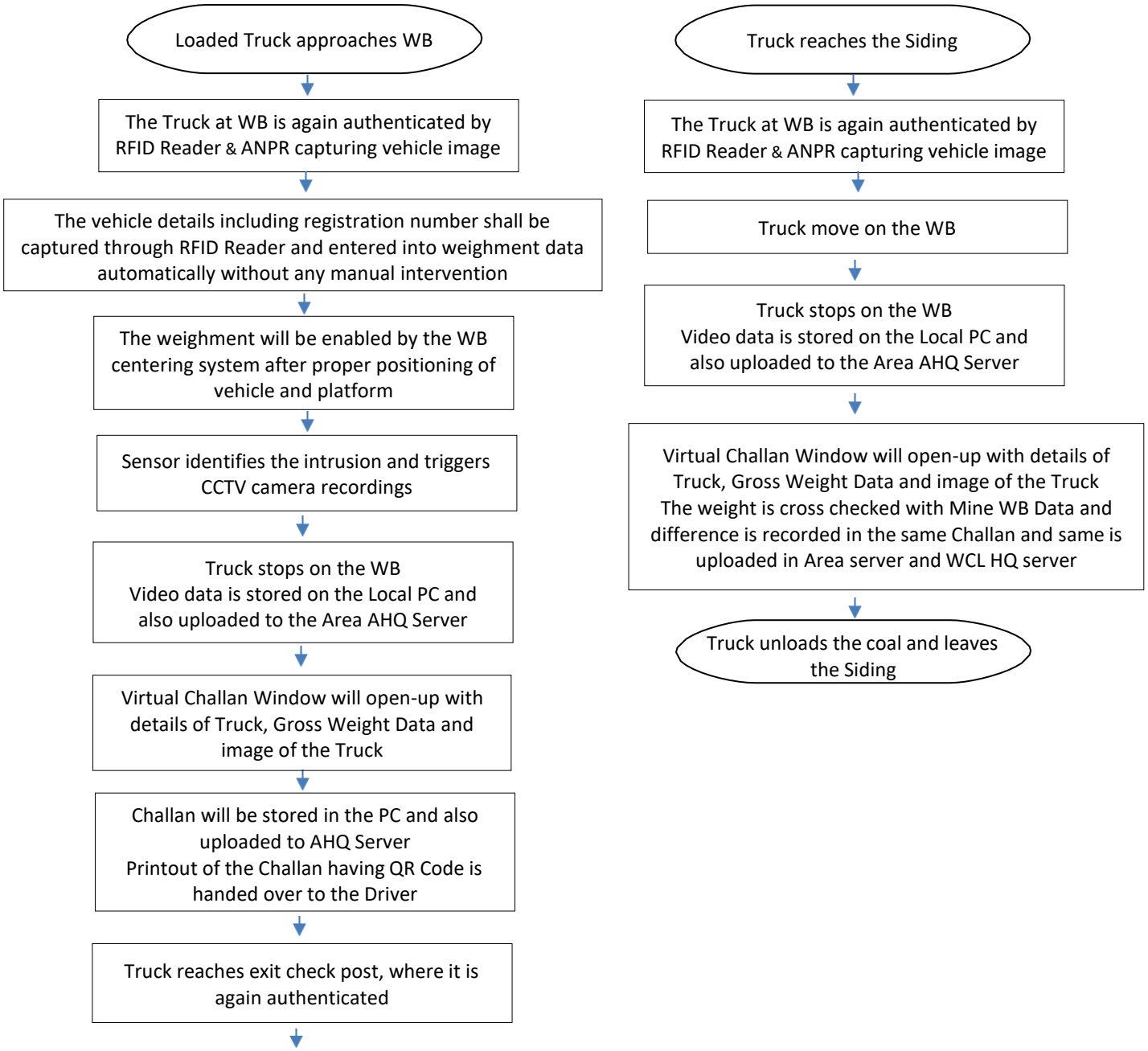
Process Flow for Mine Entry and Tare WB



WB - Weighbridge



Process Flow for Gross WB and Siding



QR based challan receipt shall be read at check post before vehicle is allowed to exit

Note: Detailed process flow is as mentioned in the bid.

Unpriced bill of Material (BOQ):

S. No.	Item Description Requirement	UOM	Total QTY Required
1	**Fixed IP Camera - Bullet/BOX**	Nos.	200
2	**IP Dome Camera**	Nos.	184
3	**IP based ANPR Camera - Bullet/BOX**	Nos.	396
4	**ANPR Application**	Nos.	396
5	**Boom Barrier System - with Boom Machine, Safety Sensors, 6m Boom with 2 coloured LED Light Strip+ Controller**	Set	154
6	**RFID reader with controller**	Nos.	396
7	**Weighbridge Centering System**	Set	200
8	**QR Cum RFID Reader**	Nos.	98
9	**CPE Radio**	Nos.	282
10	**PTMP Radio**	Nos.	59
11	**PTP Radio**	Pair	77
12	**Network Management System**	Nos.	11
13	**PC with 21 inch Monitor Screen**	Nos.	349
14	**Work Station**	Nos.	11
15	**55 Inch Smart LED Display**	Nos.	20
16	**24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module**	Nos.	331
17	**24 Port L-3 Smart Managed access Switch with at least 2 SFP Port along with module**	Nos.	22
18	**9U Wall mount Network Racks**	Nos.	331
19	**42 U network Rack**	Nos.	12
20	**Laser Printer for Image based receipt / challan**	Nos.	200
21	**QR receipt printer**	Nos.	98
22	**Laser Printer (Colour)**	Nos.	11
23	**2 KVA UPS with 3 Hr Back up**	Nos.	331
24	**5 KVA UPS 4 Hr Back up**	Nos.	10
25	**10 KVA UPS 4 Hr Back up**	Nos.	1
26	**Traffic light with pole**	Nos.	196
27	**Variable LED Display**	Nos.	298
28	**SPD for UPS**	Nos.	342
29	**Class 1 earthing (for UPS)**	Nos.	342
30	**RF Surge Arrestor & Ethernet Surge Protector for IP radios, RFID Reader and CCTV**	Nos.	342
31	**2 Mtr Mast arm with Brackets and accessories for CCTV**	Nos.	354
32	**5 Mtr POLE FOR RFID Reader**	Nos.	396

33	**RF ID Tags (permanent)**	Nos.	3000
34	**RF ID Tags for road sales (temporary)**	Nos.	1800
35	**8 Channel NVR with 21' display**	Nos.	282
36	**32 Channel NVR with 24" Display**	Nos.	49
37	**Servers (For VMS & RFID Server at Areas, ICCC server , Management Server for VMS , RFID Application / database Server/ Stand by Server at WCL HQ)**	Nos.	25
38	**UTM / NGFW Firewall**	Nos.	11
39	**VMS Server with (N+1) fail over at WCL HQ**	Nos.	4
40	**Video Analytics Server at WCL HQ**	Nos.	2
41	**VMS Application with 750 channels/Licenses for live monitoring & recording at WCL HQ**	Set	750
42	**AI& ML based Video Analytics (Crowd detection, Automatic Traffic counting, Vehicle Tail gating, Loaded/Unloaded etc.)**	Set	300
43	**AI& ML based Video Analytics (Fire & Smoke Detection/no of people in vehicle/Weighbridge and boom barrier tampering/Insufficient Illumination etc.)**	Set	100
44	**AI& ML based Video Analytics (Safety Hazards: PPE KIT/Accidents/Water Logging/Saggy electrical wires etc.)**	Set	100
45	**VMS Application with 128 channels/ License for live monitoring & recording at all areas**	Nos.	1280
46	**NAS at areas & WCL HQ**	Nos.	12
47	**Integrated Weighment software with RFID and ANPR**	Nos.	200
48	**Integrated Application at WCL HQ and all Area HQs for RFID, ANPR and weighment software with structural Database and for control and monitoring of Complete System at C/Ps & W/Bs.**	Nos.	11
49	**ICCC software platform:** with integration for following: Video Management System (CCTV Surveillance System), Video Analytics, Access Control Systems like RFID Readers, Boom Barriers, Weigh Bridges, Vehicle Tracking System, GIS platform, GPS Devices, Email Gateway, SMS Gateway, ERP/SAP Integration, any other IoT/ IT based systems upcoming in future.	Set	1
50	**51 MTR Tower with guy wire with civil works**	Set	27
51	**42 MTR Tower with guy wire with civil works**	Set	44
52	**21 MTR Self Supported Tower with civil works**	Set	8
53	**15 MTR Self Supported Tower with civil works**	Set	35
54	**7 Mtr Pole for CCTV at additional locations**	Set	72
55	**One time repair & Painting of 15 mtr tower**	Set	272
56	**CAT 6 armoured Cable**	Mtrs.	55,700
57	**CAT 6 unarmoured Cable**	Mtrs.	34,100
58	**Power Cable -3 core, 1.5 sq mm**	Mtrs.	21,240
59	**Power Cable - 6 core1.5 sq mm**	Mtrs.	13,700
60	**Mains power cable - 3 core 2.5 sq mm**	Mtrs.	6,810
61	**Power cable- core 1 sq mm 4**	Mtrs.	4,620
62	**HDPE Pipe**	Mtrs.	23,640
63	**Casing - Caping**	Mtrs.	6,810
64	**24 port patch panel**	Nos.	342
65	**Cat 6 patch cord (1 mtr)**	Nos.	1,656

66	**Acrylic Sheet/Sticker (for vehicle no. identification through ANPR)**	Nos.	3,000
67	**Installation , Commissioning, integration, testing, training & handing over of complete System in WCL**	Lot	1
68	**CAMC – 1st Yr. after completion of warranty period**	Lot	1
69	**CAMC – 2nd Yr.**	Lot	1
70	**CAMC – 3rd Yr.**	Lot	1
71	**CAMC – 4th Yr.**	Lot	1
72	**CAMC – 5th Yr.**	Lot	1

Bidder shall submit with price bid, the item wise price breakup of all BOQ items.

Area wise allocation:

S. No.	Item Description Requirement	UOM	BLP	CHA	Wani	WNA	MAJ	NAG	UMR	PEN	KAN	PKD	WCL HQ	Total
1	Fixed IP Camera - Bullet/BOX	Nos.	29	17	38	17	15	29	26	15	8	6		200
2	IP Dome Camera	Nos.	27	16	31	17	14	27	25	14	7	6		184
3	IP based ANPR Camera - Bullet/BOX	Nos.	55	39	62	39	31	65	38	33	18	16		396
4	ANPR Application	Nos.	55	39	62	39	31	65	38	33	18	16		396
5	Boom Barrier System - with Boom Machine, Safety Sensors, 6m Boom with 2 coloured LED Light Strip+ Controller	Set	22	17	24	22	13	24	9	12	6	5		154
6	RFID reader with controller	Nos.	55	39	62	39	31	65	38	33	18	16		396
7	Weighbridge Centering System	Set	29	17	38	17	15	29	26	15	8	6		200
8	QR Cum RFID Reader	Nos.	13	11	12	11	8	18	6	9	5	5		98
9	CPE Radio	Nos.	40	27	43	28	22	45	31	23	12	11		282
10	PTMP Radio	Nos.	9	7	6	6	4	8	3	7	5	4		59
11	PTP Radio	Set/ Pair	12	9	9	9	5	9	6	9	5	4		77
12	Network Management System	Nos.	1	1	1	1	1	1	1	1	1	1	1	11

13	PC with 21 inch Monitor Screen	Nos.	49	33	56	33	25	55	36	28	18	14	2	349
14	Work Station	Nos.	1	1	1	1	1	1	1	1	1	1	1	11
15	55 Inch Smart LED Display	Nos.	2	2	2	2	2	2	2	2	2	2		20
16	24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module	Nos.	47	32	49	33	24	53	35	27	17	14		331
17	24 Port L-3 Smart Managed access Switch with at least 2 SFP Port along with module	Nos.	2	2	2	2	2	2	2	2	2	2	2	22
18	9U Wall mount Network Racks	Nos.	47	32	49	33	24	53	35	27	17	14		331
19	42 U network Rack	Nos.	1	1	1	1	1	1	1	1	1	1	2	12
20	Laser Printer for Image based receipt / challan	Nos.	29	17	38	17	15	29	26	15	8	6		200
21	QR receipt printer	Nos.	13	11	12	11	8	18	6	9	5	5		98
22	Laser Printer (Colour)	Nos.	1	1	1	1	1	1	1	1	1	1	1	11
23	2 KVA UPS with 3 Hr Back up	Nos.	47	32	49	33	24	53	35	27	17	14		331
24	5 KVA UPS 4 Hr Back up	Nos.	1	1	1	1	1	1	1	1	1	1		10
25	10 KVA UPS 4 Hr Back up	Nos.											1	1
26	Traffic light with pole	Nos.	26	22	24	22	16	36	12	18	10	10		196
27	Variable LED Display	Nos.	42	28	50	28	23	47	32	24	13	11		298
28	SPD for UPS	Nos.	48	33	50	34	25	54	36	28	18	15	1	342
29	Class 1 earthing (for UPS)	Nos.	48	33	50	34	25	54	36	28	18	15	1	342
30	RF Surge Arrestor &	Nos.	49	33	50	34	25	54	36	28	18	15		342

	Ethernet Surge Protector for IP radios, RFID Reader and CCTV													
31	2 Mtr Mast arm with Brackets and accessories for CCTV	Nos.	51	34	62	39	28	53	35	27	14	11		354
32	5 Mtr POLE FOR RFID Reader	Nos.	55	39	62	39	31	65	38	33	18	16		396
33	RF ID Tags (permanent)	Nos.	550	200	900	300	200	300	400	100	50			3000
34	RF ID Tags for road sales (temporary)	Nos.	200	200	500	300	100	150	150	100	30	70		1800
35	8 Channel NVR with 21’ display	Nos.	40	27	43	28	22	45	31	23	12	11		282
36	32 Channel NVR with 24" Display	Nos.	7	5	6	5	2	8	4	4	5	3		49
37	Servers (For VMS & RFID Server at Areas, ICCC server , Management Server for VMS , RFID Application / database Server/ Stand by Server at WCL HQ)	Nos.	2	2	2	2	2	2	2	2	2	2	5	25
38	UTM / NGFW Firewall	Nos.	1	1	1	1	1	1	1	1	1	1	1	11
39	VMS Server with (N+1) fail over at WCL HQ	Nos.											4	4
40	Video Analytics Server at WCL HQ	Nos.											2	2
41	VMS Application with 750 channels/Licenses for live monitoring &	Nos.											750	750

	recording at WCL HQ													
42	AI& ML based Video Analytics (Crowd detection, Automatic Traffic counting, Vehicle Tail gating, Loaded/Unloaded etc.)	Set											300	300
43	AI& ML based Video Analytics (Fire & Smoke Detection/no of people in vehicle/Weighbridge and boom barrier tampering/Insufficient Illumination etc.)	Set											100	100
44	AI& ML based Video Analytics (Safety Hazards: PPE KIT/Accidents/Water Logging/Saggy electrical wires etc.)	Set											100	100
45	VMS Application with 128 channels/ License for live monitoring & recording at all areas	Nos.	128	128	128	128	128	128	128	128	128	128		1280
46	NAS at areas & WCL HQ	Nos.	1	1	1	1	1	1	1	1	1	1	2	12
47	Integrated Weighment software with RFID and ANPR	Nos.	29	17	38	17	15	29	26	15	8	6		200
48	Integrated Application	Nos.	1	1	1	1	1	1	1	1	1	1	1	11

	at WCL HQ and all Area HQs for RFID, ANPR and weighment software with structural Database and for control and monitoring of Complete System at C/Ps & W/Bs.													
49	ICCC software platform: with integration for following: Video Management System (CCTV Surveillance System), Video Analytics, Access Control Systems like RFID Readers, Boom Barriers, Weigh Bridges, Vehicle Tracking System, GIS platform, GPS Devices, Email Gateway, SMS Gateway, ERP/SAP Integration, any other IoT/ IT based systems upcoming in future.	Set											1	1

50	51 MTR Tower with guy wire with civil works	Set	7	4	2	2	1	2	2	1	4	2	27
51	42 MTR Tower with guy wire with civil works	Set	2	4	4	4	4	6	4	7	4	5	44
52	21 MTR Self Supported Tower with civil works	Set	0	0	0	0	0	5	0	1	0	2	8
53	15 MTR Self Supported Tower with civil works	Set											35
54	7 Mtr Pole for CCTV at additional locations	Set	11	7	19	11	6	8	4	4	2	0	72
55	One time repair & Painting of 15 mtr tower	Set	29	41	36	17	18	21	36	34	23	17	272
56	CAT 6 armoured Cable	Mtrs.	7780	5380	8920	5980	4120	8200	5320	4360	2980	2260	400	55700
57	CAT 6 unarmoured Cable	Mtrs.	4800	3300	5000	3400	2500	5400	3600	2800	1800	1500		34100
58	Power Cable -3 core, 1.5 sq mm	Mtrs.	3060	2040	3720	2340	1680	3180	2100	1620	840	660		21240
59	Power Cable - 6 core1.5 sq mm	Mtrs.	1970	1360	2340	1610	1100	2070	1230	1050	540	430		13700
60	Mains power cable - 3 core 2.5 sq mm	Mtrs.	965	660	1105	735	495	1020	650	530	360	265	25	6810
61	Power cable-core 1 sq mm 4	Mtrs.	660	510	720	660	390	720	270	360	180	150		4620
62	HDPE Pipe	Mtrs.	3380	2280	4000	2580	1800	3540	2300	1820	1080	820	40	23640
63	Casing - Caping	Mtrs.	965	660	1105	735	495	1020	650	530	360	265	25	6810
64	24 port patch panel	Nos.	48	33	50	34	25	54	36	28	18	15	1	342
65	Cat 6 patch cord (1 mtr)	Nos.	236	160	276	180	124	248	160	128	80	60	4	1656
66	Acrylic Sheet/Sticker (for vehicle no. identification	Nos.	550	200	900	300	200	300	400	100	50			3000

	through ANPR)													

Location Type	**Total no. of locations**
Mine entry exit Points	98 (Required boom barrier system: 154)
Weighbridges	200
Sub Area/Mine Offices	49
Area HQ	10
WCL HQ	1

Provenness Criteria:

PROVENNESS CRITERIA:
1.1 The "**IT Initiative System**" offered by the tenderer shall be considered proven provided (i) One number of the type (i) **IP Fixed Bullet Camera/IP Dome Camera / IP ANPR Camera** , (ii) One number of **Boom Barrier System** (iii) One number **RFID Reader, (iv)** One number of **24 Port L3 Smart Managed Industrial Grade Switch,** (v) One number of **RFID Server/VMS Server,** (vi) One number of **PTMP Radio/PTP Radio,** (vii) One number of **10KVA UPS ,** (viii) One number of **Workstation &** (ix) One number of **Firewall** of quoted model or similar equipment , must have been supplied by the bidder or OEM or OEM authorised Indian agent/bidder in India to mining industry and/or to the other Industries (Private or Government/ Public Sector Undertaking) and all of them performed satisfactorily for a minimum period of one year from the date of commissioning (window period). The performance of only those equipment would be considered for assessing provenness which have been commissioned 1 year prior to the date of opening of tender but not prior to 5 years from the date of opening of tender(window period). If the bidder claims proveness of the quoted model based on similar item, acceptance criteria of similar item shall be as per sub-clause 1.4 below.
1.2 "Satisfactory Performance" means the supplied equipment must have achieved the guaranteed annual availability, if any, as per the performance guarantee clause of the supply orders/ contracts for a minimum period of one year from the date of commissioning. In case supply orders/ contracts do not have provision for guaranteed annual availability, the bidder will submit satisfactory performance report issued by end users as per benchmark regarding performance of equipment, if any, incorporated in the supply orders/ contracts against which these equipment were supplied. In case, the Performance Report(s) of the End-User(s) is not available, the bidder shall submit self-certification claiming satisfactory performance of the equipment supplied and as per Amendment to Clause-13.11.3 of Pur-manual, dated-26.10.2021 :- Considering the practical difficulties in obtaining the performance in cases where provenness of the offered product is being ascertained on the basis of supply made in other subsidiaries of CIL or other PSUs / Govt. departments / Private Organisations, the bidder will be asked to submit a Self-certificate in the following format, along with Proof of Payment against the Purchase Order(s) / Rate Contract(s) and Commissioning Certificate(s) (in case of equipment, P&M, etc. where installation & commissioning is required): " *The items covered in the Purchase Order(s)/ Rate Contract(s) copies enclosed with our offer have been fully executed and have performed satisfactorily as per the provisions of respective Purchase Order(s)/ Rate contract(s) and all the complaints/ claim (s) lodged by the purchaser, if any, have been attended to and no complaints/ claims(s) are pending* "

In case, any specific Purchase Order(s) has/ have not been fully executed and any complaint/ claim is pending, then details of such cases to be categorically mentioned with the reasons thereof so that decision making is in clear perspective without any hidden facts in the subject matter.

The authenticity of the self-certificate as well as other documents submitted/ uploaded by the bidder will solely be their responsibility and appropriate action will be taken by WCL if it is subsequently found to be misleading/ false / forged.

In case the bidder has submitted any contracts/supply order copies of quoted models issued to any other firm, as per clause 1.1 of provenness criteria, the respective contracts/supply order copies shall be authenticated by concerned OEM.

(i) In the above case the Indian office / Indian subsidiary of foreign manufacturer can issue a tender specific authorisation in favour of an agent in India, provided the Indian Office / Subsidiary itself is authorised by the foreign manufacturer to issue such kind of authorisation on their behalf.

1.3

"Similar Item" shall be such item, which fulfills the following:

a) Performs almost identical operations as the quoted model.

b) Should be equal to or higher than the tendered capacity.

1.4. Acceptance Criteria for Similar Equipment

If the bidder claims provenness of the quoted model based on similar item as per sub clause-1.3 above, then the similar item should have performed satisfactorily for a minimum period of one (01) years from the date of commissioning.

The original 10% PBG for the total contract value will be retained for the warranty period as per PBG clause of NIT.

Beyond warranty period if CAMC is involved the additional PBG @5% of the value of equipment for the entire CAMC period shall be applicable as per clause 8.18.9 of purchase manual.

1.5-Start ups and MSEs are exempted from prior experience criteria and should submit proof of establishing the quality assurance & technical capability for tendered item issued by any statutory authority in line with Relaxation of Norms for Startups & MSEs in Public Procurement regarding prior experience - prior turnover criteria as per NIT.

Experience Criteria for bidder

The experience of only those orders/ contracts issued to the bidder would be considered for assessing experience criteria which have been commissioned during 05 years period prior to the date of opening of tender as per the following criteria:

a. Single order of at least **35%** of estimated bid value,

or

b. Two orders of at least **20%** each of estimated bid value,

or

c. Three orders of at least **15%** each of estimated bid value.

Similar nature of work include "Successful Supply, installation ,commissioning and maintenance of **CCTV surveillance system** or **RFID based boom barrier system** or **RFID based weighbridge automation system** or **RF based LAN/WAN networking** or **Smart City Projects with ICCC** or combination of any three.

Against the above, the bidder needs to submit the order copies and commissioning/ work completion certificates by the buyer organisation.

In respect to the above experience criteria, the bidder is required to furnish the following information certified by the end user:

Description of qualifying experience.

1. Order Number / Contract Agreement Number of each experience.
2. Name & address of Employer/ Order Issuing authority of each experience.
4. Start date & end date of each qualifying experience.

Note(1) : The experience of only those orders would be considered for assessing experience criteria which have been commissioned during 05 years period prior to the date of opening of tender even though the supply order, delivery and acceptance of material is prior to 05 years prior to the date of opening of tender with the following scenarios:

1. If the order is for supply, installation and commissioning then the total cost of the order will be considered for evaluation of experience criteria.
2. If the order is for supply, installation and commissioning with maintenance of one or more years and its maintenance services is completed prior to the date of opening of tender, then the total cost of the order including supply, installation, commissioning along with the maintenance service charges will considered for evaluation of experience criteria.
3. If the order is for supply, installation and commissioning with maintenance of one or more years and its maintenance services are still ongoing and not completed prior to the date of opening of tender, then the total cost of the order including supply, installation, commissioning along with the portion of maintenance charges executed prior to the date of opening of tender will be considered for evaluation of experience criteria.
4. If the order is for establishment of Similar category of work on rental basis, then the rental charges of the services executed and corresponding value during 05 years period prior to the opening of the tender will be considered for evaluation of experience criteria.

Note (1): The documents submitted against Provenness may also be considered for Experience Criteria, provided the same documents qualifies the conditions of experience criteria and the documents submitted against Experience Criteria may also be considered for Provenness , provided the same documents qualifies the conditions of Provenness criteria

Note (2): Bidders have to comply both the criteria's i.e. A. Provenness Criteria and B. Experience Criteria for the Bidder.

Detailed Technical Specifications:

1. IP Camera Fixed Bullet/BOX

i. Image Sensor: 1/2.8", Progressive scan, CMOS or better

ii. Pixel Resolution: 5 MP, resolution or better
iii. Day & Night: True Day & Night with IR Cut Filter
iv. Video Compression: H.265 or higher
v. Focal Length: Motorised varifocal lens: 04 mm (+/- 2mm) to 10 mm (+/- 2 mm) or better
vi. Streaming Capability: Camera should support Quad individual configurable video stream at H.265 & @30 fps with all supported resolution.
vii. Min. Illumination: Colour Mode: 0.5 Lux, Black & White Mode: 0.01 Lux
viii. Signal to Noise Ratio: 45 dB or better
ix. IR Distance (inbuilt): 40 m
x. WDR: True WDR (120Db) or more
xi. Network Connectivity: Ethernet, 10/100 Base T
xii. Network Protocols: Suitable and required network protocol stack to work Camera in TCP/IP based Ethernet network environment. (As required for system working)
xiii. Trigger Event/Video Analytics: Video Motion Detection, Active Tampering Alarm, Trip Zone, line crossing
xiv. Alarm Inputs / outputs: 1 input & 1 output
xv. Privacy Masking: 4 zone or higher
xvi. Input Voltage: 12VDC/ 24VAC, PoE/ PoE+,
xvii. Onboard Storage:256 GB SDXC/SDHC/SD Memory recording or Better
xviii. Ingress protection: IP67 or better
xix. Vandal protection: IK10 or better
xx. Environmental Operating Temp- (-10°C to 55°C) Humidity- Less than 90%, RH non condensing.
xxi. Regulatory Approvals/ Certifications: BIS certification.
xxii. Meantime Between Failure (MTBF) rating of 1,00,000 hours at min. 40°C. The OEM must submit an undertaking to this effect and to submit the test report from Govt. / NABL Accredited test labs / 3rd party test house of international repute such as UL, TUV etc.
xxiii. Third party integration (API): ONVIF profile S/G/T/M (should be listed/display on ONVIF website). Further the Bidder to ensure that all the edge analytics & complete other features of the camera as required from time to time should be integrated at VMS Software.
xxiv. MAC address: MAC addresses should be registered in the name of the OEM.

2. IP Dome Camera

i. Image Sensor: 1/2.8", Progressive scan, CMOS or better
ii. Pixel Resolution: 1920(H) x 1080(V), 2MP @ 30 FPS or higher
iii. Video Compression: H.265 or higher
iv. Focal Length: Motorised varifocal lens: 03 mm (+/- 15%)to 9 mm(+/- 15%) or better
v. Streaming Capability: Camera should support Quad individual configurable video stream at H.265 & @30 fps with all supported resolution.
vi. Min. Illumination: Colour Mode: 0.5 Lux, Black & White Mode: 0.01 Lux
vii. Signal to Noise Ratio: 45 dB or better
viii. IR Distance (inbuilt): 30 mtr
ix. WDR: True WDR (120Db) or more.
x. Two way/Bi-directional Audio Input / Output required for sound

xi. detection and shall be equipped with inbuilt/external mic
xii. Network Connectivity: Ethernet, 10/100 Base T12. Network Protocols: Suitable and required network protocol stack to work Camera in TCP/IP based Ethernet network environment. (As required for system working)
xiii. Trigger Event/Video Analytics: Video Motion Detection, ActiveTampering Alarm, Trip Zone
xiv. Alarm Inputs / outputs: 1 input & 1 output
xv. Privacy Masking: 4 zone or higher
xvi. Input Voltage: 12VDC/ 24VAC, PoE/ PoE+,
xvii. Onboard Storage: 512 GB SDXC/SDHC/SD Memory recording or Better
xviii. EnvironmentalOperating Temp- (0°C to 50°C) Humidity- Less than 85%, RH non condensing.
xix. Ingress protection: IP67 or better
xx. Vandal protection: IK10 or better
xxi. Regulatory Approvals/ Certifications: BIS certification.
xxii. Meantime Between Failure (MTBF) rating of 1,00,000 hours at min. 40 degree C , The OEM must submit an undertaking to this effect and to submit the test report from Govt. / NABL Accredited test labs / 3rd party test house of international repute such as UL, TUV etc.
xxiii. Third party integration (API): ONVIF profile S/G/T/M (should be listed/display on ONVIF website)
xxiv. MAC address: MAC addresses should be registered in the name of the OEM.

3. 5 MP Outdoor ANPR Camera- Bullet/BOX

i. Image Sensor: 1/2.8", Progressive scan, CMOS or better
ii. Pixel Resolution: 5 MP, resolution or better
iii. Day & Night: True Day & Night with IR Cut Filter
iv. Video Compression: H.265 or higher
v. Focal Length: Motorized varifocal lens: 04 mm (+/- 2mm) to 10 mm (+/- 2 mm) or better
vi. Streaming Capability: Camera should support Quad individual configurable video stream at H.265 & @30 fps with all supported resolution.
vii. Min. Illumination:
viii. Colour Mode: 0.5 Lux
ix. Black & White Mode: 0.01 Lux
x. Signal to Noise Ratio: 45 dB or better
xi. IR Distance (inbuilt): 40 m
xii. WDR: True WDR (120Db) or more
xiii. Shutter speed: 1 ~ 1/8000 or better
xiv. Network Connectivity: Ethernet, 10/100 Base T
xv. Network Protocols: Suitable and required network protocol stack to work Camera in TCP/IP based Ethernet network environment. (As required for system working)
xvi. Trigger Event/Video Analytics: Video Motion Detection, Active Tampering Alarm, Trip Zone, Object detection, Line crossing
xvii. Alarm Inputs / outputs: 1 input & 1 output
xviii. Privacy Masking: 4 zone or higher
xix. Input Voltage: 12VDC/ 24VAC, PoE/ PoE+,
xx. Onboard Storage:256 GB SDXC/SDHC/SD Memory recording or Better
xxi. Ingress protection: IP67 or better
xxii. Vandal protection: IK10 or better
xxiii. Environmental: Operating Temp- (-10°C to 55°C) Humidity- Less than 90%, RH non condensing.

xxiv. Regulatory Approvals/ Certifications: BIS certification.

xxv. Meantime Between Failure (MTBF) rating of 1,00,000 hours at min. 40 degree C . The OEM must submit an undertaking to this effect and to submit the test report from Govt. / NABL Accredited test labs / 3rd party test house of international repute such as UL, TUV etc.

xxvi. Third party integration (API): ONVIF profile S/G/T/M (should be listed/display on ONVIF website). Further the Bidder to ensure that all the edge analytics & complete other features of the camera as required from time to time should be integrated at VMS Software.

xxvii. MAC address: MAC addresses should be registered in the name of the OEM.

xxviii. The complete set ANPR Camera shall be equipped with all necessary hardware, applicable software as mentioned below to perform the automatic number plate recognition seamlessly.

4. ANPR Application

a) The Service provider shall install ANPR Cameras at various locations along with local ANPR application at all required end location as desired to capture vehicles coming and going out.
b) The system should be integrated for detection, analysis, storage & retrieval of the number Plate information with VMS software and at end locations
c) The system should be able to provide alerts for hot listed vehicles when in range of detection
d) Shall support accuracy of vehicle capture over 90%, the license plate recognition rate is over 90% in day and 60% at night, at 40 Kmph speeds or better.
e) Traffic Data Counting Performance: Up to 2 lanes for traffic data counting Vehicle type with individual cameras.
f) The system should be able to provide search features based on time, date, location, camera number and any digit / alphabet of the number plate.
g) The system shall generate alarms for vehicles identified under hot listed category by user.
h) The system shall allow user to view multiple views simultaneously for different locations.
i) The system shall recognize and identify the various type of number plates
j) This system shall automatically capture and recognize the number license plate of the vehicle
k) ANPR application should be integrated to VMS GUI at WCL HQ.

Additional technical requirement for CCTV cameras:

I. The bidder has to provide a declaration from the OEM of CCTV Camera & NVR that their Hardware, Software and Firmware (for this tender) including "Intellectual Property Rights" of Hardware and "Source Code" of Firmware & Software (including Cameras & NVR) selected are actual manufacturer and not getting 3rd party manufacturing like branding and reselling in India through importing/trading and rebranding such equipment from country that shares a land border with India, in line with terms of GeM, i.e. any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II. The cameras offered must be cyber security certified with NDAA/UL Cyber security certificate/GDPR/NIST/ TPM/Cybersecurity Chipset/STQC/CERT-IN cyber security certificate from Indian Government body for mitigating cyber security risk.

III. The OEM of CCTV &VMS that shares common director with any company that is blacklisted by any government of India department or shares any a common director with any company in violation of GFR 144(xi) or has a common director with any company with equity from any Country sharing land border with India will be outrightly rejected.

IV. The Camera OEM should be a genuine manufacturer and should be a MPEG LA licensor. They should be paying the license fee for using the genuine HVEC compression legally. The same will be checked on following official website : https://www.mpegla.com/programs/hevc/licensees/

V. All the Cameras & NVR components / parts / assembly / software used in the offered hardware and software must not be complying to GB28181, GB/T 28181-2011; GBT 28181-2011 protocols/standards and there should be no option to activate or deactivate GB/T 28181 standards in the camera web page/Settings. The declaration shall be provided form OEM.

VI. The cameras should be supplied without default user id & password, to ensure password to be defined by User at the time of installation.

VII. The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.

VIII. All the cameras shall be provided with necessary accessories including cables, power adapters etc. as required.

IX. The camera OEM Should be a genuine manufacturer and should be an official valid H.264/ H.265 HEVC Certificate and should be listed on both HEVC website at the time of submitting bid . They should be paying the licensed fee for using the genuine HVEC Compression legally. The same will be checked on following official website https://www.mpegla.com/programs/hevc/licensees/ & https://accessadvance.com/hevc-advance-patent-pool-licensees/

X. All cameras must comply with ONVIF Profile S/ G/ T standard or better. Proposed camera OEM must be full/contributing time member of ONVIF and should not be blacklisted by ONVIF.

XI. The tendered IP -cameras of different types are required to be integrated with the existing Integrated Command and Control Centre with i2V Make Video Management software at WCL HQ,Nagpur . The bidder should also give undertaking mentioning this bid reference that the offered all IP cameras with video analytics and other camera features shall be fully supported for integration with the existing i2V VMS at WCL HQ, Nagpur.

XII. The responsibility of bidder is to integrate offered CCTV surveillance system with the existing Integrated Command and Control Centre (ICCC) with i2V Make Video Management software at WCL HQ, Nagpur, free of cost.

XIII. All the cameras & NVR offered should be of same OEM. However, server-based VMS of different make is acceptable.

XIV. OEM of CCTV / System Integrator should have direct registered office and presence in India for at least 03 years. Proof of the same shall be attached with Bid Documents.

XV. The bidder has to provide a declaration from the OEM of CCTV Camera & NVR that their Hardware, Software and Firmwire (for this tender) including “Intellectual Property Rights” of Hardware and “Source Code” of Firmware & Software (including Cameras & NVR) selected are actual manufacturer

and not getting 3rd party manufacturing like branding and reselling in India through importing/trading and rebranding such equipment from country that shares a land border with India, in line with terms of GeM, i.e. any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

XVI. The OEM of CCTV cameras / NVR selected should have the MAC addresses (of all makes and models of IP CCTV quoted for this tender) registered in the name of the OEM. The MAC Addresses should not be in the name of any 3rd Party & should also not with any company/ any entity sharing Land and Border with India in line with terms of GeM, i.e. any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

XVII. BIS supporting document for the quoted CCTVs and NVR must be furnished.

5. Boom Barrier System - with Boom Machine, Safety Sensors, Boom, 2 coloured LED Light & Controller:

Boom Barrier is to restrict and Routing of trucks. Boom Barrier to be controlled by GPIO with RFID Reader identifying authorized vehicle. The Boom Barrier should have following specification or higher:

a) The length of the Boom Barrier should be 6 meter or above
b) Automatically triggered/Open after getting information from Local Workstation/Central server/ RFID reader about authenticity of vehicle.
c) Safety arrangement for preventing boom from closing onto the vehicle shall be provided using suitable mechanism involving sensors. The safety sensors should be high enough to prevent accidental dropping of Boom-Barrier during passage of cattle or humans.
d) All the housing for internal parts should be of rust and corrosion free metal or alloy of high strength with suitable epoxy coating & provided with radium reflector tape
e) Boom barrier shall be BIS/CE certified
f) Degree of protection – IP65 or above
g) Operating Temperature – 0°C to +60°C or better
h) Humidity:- 5 % to 95 % (Non-Condensing)
i) Communication :- Relay interface to connect any Access Control or R.F identification reader device and shall have RJ-45 for LAN Communication, RS-232 or RS-485 (For Data) and USB to fetch data at Site Location
j) Power input should be single phase 230 V AV + 10 %, 50 Hz or as per system requirement
k) Drive should be mechanism like torque motor with gearbox, with or without counter weight. However, the control mechanism must be tunable for proper damping while opening /closing of the boom barrier
l) Barrier should operate with Photo-electric /Loop detector/radar or any suitable technology; A TCP IP based controller shall be installed for communication.
m) Boom should have manual option of opening and closing in-case of a power failure
n) Protective shock resistant bumper made of rubber should also be provided to protect the Barrier
o) The Boom Barrier should have and operate with Photo Electric Loop Detector or any other sensor-based loop detector, which may be mounted on poles in pairs (one transmitter and one receiver) at both sides of the road along with civil foundation and underground wiring through GI Pipes as required. Alternatively, any other type of sensor may be installed on the approach road itself or as suitable for operation. A TCP/IP based controller should also be installed for communication. The system should work to ensure proper inputs as required for smooth and hassle-free operation of Boom Barrier.
p) The Boom Barrier should have required sensors to ensure that the Barrier should not drop down when a vehicle / object is under the Boom Swing Area, to avoid early drop of Boom or damage to vehicles/ personnel.

q) The successful bidder is required to complete all the necessary civil work for installation of barrier, boom rests and safety sensors etc. The foundation must be of concrete, and it should be at a minimum height of 12”above the ground. All wiring must be laid underground through proper conduits.
r) Boom Barrier shall be integrateable to the ICCC System and should provide be indicated Power On/ Off in a NMS / Equivalent Platform
s) The Boom Barrier Controller should be Tested for IEC 40000-4-5 for Surge Immunity.

6. RFID Reader (with controller)

a) Transponder Protocol: - EPC Global – Gen 2 (ISO/IEC 18000-6C) / ISO/IEC 18000-6B,Advanced Anti-Jamming
b) Detection Technology :- RF Frequency based (UHF)
c) Should have feature of Interference elimination
d) Should have Anti-Collision for multi-tag reading & have high data speed
e) Should have Built-in Antenna, have no Polarization constraints & capable of reading tags in any orientation
f) Read Range : 8 mtr or more , Write Range :- 5 mtr or more
g) RF Power Output :- 5 dBm to 30 dBm, Software adjustable
h) Frequency range :- 865~867 MHz {or any other frequency (Regulatory approval from WPC, if applicable should be submitted along with offer)}
i) Should support read & write action on either Hopping frequency or fixed frequency carrier as required
j) Communication Interface :- RJ45 (Ethernet), 10/100 Base –T Ethernet interface, Serial portRS232, 12 pin screw terminal connector or any other interface as per system requirement
k) Tag Buffer :- More than 50000 RF Tags or better
l) Minimum Tag reading Capacity :- 25 or more Tag/Sec
m) Minimum Tag writing Capacity :- 05 or more Tag/Sec
n) DC Power :- As per system requirement
o) Operating Temperature :- -5 °C to + 60 °C or better
p) Humidity(non-condensing) :- Should be able to work at 90 % RH maximum
q) Mounting :- Pole Mounting/ Tower Mounting or Wall Mounting or as per site requirement
r) Should be Outdoor type, work well in mines environment & have rugged design
s) Should work well in dirty, electrically noisy environments.
t) Should have built-in or external protection against lightening
u) Network Protocol :- should support DHCP, TCP/IP, DNS, SNMP, SNTP, IPV4, IPV6 or as per system requirement
v) Should have compatible & easy to integrate with other systems present at the weighbridge
w) BIS Certificate for the quoted make and model of RFID reader writer.
x) Ingress protection: - IP 65 or better (Certificate from NABL accredited laboratory)
y) Compliance: Equipment Type Approval of the Quoted make and model as per existing normsof WPC wing Ministry of Communications and Information Technology, Department of Telecommunications.
z) The OEM Must provide in RF Test Report of the Reader and the same must confirm the name of OEM as quoted by the bidder
aa) The Reader must be tested for: IEC-40000-4-6 and IEC-61000-4-5 or Equivalent EN/ UL Standards

bb) All other necessary hardware, software & accessories as required for making system live

RFID Controller (TCP/IP Based) Along with All Hardware & Software, Accessories

cc) A TCP/IP based controller for communication, Backup and restore database,
dd) support up to two boom barrier, two RFID Readers.
ee) Timed Anti-pass back; Tag-in/Tag out; Tag-in/Free out.
ff) **GPIOs:** 4 Inputs & 4 Outputs
gg) The Controller must be tested for Surge Immunity IEC-61000-4-5 and should be in a IP 55 or better enclosure.

7. Weighbridge Centering System:

The centering system is required to detect if the vehicle is properly positioned on the weigh bridge platform. The system should be capable of detecting presence of more than one vehicle on the weighment platform.

- The sensors can be IR/ultrasonic/photo/magnetic loop or any other proven technology
- Sensing range should be minimum 3 meters
- Indoor unit and sensors enclosure grade must be IP66 or above.
- Input power supply must be 180-240V, 50Hz
- Should have surge and light protection.
- Centering system controller must have RS232/USB port to connect with PC and the same controller will also be used to control and operate the traffic lights. A separate indication must be given indicating whether the vehicle is properly positioned or not.
- Controller must issue a command and the weight must only be recorded if and only if the vehicle is properly centered/positioned on the weighbridge platform.
- Should have provision for 2 alarms – Light and Sound.

It must be noted that the centering system be installed on poles at a distance of minimum 2 feet away from the weighbridge. MS (ISI Marked) Poles of 2.5" or more must be used for installation with proper concrete foundation. Poles must be at a height of minimum 5 feet above the weigh bridge platform level. All wiring has to be concealed and it must be underground in proper conduits.

8. QR Cum RFID Reader

Touch Panel	Corning Gorilla Glass, multi-touch panel, gloves and wet hands supported
Display	8" IPS LTPS 1920 x 1200 / IPS LTPS 1280 x 800
Interface	USB 3.0 Type-C, OTG or compatible with provided PC in project
Battery	8000 mAh or better
Alarm	Audio & Visual
Expansion Slot	1 slot for SIM card, 1 slot for SIM / TF card, Optional dual PSAM card slots

Keypad	1 front key, 1 volume key, 1 power key, direction key (optional)
Sensor	Gravity sensor, gyroscope, accelerometer sensor
Processor	Qualcomm 1.8 GHz Octa-core
Expansion	Supports up to 128 GB Micro SD card
Memory	4 GB + 64 GB or better
Temperature	-20°C to +50°C (Operating), -20°C to +70°C (Storage)
Humidity	5% RH – 95% RH non condensing
Drop Test	Multiple 1.5m to the concrete
Protection	IP 65
Bluetooth	Bluetooth 4.2/4.1+HS/4.0/3.0+HS/2.1+EDR or better
WLAN	IEEE802.11 a/b/g/n or better
WWAN	2G, 3G & 4G or better
GNSS	GPS/AGPS, GLONASS, BeiDou, Galileo, internal antenna or better
Vo-LTE	Support Vo-LTE HD video voice call
Frequency	865-868 MHz
Antenna	Linear polarization (1.8dBi) | Circular polarization (4dBi) or better
R/W Range	>7m (linear polarization); >15m (circular polarization)
Reading Rate	> 200 tags/sec
Power	1W (30dBm, +5dBm to +33dBm adjustable)
Barcode	1D & 2D including QR Codes
PSAM	2 PSAM slots (maximum)
InfraRed	940nm Wavelegth or better
Standard	AC Adaptor, USB Cable, Lanyard.
Rear Camera	13 MP Autofocus with flash or better
Front Camera	8 MP or better
Other	1. Devices shall have one additional battery (hot swappable). 2. It shall be provided with cradle / holster

9. CPE RADIO

i. MIMO: 2X2 MIMO - OFDM
ii. Mode of operation: can work as Subscriber Module/CPE radio for PMP topology and can work as PTP radio for PTP topology
iii. Operating frequency band: ISM unlicensed free band
iv. Channel Size: 10MHz,20MHz, 40 MHz and 80MHz channel size
v. DUPLEX SCHEME: Time Division Duplex (TDD)
vi. Up Link and Down Link Ratio: Configurable
vii. Throughput: 200 Mbps Aggregated
viii. Ethernet Interface: 10 / 100 / 1000 Base T, rate auto negotiated
ix. Protocol: IPv4/IPv6 (Dual Stack), SNMP(v1/v2/v3), IGMP
x. VLAN: 802.1Q with 802.1p priority
xi. Top Adaptive Modulation: 256QAM
xii. Encryption: AES 128, MAC Level Authentication /Radius, SSH, HTTPS
xiii. Spectrum Analyzer: can show the noise level in frequency channels to help in selecting the best quality frequency channel
xiv. QoS: The Radio System support the Quality of Service according to IEEE 802.1p, TOS/Diffserve and 4 Levels of Queues - Real time, Near real time, Controlled load and Best effort with packet classification or better, MIR/CIR support
xv. Operating temperature: 0°C to 55°C or better
xvi. Environment Compliant: IP 67 or more

xvii. Antenna Gain: minimum 29 dBi gain

xviii. Latency: Less than 20 ms

xix. System standards: All the radio equipment's shall comply fully with all customer defined mandatory requirement and conforming to the latest version of ETSI / FCC / IEEE & must have ETA / TAC (Type Approval Certificate) approval of WPC, Trusted Telecom approved OEM and MTCTE Approval Certificate. Copy of the same should be submitted along with the bid.

xx. Network Management Security, access control, report generation and debugging facility along with other standard features should be provided. The networking management system at AHQ (Network Operator Control) to manage and configure base stations and remote station unit. The functionality includes automatic and manual device discovering of all network elements such as base stations, remote stations etc and system shall keep details of all network elements. It should provide throughput / bandwidth test tools. The Radios should provide link failure, power failure, device failure alarmsetc. in NMS and the same must be integratable to the ICCC Dashboard.

Other Requirements:

a) With Surge Suppressor/Lightning Protector Unit (LPU) (for protection against lightning) near the device and arrangement for grounding the device. Equipment shall comply to IEC61000-4-5
b) With all accessories for mounting and installation of radio "
c) The Radio should support 150k PPS or more

10. PTMP RADIO

1. MIMO: 2X2 MIMO – OFDM
2. Operating frequency band: ISM un licenced free band.
3. Channel Size: 10 MHz,20MHz, 40 MHz and 80MHz
4. Channel Size: channel configurable as with 20MHz, 40 MHz and 80MHz
5. Channel Selection: Automatic/ Dynamic Channel Selection
6. Up Link and Down Link Ratio: Configurable
7. Throughput: 600 Mbps or more aggregated
8. Ethernet Interface: POE 10 / 100 / 1000 BaseT, rate auto negotiated
9. Protocol: IPv4/IPV6, SNMP (v1/v2/v3), HTTPS & SSH
10. Spectrum Analyzer: can show the noise level in frequency channels to help in selecting the best quality frequency channel
11. Adaptive Modulation: BPSK / QPSK / 16QAM / 64QAM / 256QAM
12. Encryption: AES 128, MAC Level Authentication/Radius, SSH, HTTPS
13. Supports: Minimum 50 Subscriber Modules
14. GPS Synchronization: GPS synchronisation should be supported to streamline Radio TDD synchronisation of Intra & Inter-sites to mitigate mutual interference
15. QoS: The Radio System support the Quality of Service according to IEEE 802.1p, TOS/Diffserve and 4 Levels of Queues - Real time, Near real time, Controlled load and Best effort with packet classification or better, MIR/CIR support
16. VLAN support: 802.1Q with 802.1p priority
17. Operating temperature: 0°C to 55°C or better
18. Environment Compliant: IP 67 or more
19. Antenna Coverage and Gain: 120-degree coverage with 14 dBi gain or better
20. System standards: All the radio equipment's shall comply fully with all customer defined mandatory requirement and conforming to the latest version of ETSI / FCC / IEEE & must have ETA / TAC (Type Approval Certificate) approval of WPC, Trusted Telecom approved OEM and MTCTE Approval Certificate Copy of the same should be submitted along with the bid.
21. Network Management Security, access control, report generation and debugging facility along with other standard features should be provided. The networking management system at AHQ (Network Operator Control) to manage and configure base stations and remote station unit. The functionality includes

automatic and manual device discovering of all network elements such as base stations, remote stations etc and system shall keep details of all network elements. It should provide throughput / bandwidth test tools. The Radios should provide link failure, power failure, device failure alarmsetc. in NMS and the same must be integratable to the ICCC Dashboard.

22. Other Requirements:

a. With Surge Suppressor/Lightning Protector Unit (LPU) (for protection against lightning) near the device and arrangement for grounding the device. Equipment shall comply to IEC61000-4-5
b. With all accessories for mounting and installation of radio "
c. The Radio should support 250k PPS or more
d. The BTS Radio should support Self Backhaul Capability.

11. PTP Radio Pair

1. MIMO: 2X2 MIMO - OFDM
2. Mode of operation: can work as PTP radio for PTP topology
3. Operating frequency band: ISM unlicensed free band
4. Channel Size: 10MHz,20MHz, 40 MHz and 80MHz channel size
5. DUPLEX SCHEME: Time Division Duplex (TDD)
6. Up Link and Down Link Ratio: Configurable
7. Throughput: 500 Mbps or more
8. Ethernet Interface: 10 / 100 / 1000 BaseT, rate auto negotiated
9. Protocol: IPv4/IPv6 (Dual Stack), SNMP(v1/v2/v3), IGMP
10. VLAN: 802.1Q with 802.1p priority11. Top Adaptive Modulation: 256QAM
11. Encryption: AES 128, MAC Level Authentication/Radius, SSH, HTTPS
12. Spectrum Analyzer: can show the noise level in frequency channels to help in selecting the best quality frequency channel
13. QoS: The Radio System support the Quality of Service according to IEEE 802.1p, TOS/Diffserve and 4 Levels of Queues - Real time, Near real time, Controlled load and Best effort with packet classification or better, MIR/CIR support
14. Operating temperature: 0°C to 55°C or better
15. Environment Compliant: IP 67 or more
16. Antenna Gain: minimum 24 dBi gain
17. Latency: Less than 20 ms
18. System standards: All the radio equipment's shall comply fully with all customer defined mandatory requirement and conforming to the latest version of ETSI / FCC / IEEE & must have ETA / TAC (Type Approval Certificate) approval of WPC, Trusted Telecom approved OEM and MTCTE Approval Certificate. Copy of the same should be submitted along with the bid.
19. Network Management Security, access control, report generation and debugging facility along with other standard features should be provided. The networking management system at AHQ (Network Operator Control) to manage and configure base stations and remote station unit. The functionality includes automatic and manual device discovering of all network elements such as base stations, remote stations etc and system shall keep details of all network elements. It should provide throughput / bandwidth test tools. The Radios should provide link failure, power failure, device failure alarmsetc. in NMS and the same must be integratable to the ICCC Dashboard.
20. Other Requirements:
21. With Surge Suppressor/Lightning Protector Unit (LPU) (for protection against lightning) near the device and arrangement for grounding the device. Equipment shall comply to IEC61000-4-5
22. With all accessories for mounting and installation of radio "

23. The Radio should support 150k PPS or more

12. Network Management System:

1. Network Management System for monitoring and providing status report of active items installed in Network.
2. For effective operations and management of IT Operations, there is a need for an industry-standard Network Monitoring System (NMS). Given the expanse and scope of the project, NMS becomes very critical for IT Operations and SLA Measurement. Some of the critical aspects that need to be considered for operations of IT setup of are:
    a) Network Fault Management
    b) Network Performance Management
    c) Centralized and unified Dashboard
3. There should be a tight integration between infrastructure metrics and logs to have the single consolidated console of Infrastructure & security events.
4. NMS (Network Management System) dashboard should show the network details, status, event information and a topology map.
5. NMS should support for monitoring and management of all network /IP enabled devices i.e. IP Radios, IP based CCTV cameras, NVR, Switches, PCs, work stations, servers, NAS, RFID Readers etc.
6. The solution should provide superior view of infrastructure health across system, networks, application and other IT Infrastructure components into a consolidated, central console.
7. The proposed solution should provide alert console with alert summary such as no. of correlated alert, network alert, server alert, application alert etc.
8. The system reports should be accessible via web browser and Reports can be published in PDF and csv format.

13. PC with 21-inch Monitor Screen at check posts and weighbridges.

1. Work station PC with all accessories, mouse, keyboard, antivirus, keylogger licensed, 21 inches LED display
2. Operating system: - Windows 10 Professional with recovery copy
3. Processors: - Intel core i7/i9/AMD Ryzen 7/9 processor, base frequency 3.2 GHz or more, 8C or more
4. RAM: DDR4 16 GB or more
5. Storage: HDD 1 TB and 256 GB SSD
6. Minimum Graphic Card: 2 GB or more
7. IP: All Hardware and Software to be IPv6 Compliant
8. Input devices: - Standard Keyboard, Optical mouse
9. Software (licensed): - MS Windows, anti-virus software licensed for complete CAMC period
10. Ports: USB 3.0 2 Nos. or more, USB 2.0 2 Nos. or more, 1 or more Standard Serial Port,1 or more Parallel port, Audio-IN/OUT, 02 Nos. or more Display ports, 1or more Ethernet port (10/100/1000) and other communication ports as required to make system workable.
11. Speaker (external) to be provided
12. The PC Should support the scanning of QR Code using Web Camera/ Any Other Medium to allow the seamless reading of QR Slips.
13. Operating Temperature: 0- 50°C or better

14. Work Station for Area HQ and WCL HQ.

Sl. No.	Minimum Specification
1.	**Latest Generation Intel/AMD 64 Bit 3.2 GHZ or better Processor**
2.	Minimum 64 GB DDR4 Memory. Slots should be free for future upgrade
3.	4 GB GDDR5 AMD/NVIDIA Professional Graphics Card supporting 3 no. of 4K Monitor output
4.	Dual Gigabit Teamed NIC from Day 1
5.	2X 1 TB 10 K RPM HDD, 512 GB SSD
6.	64 Bit Licensed Windows and Antivirus with license for 6 years pre-loaded.
7.	SMPS: Power supply should be 90% efficient with EPEAT Gold certification for the system.
8.	To be supplied with OEM Keyboard and Mouse
9.	Each workstation to be supplied with 2 no. of 24" Energy star 5.0/BEE star certified Full HD LED-monitor TCO 05.

15. 55 Inch smart LED Display:

a) Type - LED display for 24X7 operation.
b) Screen Size (Inches) - Minimum 55 inch
c) Resolution (Pixels) - (3840X2160) UHD Or higher
d) Category - Smart/Android/Web OS
e) Typical Brightness - 300-500 Or higher
f) Wattage of Speakers -10W x 2, Or higher
g) Number of HDMI PORT - 03 or higher
h) Number of USB port -01 or higher
i) Number of LAN port -01 or higher
j) Built in Wi-Fi - Yes
k) Inclusive of all the hardware, software, bracket accessories for installation & connection

16. 24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module:

Number of Mac Address Supported (k)	Min 16 K or better
QoS	802.1p, Sflow, Policing / Rate Limiting, Strict Priority Queueing or Low Latency Queueing, Queues per port
9K MTU Supported (Minimum)	Yes
Stacking Bandwidth (Gbps)	Min 40
Number of IPV4 Routes	Min 2000
Basic Layer-3 Protocol from day 1	RIPv1, RIPv2, PBR, Static Routing, OSPFv3, RIPng, OSPFv2, Should support dual stack, IPv4 static routing, Inter VLAN Routing, VRRP
Operating System	Yes
Security Feature	Should support ACLs , DHCP snooping, IP Source guard , Dynamic ARP Inspection (DAI) IEEE 802.1x, IP Source Guard, SSH, SSL, RADIUS/TACAS+, Storm Control, DHCP Snooping, DOS, Port Mirroring
Number of IPV6 Routes	1000
MTBF (Years)	Min 7
Redundant Power Supply (Hot Swappable)	No
Number of VLAN IDs Supported	Min. 4000

Maximum Operating Humidity (%RH)	Min 90
Maximum Number of Access /Downlink Ports	Min 24
RAM (MB)	1024 or better
Layer 2 Protocols	802.1Q VLAN, LAG, LACP, STP, MSTP, RSTP, IEEE 802.3x, VLAN
Number of VLAN Supported	Min 2000
Management Port (RJ 45/RS 232/USB)	Yes
Switching Capacity / Forwarding Bandwidth (Gbps)	128
Minimum Operating Humidity (%RH)	10
Flash Memory (MB)	128
Number of 10 G Base T Port (Uplink)	0
Number of 10 G SFP+ Port (Uplink)	Min 2 loaded with SFP Module and should support additional 2
Management Protocol	GUI,CLI,Telnet,TFTP,,SNMPv1,SSHv2,Single IP Management
Certification	RoHS
Console Port	Yes
Dimension / Form Factor (RU)	1
Operating Temperature (Degree C)	0 to 60 or better
Number of 10/100/1000 Base-T Ports	24
Throughtput / Forwarding Performance (MPPS)	>95
Premium Layer-3 Protocol	Should support PIM-SM, PIM-DM
IPv6 Ready from day 1	Yes

17. 24 Port L-3 Smart Managed access Switch with at least 2 SFP Port along with module

SI. No.	Parameters	Requirement
1	Environmental	Switch with following port density:
2		a) 24 RJ-45 autosensing 10/100/1000 ports
3		b) 10 G SFP+ Port (Uplink): Min 2 loaded with SFP Module and should support additional 2
4		d) Switching Capacity- 128 Gbps minimum
5		e) Forwarding Rate- 95 MPPS minimum
6		e) RAM:2GB minimum; Flash:1GB minimum; Packet buffer: 2MB
7		Stacking Bandwidth (Gbps): 40 Gbps or more
8		f) Operating Temperature:0 deg C to 50 deg C
9	Hardware Scale (MAC and Routing table)	MAC:16K minimum Routes:1K IPv4 / 1K IPv6 route entries Multicast group:1K minimum
10	Higher Availability	Shall support ITU-T G.8032 for 50m sub-second ring protection with seamless integration with other switches
11	Quality of Service	Shall support 8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling, for each switch port
12		Strict priority, WRR, DRR

13		Queue assignment based on: Port based 802.1p VLAN priority based IPv4/IPv6 precedence / DSCP based Differentiated Services (DiffServ)
14		Ingress Policer and marking (per port, and per Queue) Egress Shaper and Rate Control (per port, and per Queue)
15	Layer 2 Features	Should support following layer 2 features
16		4K VLAN ID's and 4K active VLANs, VLAN double tagging (Q-in-Q)
21		STP, RSTP, MSTP, IGMP query, IGMP snooping (IGMPv1, v2 and v3), IGMP/MLD multicast forwarding (IGMP/MLD proxy),
22	Layer 3 Features	Should support dual stack. IPv4 static routing
23		Should support IPV4: Static routing, Inter VLAN Routing, RIP, OSPF, VRRP
24	Security	Should support ACLs, DHCP snooping, IP Source guard Dynamic ARP Inspection (DAI)
25		IEEE 802.1x, IP Source Guard, SSH, SSL, RADIUS/TACAS+, Storm Control, DHCP Snooping, DOS, Port Mirroring
26	Management	CLI, GUI, USB interface or NMS for taking backup of software release files configurations, RMON, S-Flow, LLDP, SNMP v1, v2c and v3 Syslog

Additional requirement for all switches:

1. For ease of integration all switches should be of same OEM
2. Product should be IPv6 Ready from day 1.
3. The offered product model should be TEC Certified and the copy of the same must be enclosed.
4. The offered product should have VAPT certification. Bidder to submit VAPT certification of the OEM at the time of bidding from any Govt./ NABL Accredited/ STQC / UL Lab.
5. The product should meet the local content value addition of min. 60% in compliance to DPIIT's approved Nodal Ministry DoT's notification dated 29th August 2018. Form-1 is to be submitted by the bidder duly declared by the OEM.
6. OEM Must have ISO 9001, ISO 14001/18001 Certification
7. Switch Should support CE/BIS, EN / IEC 62368-1, EN61000-6-4, EN55022, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, RoHS Directive, EN 61000-3-2, EN 61000-3-3
8. Bidder has to clearly mention Make & model of the offered Switches

18. 9U Wall mount Network Racks

a) 600 mm or more depth (as per site requirement)
b) Wall Mount
c) Rack should be lockable and shall have all cable entries at the bottom
d) Rack should accommodate all the equipment like online UPS, Network switch, cabletermination strip, and other components & equipment at the site.
e) With PDU, Fan etc. as per requirement.

19. 42 U network Rack

1	42 U Floor mounted cabinets (Network Rack- H 1747 mm x W 800 mm x D 1200 mm/ Server Rack- with reversible front door made of safety glass of thickness 4 mm supplied with cable manager.
2	Removable side panels fitted with key lock and solid rear door fitted with Cam Lock/ 3-point lock.
3	Integrated base with ventilated plate at the front.
4	Solid cable entry plate at the top & bottom
5	Epoxy polyester Powder coated 60-80-micron thickness
6	Horizontal Metal Cable manager, Hardware packet, Monitor Shelf, Cantilever Shelf, Blank Panels, Keyboard tray, sliding drawer, vertical cable guide, baying kit, cable management rings.
7	4 Fan Mount provision on top cover. Each Rack to be supplied with 4 Fans
8	Necessary PDU for all servers installed shall be provided
9	IK 08 as per NF EN 62262 or IEC 62262, IP 20 as per IEC 60529 with solid sealing.

20. Laser Printer for Image based receipt / challan

Printing Technology	Laser
Cartridge Technology	Composite Cartridge
Type of Printing	Mono
Paper Size	A4
Print Speed per minute as per ISO/IEC 24734 in (A4) Size	Minimum 29
Resolution (Dpi)	Minimum 600x600
Memory (MB)	Minimum 64
Processor Speed	500 MHz
Duplexing Feature	Yes
Duplex Print Speed (IPM)	Minimum 18
Network Connectivity	Yes
Network Interface, if available	Ethernet 10/100
Wireless Connectivity	Yes
If Yes, Type of Wireless Connectivity	Wireless (802.11 b/g/n)
USB Port	Yes
Number of Main Paper Trays	Minimum 1
Each Main Paper Tray Capacity	Minimum 150
Yield of the cartridge/Ink Tank/Ink Pack supplied with Machine as per ISO/IEC: 19752/2004(E) for Black (Number of prints)	Minimum 3300
Duty Cycle (No of Prints/month)	Minimum 20000
Minimum Operating Temperature (Degree C)	10
Maximum Operating Temperature (Degree C)	50
Minimum Operating Humidity (%RH)	10
Maximum Operating Humidity (% RH)	80
BIS Registration under CRS of Meity	Yes
Other Certifications Available	UL/BIS/NABL/CE

21. QR receipt printer

Technical Details	
Character sets	Alpha-numeric/extended graphic
Instruction set	ESC/POS compatible
Display Type	NA
Supply method	Easy Paper Loading

Print resolution (dpi)	203
Printing Method	Direct thermal
Character Size	12 x 24 dots
Paper Width	79 millimeter
Sensor Cover	Open
Character per line	24 characters/line
Max. Print Width	72 millimeter
Paper Thickness	0.08 millimeter
Max. Roll Diameter	50 millimeter
Max. Print Speed (mm/s)	200
Display Size	NA
Operating Conditions	
Storage Humidity	90 percent
Storage Temperature	0 - 60 deg C
Operating Humidity	80 percent
Operating Temperature	0 - 50 deg C
Generic	
Auto cutter life	1.5 million cuts
Input Supply	220 VAC Adaptor
Battery Operated	NA
Standard Accessories	Printer, Power Adaptor, Setup Guide
Interface	USB

22. Laser Colour Printer:

Printing Technology	Laser
Cartridge Technology	Composite Cartridge
Type of Printing	Colour
Paper Size	A4
Print Speed per minute as per ISO/IEC 24734 in (A4) Size - Mono	Minimum 21
Print Speed per minute as per ISO/IEC 24734 in (A4) - Color	Minimum 21
Resolution (Dpi)	Minimum 600x600
Memory (MB)	Minimum 256
Processor Speed	Minimum 800 MHz
Duplexing Feature	Yes
Duplex Print Speed (IPM)	Minimum 12
Network Connectivity	Yes
Network Interface, if available	Ethernet 10/100
Wireless Connectivity	Yes
If Yes, Type of Wireless Connectivity	Wireless (802.11 b/g/n)
USB Port	Yes
Number of Main Paper Trays	Minimum 1
Each Main Paper Tray Capacity	Minimum 250
Bypass Tray Facility	Yes
If Yes, Bypass Tray Capacity	1
Yield of the cartridge/Ink Tank/Ink Pack supplied with Machine as per ISO/IEC: 19798/2007(E) for Cyan colour (Number of prints)	Minimum 700
Yield of the cartridge/Ink Tank/Ink Pack supplied with Machine as per ISO/IEC: 19798/2007(E) for Yellow colour (Number of prints)	Minimum 700

Yield of the cartridge/Ink Tank/Ink Pack supplied with Machine as per ISO/IEC: 19798/2007(E) for Magenta colour (Number of prints)	Minimum 700
Yield of the cartridge/Ink Tank/Ink Pack supplied with Machine as per ISO/IEC: 19752/2004(E) for Black (Number of prints)	Minimum 800
Duty Cycle (No of Prints/month)	Minimum 40000
Minimum Operating Temperature (Degree C)	10
Maximum Operating Temperature (Degree C)	50
Minimum Operating Humidity (%RH)	10
Maximum Operating Humidity (% RH)	80
BIS Registration under CRS of Meity	Yes
Other Certifications Available	UL/BIS/NABL/CE

23. 2 KVA UPS with 3 Hr Back up

a) Rating 2 KVA or more online Double Conversion UPS
b) Waveform - Pure Sinewave
c) Technology - Fully DSP based IGBT Rectifier or better
d) Input Voltage Range - 160-260 , 50/60 Hz or better
e) Output Voltage - 230 +/- 10%
f) Output Power factor – 0.9 or more
g) Overall efficiency - 90% or better
h) Frequency range - 40Hz-70Hz
i) Battery Type : Sealed Maintenance Free (SMF), External
j) Back Up time - 180 mins or more on full load throughout contract period. Successful bidderis required to replace the battery when battery backup is not minimum 180 mins or more during contract period
k) Input power factor - >0.99 @ Full Load
l) With Input power factor correction
m) Environment : Temperature : 0°C to 50°C or better
n) Protection : overload & short-circuit , DC : Over voltage /under voltage
o) Safety - BIS & IP - 20 or More
p) ISO certifications -ISO 9001,ISO14001,ISO27001
q) Indicator: On mains, On Battery, Low Battery etc.
r) Alarm: Mains fail, Low battery alarm, UPS warning, Overload, Fault & Bypass mode etc.
s) Cable of proper size : To be supplied along with UPS for proper installation
t) UPS Network Management Card/SNMP card for secure monitoring (like battery health, input voltage, output voltage, alert on Mains power failure, load % etc.) and control of individual UPS via web browser or any other mode for power outage monitoring, fault detection etc -
u) Proper size rack for UPS
v) CCTV sites comes under mining area & heavy lightening prone area where voltage fluctuation and leakage currents are prominent, hence in order to save the equipment from any power related problems, deployment of power conditioning equipment is in the scope of bidder. Bidder cannot claim that failure of equipment is due to WCL's power & voltage issue.

24. 5 KVA UPS 4 Hr Back up

a) Rating 5 KVA or more True ONLINE UPS (Double Conversion) system using High-Frequency PWM technology & IGBTs as Switching device in Full-bridge Inverter sectionwith inbuilt transformer with same OEM Make

b) Waveform - Pure Sinewave
c) Input Voltage Range - 165 V-260 V, 50/60 Hz or better
d) Input frequency range - 40Hz-55Hz
e) Output Voltage - 230 +/- 10%
f) Output power factor - 0.8 or more
g) Overall efficiency - 86% or more
h) Battery Type : Sealed Maintenance Free (SMF), External
i) Back Up time - 240 mins or more on full load throughout contract period. Successful bidder is required to replace the battery when battery backup is not minimum 240 mins or more during contract period
j) Operating Temperature - 0° to 40°C or better
k) Indicator - On mains/ On Battery/ Low Battery
l) Alarm - Mains fail, Low battery alarm, UPS warning, Overload, Fault & Bypass mode
m) Protection - Over Load and Short circuit Protection
n) HARMONIC DISTORTION- <3% THD(Linear Load); 5% THD(Non-Linear Load)
o) Certification - ISO 9001, ISO 14001, ISO 27001
p) Safety - BIS & IP - 20 or More
q) With all other accessories, required for installation & proper operation of UPS
r) Cable of proper size : To be supplied along with UPS for proper installation.
s) UPS Network Management Card/SNMP card for secure monitoring (like battery health, input voltage, output voltage, alert on Mains power failure, load % etc.) and control of individual UPS via web browser or any other mode for power outage monitoring, fault detection etc -
t) Proper size rack for UPS
u) UPS sites comes under mining area & heavy lightening prone area where voltage fluctuation and leakage currents are prominent, hence in order to save the equipment from any power related problems, deployment of power conditioning equipment is in the scope of bidder. Bidder cannot claim that failure of equipment is due to WCL's power & voltage issue.

25. 10 KVA UPS 4 Hr Back up

Generic	
Rating in KVA	10.0 KVA
Switching Technology	IGBT-PWM
Input Voltage AC Single phase	160V - 260V 50Hz
Output Voltage AC Single phase	230V +/-1% 50 Hz
Battery/Backup Bank	
Battery/Backup Bank Provided with Online UPS	With Battery
Type of Battery	SMF-VRLA conforming to JISC:8702(Pt.I,II&III)
Backup time (Minutes)	240 Minutes
Minimum Guaranteed VAH	1600 X Per KVA X Per hour of backup time
Accessories with Battery	Yes
Performance / Functional	
Inbuilt isolation transformer	With
Overall Efficiency (%)	>/=90% with Inbuilt isolation transformer
Power Factor Load Supported	0.8 or better

Overload limit	20% Overload for minimum 5-minute,50% Overload for minimum 3 seconds
Total Harmonic Distortion (THD) (%)	3% Maximum @ 100% Linear Load
Accessories	
Accessories	Rack for Batteries, SNMP Card (with Suitable Software) for communication, The UPS shall be complete with Trolley for battery bank, battery, Cables and connectors etc
Salient Features	
Protection	Protection for under voltage at battery terminal, Protection of Over voltage, Short Circuit & over load at UPS output terminal, Over temperature protection
Metering	Input Voltage, Output Voltage, Input Current, Output Current, Input Frequency, Output Frequency, Input Power, Output Power, Input Power Factor, Output Power Factor, Battery Voltage and Current
Alarms and Indications	Indicator for Mains presence, Battery charging and discharging, Output Over Load with Audible Alarm, Low Battery Voltage with Audible Alarm, Alarm for Over temperature, Alarm for Low Battery
Additional Features	Pure Sinewave AC Output
Design / Construction	
Type of Design / Construction	Floor Standing
Enclosure (mm)	1.2 mm Minimum Thickness of M.S. Sheet duly powder coated
Degree of Protection	IP20 or better
DC Bus Voltage (In Volts)	192 or better
Other Constructional Features	Mains ON/OFF MCB, Battery ON/OFF MCB, Battery Fuse, Inverter reset push button, Manual by pass facility
Operating Conditions	
Minimum Operating Temperature	-5 degree Celsius
Maximum Operating Temperature	40 degree Celsius or more
Relative Humidity Non Condensing at 40 deg C	95 percent
Intended Applications	Critical Infrastructure, Network IT Equipment, Medical Equipment, Support for Data Centers, Network operating centers, Security operation centers, Command and Control center etc.
Other Requirements	ROHS compliance, KW rating shall be 0.8 time of KVA rating

26. Traffic light with pole –

Traffic Signal (two LED Traffic Lights one red & one green) to be mounted to Pole at entry and exit of check post. All accessories including mounting pole with High Strength. Pole should be of 5 meter length above ground straight pole (Class B Medium) MS Pipe of ISI Mark and protected in suitable enclosure.

27. Variable LED Display (for Authentication completed, QTY Display etc. at check post and weighbridges)

Construction And Performance	
Type of LED Display System	Outdoor
Material of the Cabinet	Mild Steel
Aspect Ratio	4:3
LED Configuration	RGB 3 in 1 SMD
Maximum Pixel Pitch(mm)	10 or better
Length of LED Display System (cm)	121 – 130
Height of LED Display System (cm)	41 – 50
Maximum Depth of LED Display System (cm)	18
Pixel Density Minimum (Per Square Metre)	10
Horizontal Resolution(Pixel)	192
Vertical Resolution (Pixel)(in mm)	32
Horizontal Viewing Angle (degree)	160
Vertical Viewing Angle (degree)	140
Optimal Viewing Distance (meter)	>/=10
Refresh Rate (Hz)	1920
Response Time (milliseconds)	10
Frame Frequency (Hz)	50 – 60
Brightness -Calibrated Minimum (Nits)	5000
Contrast Ratio	5000:1
Uniformity of Brightness across the Screen	95
Gray Scale Processing (Bit)	14
Life of Light Source (Hours)	100000
Dimming Capability	256 levels
Mean Time Between Failure (MTBF)(Hours)	>10000
IP Rating (Front)	IP65
Duty Cycle	24x7
Power Input (Volt)	230 Vac +/- 10% 50-60 Hz
Mounting Arrangement	Wall,Pole
Availability of Receiver Card	Yes
Earth Leakage Current	<3mA
Ports And Connectivity	
Number of USB Port	1
Certifications	
BIS/NABL /UL	Yes
ROHS Compliance	Yes
ISO Certifications	Yes
Generic	
Operating Temperature (degree)	-10 to 55 or better
Operating Humidity (%RH)	5 to 95

28. SPD for UPS

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 60kA surge current rating, Imax, 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 IP 67 Equivalent enclosure suitable for indoor or outdoor installation.
- Supplied wire length that does not exceed 18 inches.
- Use of Surge Module thermal disconnects technology.
- Shall have LED status indicators.
- Have an operating temperature range of 0°C to 55°C.
- Nominal Discharge Current (In) of 20kA

29. Class 1 earthing (for UPS)

The basic part of This special type of earthing system is NCE (Negatively charged electron) Processor which is used in Lightning Cancellation System. Mainly NCE Processor is made of selected combination of multi-metals and it is a very good to get approximately zero error connectivity with the local soil. NCE Processor used in this special type of earthing to maintain the earth resistance value within the limit with a tolerance of ±10% throughout the year and in all type of soils.

In this earthing system NCE processors are used as main earthing ELECTRODES and its connectivity develops 2 TIMES FASTER ACTION OF SURGE PROTECTIVE SYSTEMS & UNITS COMPARED TO OTHER EARTHINGS.

35 sq. mm. X 2 Copper Cable is used to connect Constructed Earth Terminals with earth distribution Bas bar fitted in the Power room.

NCE Processor is inserted into the local soil by boring / drilling method and connected with 37/40 mm. G.I. pipe of required length as per condition of the local soil. The value of Earth Resistance is less than or equal to 1 ohm.

30. RF Surge Arrestor & Ethernet Surge Protector for IP radios, RFID Reader and CCTV

(a) RF Surge Arrestor with Grounding cable: Type metallic water proof dual side n type port, response time: less than 45 volts in 100 nano sec, Freq range: 0.1 to 2500 MHz, Breakdown voltage 350 VAC, ESD handling over 14 KV.

(b) Ethernet surge protection device: Type box type, ethernet / PoE protection device, response time less than 5 nano sec, surge handling capacity 08/20 uS (10 KA). Connection RJ PoE or Ethernet accessories grounding wire.

31. 2 Mtr Mast arm with Brackets and accessories for CCTV:

2 Mtr Mast arm with brackets and all necessary accessories for mounting on towers/poles for installation of CCTV cameras.

32. 5 Mtr POLE FOR RFID Reader

Bidders are to quote for 05 mtr (above ground) Pole for fixing RFID Reader at check post and weighbridges etc.

- The foundation for mounting the mast should be properly cemented as per IS 456
- Mast / Pole should be capable of supporting at least 160 Km/hour wind speed.
- Foundation should have a base plate as per IS 800.
- The Mast / Pole should be made of GI pipes as per IS (IS – 1239)

- Masts should be erected straight and should have minimum four bolts in the foundation to erect the mast. All the bolts and Nuts should be properly secured and should have anti rusting coating.
- Must be equipped with lightening Arrestor.

33. RFID Tag (Permanent):

RFID Tag for Internal coal transportation vehicles with following specification or higher
Operating Frequency: 860-960 MHz, (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
Operating Temp: -5°C to +55°C
Ingress Protection: IP 65
Operating mode: Passive (battery-less transponder)
Flexible Read / Write Range: Read up to 12 meters or higher. Write up to 5 meters.
Rugged construction for high durability
Use: RFID tags is a tamper proof tag and can be easily attached with self-adhesive tape
All the tags that will be supplied must have a unique serial no printed on them along with WCL logo.

34. RFID Cards (Temporary)

RFID Cards for road sales Vehicle with following specification or higher
Operating Frequency 860-960 MHz, (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
Operating Temperature -5°C to +55°C or better
Ingress Protection IP 65
Operating mode Passive (battery-less transponder)
Flexible Read / Write Range Read up to 12 meters or higher. Write up to 5 meters.
Rugged construction For high durability
Use: Handheld type.
All the tags that will be supplied must have a unique serial no printed on them along with WCL logo

35. 8 Channel NVR with 21' display

a. 8 Nos Full HD or 2 Nos 5.0 Megapixel (2592 x 1944) resolution or a mix of both
b. Incoming Network Throughput: 80 Mbps or better
c. Outgoing Network Throughput: 80 Mbps or better
d. The NVR should be able to record all channels simultaneously at FHD resolution.
e. Camera Type: IP, 2 Mega Pixel Full HD (1920x1080) and 5.0 Megapixel (2592 x 1944) Cameras
f. Recording Resolution and Frame Rate: Support Full HD (1920x1080) @ 25 FPS and 5.0 Megapixel (2592 x 1944) @25 FPS depending on Camera
g. Supported Image Resolution: Support SD resolutions, HD resolution, Full HD resolution and 5.0 Megapixel (2592 x 1944) resolution depending on Camera
h. Operating System: Embedded Windows or Linux
i. Recording compression: MJPEG / H.265 or higher
j. Video Playback: 8 Channels Simultaneously Full HD Playback in Realtime
k. Total Storage: Loaded with 4 TB with e-SATA Support or more
l. Drive Type: SATA/SAS 7200 rpm HDD or SSD

m. Network Protocols: Suitable and required network protocol stack to work Camera in TCP/IP based Ethernet network environment.
n. Video Output/ Interface: HDMI/VGA
o. Network Interface: 2 Ports of Ethernet 10/100/1000 Base T ports16. Shall be equipped with USB ports
p. Video content analysis: Audio Detection, Motion Detection, Tampering
q. Audio IN and OUT
r. PTZ control
s. Recording Mode: Manual, Schedule (Continuous/Event), Event (Pre/Post), Motion detection, Alarms, Trigger Input etc.
t. Search and Export: Recording search by Camera, date and time. Export of video clips to USB Flash, Drives
u. System Log: Alarms, Events, Operator Log etc.
v. Regulatory Approvals/Certifications: BIS Certification.
w. Meantime Between Failure (MTBF) rating of 1,00,000 hrs. at min 40 degree C.
x. MAC address: MAC addresses should be registered in the name of the OEM.
y. 21' Display to be provided along with NVR for viewing of camera.
aa. Must support Windows & MAC OS Browser viewing

36. 32 Channel NVR with 24' display

a. 32 Nos Full HD or 8 Nos 5.0 Megapixel (2592 x 1944) resolution or a mix of both
b. Incoming Network Throughput: 320 Mbps or better
c. Outgoing Network Throughput: 320Mbps or better
d. The NVR should be able to record all channels simultaneously at FHD resolution.
e. Camera Type: IP, 2 Mega Pixel Full HD (1920x1080) and 5.0 Megapixel (2592 x 1944) Cameras
f. Recording Resolution and Frame Rate: Support Full HD (1920x1080) @ 25 FPS and 5.0 Megapixel (2592 x 1944) @25 FPS depending on Camera
g. Supported Image Resolution: Support SD resolutions, HD resolution, Full HD resolution and 5.0 Megapixel (2592 x 1944) resolution depending on Camera
h. Operating System: Embedded Windows or Linux
i. Recording compression: MJPEG/ H.265 or higher
j. Video Playback: 16 Channels Simultaneously Full HD Playback in Realtime
k. Total Storage: Loaded with 16 TB or more with e-SATA support.
l. Drive Type: SATA/SAS 7200 rpm HDD or SSD
m. Network Protocols: Suitable and required network protocol stack to work Camera in TCP/IP based Ethernet network environment.
n. Video Output/ Interface: HDMI/VGA
o. Network Interface: 1 Ports of Ethernet 10/100/1000 Base T ports
p. Shall be equipped with USB ports
q. Video content analysis: Audio Detection, Motion Detection, Tampering.
r. Audio IN and OUT
s. PTZ control
t. Recording Mode: Manual, Schedule (Continuous/Event), Event (Pre/Post), Motion detection, Alarms, Trigger Input etc.
u. Search and Export: Recording search by Camera, date and time. Export of video clips to USB Flash, Drives
v. System Log: Alarms, Events, Operator Log etc.
w. Regulatory Approvals/Certifications: BIS Certification.
x. Meantime Between Failure (MTBF) rating of 1,00,000 hours at min 40 C. The OEM must submit an undertaking to this effect and submit the test report from Govt./NABL Accredited test labs/3rd party test house of international repute such as UL, TUV etc.
y. MAC address: MAC addresses should be registered in the name of the OEM.
z. 24' LED Display suitable for viewing of cameras to be provided along with NVR for viewing of camera.
aa. Must support Windows & MAC OS Browser viewing.

37. Severs (For VMS & RFID Server at Areas, ICCC server, Management Server for VMS , RFID Application / database Server/ Stand by Server at WCL HQ)

1. No of Processors: 2 processors or more
2. Latest Generation Intel® Xeon® Scalable processors/AMD, 16 cores per processor with Cache 24 MB or more.
3. 2.9 GHz (base frequency) processor or better
4. RAM: Minimum 128 GB Memory DDR4 or better & expandable upto 256 GB
5. HDD Capacity for OS & Application: 2x 1 TB SSD in RAID1 configuration expandable up to 4 TB or more.
6. Should be inclusive of Graphic card as per system requirement for supporting all thefunctions for VMS and other applications.
7. RAID (5/6) Controller.
8. USB 3.0 Ports, USB 2.0 Ports and other ports as required to make system functioning
9. Network Controller: Dual Port 1/10G Server Adapter (loaded)
10. Power Supply: Redundant hot plug swappable Power supply.
11. LED monitor 18.5''
12. Operating System: Microsoft Windows® Server latest edition / as per application requirement.
13. keyboard, mouse and all other required accessories for server
14. Security features: Secure Boot(Firmware and Bios Level Security),Provision to lock the system on breach, Hardware root of trust/Dual Root of Trust, Server should provide policy based security, Server should provide server intrusion detection, "Malicious Code Free design" (to be certified by OEM) ,Provision for Cryptographic firmware updates, Capability to stop execution of Application/ Hyperviser/ Operating System on predefined security breach, Secure /Automatic BIOS recovery, Network Card secure firmware boot, In case of any security breach system should provide the lock down feature
15. Certificates: BIS/UL,CE
16. Operating Temperature: 0-45°C
17. Should be inclusive of all the hardware, software, any 53rorate53ed53e5353 required, security software, accessories etc.
18. Database to be provided as per the requirement of the system/application.

38. UTM / NGFW Firewall

Type	NGFW
Form Factor (RU)	1
Features	Layer 3 – Layer 4,NAT,VPN,Application Visibility and Control (AVC),User Identity,Next Generation Intrusion Prevention System (IPS),Zero Day Protection / Advance Malware protection,Web Security Essentials / URL Filtering
Traffic handled	TCP,UDP,HTTP/TCP,TCP/UDP
Packet Size (KB)	1024
Throughput with all features enabled(Under Test Condition) (Mbps)	5000 or above

Throughput (Real World/Prod Performance)(Under Test Condition) (Mbps)	21000
Concurrent Session/Concurrent Connection	12M or above
New session/Connection per second	180K or above
Type of Interface Supported Multiselect	GE Copper
Number of GE Copper interface	Minimum 8
Number of GE Small Form-Factor Pluggable (SFP) interface	2
Number ofcol /WAN Ports	8
Number of Ipsec VPN Peers supported (Site to Site)	4650
Number of Ipsec VPN Peers supported (Client to Site)	4600
Number of SSL VPN Peers supported (Client to Site)	5500
Type of Storage Disk	SSD
Storage Capacity (GB)	Minimum 240 GB
Power Supplies	Single
Hot Swappable Power Supply	Yes
Redundant Fan	Yes
Type of Processor	x86
High Availability Support	Yes
If Yes, High Availability from day 1	active-active, active-passive
Interface Expansion slots supported	1
Firewall Policies – License	Yes
Details of the Firewall Policies for the Firewall provided with the License	Web Security Essentials / URL Filtering, IPS License, Application Visibility License, APT (Advance Persistant Threat) License (Anti Malware Protection , C& C attacks, Geo IP Protection, Zero Day Threat Protection),Gateway Anti virus, Gateway Anti spam
NGIPS Signature supported	5000 or better
Security Intelligence	IP, URL, Domain
Certification	Common Criteria /NDPP/NSS/ICSA Labs
Operating Temperature (Degree C)	0 to 40 or better
Operating Humidity (%RH)	5 to 75 or better
Ipv6 Ready from day 1	Yes

39. VMS Server with (N+1) fail over WCL HQ

i. No of Processors: 2 processors or more
ii. Latest Generation Intel® Xeon® Scalable processors/AMD, 16 cores per processor with Cache 24 MB or more.
iii. 2.9 GHz (base frequency) processor or better
iv. RAM: Minimum 128 GB Memory DDR4 or better & expandable upto1024 GB
v. Storage Capacity for OS & Application: 2X1 TB SSD in RAID1 configuration expandable up to 6 TB or more.
vi. Should be inclusive of Graphic card as per system requirement for supporting all thefunctions to support for VMS and other applications at WCL HQ.
vii. RAID (5/6) Controller.
viii. USB 3.0 Ports, USB 2.0 Ports and other ports as required to make system functioning
ix. Network Controller: 4X1G/10G Server Adapter (loaded) or more
x. Power Supply: Redundant hot plug swappable Power supply.

xi. Operating System: Microsoft Windows® Server latest edition / as per application requirement.
xii. keyboard, mouse and all other required accessories for server
xiii. Security features: Secure Boot(Firmware and Bios Level Security),Provision to lock the system on breach, Hardware root of trust/Dual Root of Trust, Server should provide policy based security, Server should provide server intrusion detection, "Malicious Code Free design" (to be certified by OEM) ,Provision for Cryptographic firmware updates, Capability to stop execution of Application/ Hyperviser/ Operating System on predefined security breach, Secure /Automatic BIOS recovery, Network Card secure firmware boot, In case of any security breach system should provide the lock down feature
xiv. Certificates: BIS/UL,CE
xv. Operating Temperature: 0-45°C
xvi. Certifications/Compliance (OS) : Windows, Red Hat Linux, Suse Linux, Ubuntu
xvii. Certification/Compliance (Virtualization/Cloud Platform): VM ware, HyperV, Red Hat Virtualization
xviii. Should be inclusive of all the hardware, software, any 55rorate55ed55e5555 required ,security software, accessories etc.
xix. Database to be provided as per the requirement of the system/application.

40. Video Analytics Server WCL HQ:

i. No of Processors: 2 processors or more
ii. Latest Generation Intel® Xeon® Scalable processors/AMD, 24 cores per processorwith Cache 24 MB or more.
iii. 2.9 GHz (base frequency) processor or better
iv. RAM: Minimum 256 GB Memory DDR4 or better & expandable upto 1024 GB
v. Storage Capacity for OS & Application: 4 TB SSD in RAID1 configuration expandable up to 8 TB or more.
vi. Should be inclusive of Graphic card (with minimum 4 GPU Cards expandable upto 6 GPU) as per system requirement for supporting and functioning of all the video Analytics for all cameras of WCL.
vii. RAID (5/6) Controller with 8 GB Cache.
viii. USB 3.0 Ports, USB 2.0 Ports and other ports as required to make system functioning
ix. Network Controller: 4X1G/10G Server Adapter (loaded) or more
x. Power Supply: Redundant hot plug swappable Power supply.
xi. keyboard, mouse and all other required accessories for server
xx. Operating System: Microsoft Windows® Server latest edition / as per application requirement.
xii. Security features: Secure Boot(Firmware and Bios Level Security),Provision to lock the system on breach, Hardware root of trust/Dual Root of Trust, Server should provide policy based security, Server should provide server intrusion detection, "Malicious Code Free design" (to be certified by OEM) ,Provision for Cryptographic firmware updates, Capability to stop execution of Application/ Hyperviser/ Operating System on predefined security breach, Secure /Automatic BIOS recovery, Network Card secure firmware boot, In case of any security breach system should provide the lock down feature
xiii. Certificates: BIS/UL,CE
xiv. Operating Temperature: 0-45°C

xv. Certifications/Compliance (OS) : Windows, Red Hat Linux, Suse Linux, Ubuntu

xvi. Certification/Compliance (Virtualization/Cloud Platform): VM ware, HyperV, Red Hat Virtualization

xvii. Should be inclusive of all the hardware, software, any virtualization required, security software, accessories etc.

xviii. Database to be provided as per the requirement of the system/application.

41. VMS Application with 750 channel Licenses for live monitoring & recording

Edge Analytics Events shall be made available in VMS applications.

Sl. No.	Features required
1	The Software shall be Scalable, Client Server based, Enterprise level capable to handle at least 10000 cameras in the same system by adding camera license and server. The VMS software should be third party ONVIF Profile S, G, T. The Software shall be Conformant and independent of camera make .
2	The VMS shall be able to support cameras at up to 30 frames per second and any resolution supported by the camera and the camera driver. The VMS shall automatically offer only supported fps and resolution combinations for user convenience. VMS shall have API based integration with the major camera vendors/OEM in order to support features such as, up to 3 Multi-streams, SD Card storage sync, Camera based supported Edge Analytics, Camera I/O support, Camera Audio support.
3	The system shall allow the recording, live monitoring, playback of recorded video, audio, and data simultaneously
4	The VMS Management software should allow load balancing feature for effective utilization of resources for Server and client. It can allow system to be load balancing as per remote or local usage.
5	The Software shall be able to control Bit Rate /Quality of camera, FPS, Resolution as perrequirement. The same can be applied from VMS System manager itself not from the camera web browser.
6	The VMS shall allow bidirectional audio communication with the cameras Two-way Audio Communication can be in 3 different Modes, Recording shall be available with Audio & video Synced together:
(A)	Closed Mode: In the closed mode, the audio channels are not open
(B)	Listen Mode: In the listen mode, the user will hear audio from the camera and any potential audio going to the camera from any other VMS client. The audio channel fromcurrent user is not open.
I	Talk Mode: In the Talk mode, the user will speak from the Client Station to the camera.
7	The VMS shall be able to integrate with other systems using video, data or digital I/O,Scheduled I/O as well as logical I/O.
8	The VMS shall support inbuilt Server based 3D calibrated Video Analytics. The license andsoftware link should come as single package to make it easy for the user. Software shouldbe able to handle Video Recording and Video Analytics a minimum of 100 cameras in onerecorder. Recording to be done at 1080p, 20 fps.
9	The VMS shall be Windows based supporting native or virtualized Windows Server 2016 and Windows 10 or any open platform. The VMS shall allow operation with PC Keyboard, Mouse and DirectX compliant Keyboard (Joystick).
10	The VMS shall support unlimited storage and should be able to record in NAS, SAN and DAS
11	The VMS shall support H.264, H.265, MPEG-4 and MJPEG compression methods
12	The VMS shall support multi-live streaming, multi casting and thru cast streamingmethodology
13	The VMS shall support exporting video in a tamper proof format. The media player provided in the software shall automatically notify if the video or audio has been modified
14	The VMS shall provide file export tool for export of single frame of video in BMP, GIF, TIF, JPG and PNG formats and export of video files in SEF/.TS, ASF, AVI and MKV/ .mp4 format
15	Archiving Support
16	Quick review of the recorded video
17	Support any video resolution like CIF, 2CIF, 4CIF & HD up to 20MP.
18	Quick search of devices in the viewing application
19	Extended camera viewing on multiple monitors
20	Multi camera sequential tours
21	Digital zooming feature for live video and playback
22	Facility for exporting the video on a portable media such as pen drive/DVD/portable harddisk etc.
23	The software should comply that all client to server and server to server communications are

	compressed and encrypted and connection specific key should be 256-bit AES and data encryption should be 256-bit AES. The exported video should be saved in SEF (Secure Export Format) or Encrypted File for secure non tamper file system with Password protection. The Client application should supportdual password mode for each user.
24	Video search on the basis of date, time, event, camera, location & alarm Post recordingmotion search analysis
25	The VMS shall have the following licensing policies:
25.1	The VMS shall not have base licenses and standard channel modules. The VMS shall beflexible to provide and support licenses for any number of cameras.
25.2	The VMS licensing shall allow changing any and all of the cameras at any time without extracost or license key change
25.3	The VMS shall not require online licensing process
25.4	The VMS shall support instant device/ Camera replacement using original IP address. The IPof the new device/ camera shall not be needed in the software while replacing faulty camera / device
25.5	The VMS licensing shall require MAC Id of Server/ Recorder only, not of camera devices.
26	The VMS shall support software inbuilt Secure Data distribution methodology for faulttolerance
27	The VMS Management software should allow Password Protection Feature for Administrator.
28	Administrator Rights
28.1	Admin should have rights to give access, windows control, screen rights, device, stream,system setting and various plug-in access to the users
28.2	Admin can give access to the users to exist, Logoff, lock and unlock the VMS applicationand client GUI.
28.3	Admin can give right to the users to change the profile from VMS application and clientGUI.
28.4	User can search devices in device tree
28.5	User can add comments to the alarms
28.6	Users can create, close, resize, minimize, maximize, restore the window
28.7	Users can open about windows and can take help from there.
28.8	User can open, close, rename and change the tab grid.
29.1	Screen Element:
29.2	User can view the below elements:
29.3	Can view alarm list
29.4	can view activity panel
29.5	can view playlist panel
29.6	Can view device tree:
29.7	Can view description panel
29.8	can view administrative device description
29.9	Can view tab
29.10	Can vide menu bar
29.11	Can view status messages
29.12	Can view master connection status
29.13	Can close component bar
29.14	can change component modes
29.15	User can be able to create custom grids
29.16	User can be able to change device order in grid.
29.17	User can scale user interface
30	Layouts:
30.1	User can view other users shared layouts
30.2	User can view own layouts
30.3	User can manage, share and schedule the layouts
31	Bookmarks:
32.1	User can view other users shared bookmarks
32.2	User can view own bookmarks
32.3	User can share bookmarks
32.4	User can view shared tab content
32.5	User can view, save, share and remove tab content and password protected
33	Device access:
33.1	User can change camera settings, close the camera, change thru cast settings, camerastreaming settings, and display settings.
33.2	User can edit dome camera tours, presets, home position
33.3	User can close audio, change audio volume, mute audio, use two-way audio
33.4	User can close digital input device, digital output devices, control digital output device,close text data device

34	Access to Stream:
34.1	User can view live streams
34.2	Admin can restrict user to view playback stream limit from 1 minute to 24 hrs.
34.3	Admin can authorize the user to use mixed mode and privacy masks.
34.4	User can export a video to clip in SEF or Encrypted format, Audio to clip, text data to clip,storyboard
34.5	User can export still image, print still image, view archive, create archives.
35	Settings:
35.1	User can change general settings, clip export settings, image export settings, plug-in settings, alarm settings, stream settings, display settings, advanced settings, storyboard export settings, data cache settings.
36	VMS should have the provision of Plugin support to connect with the third-party software.
37	The software OEM (VMS) can be of global repute or Indian OEM shall have been incorporated at least 5 years from the date of tender release. The VMS OEM shall have its office/ service support in India. The offered VMS must be ONVIF compliant & should support ONVIF camera system. The necessary documentary evidence for the above to be submitted along with the bid.
38	VMS, analytics OEM should have ISO latest certificates: ISO 9001, ISO 14001 and ISO 27001. Copy of certificates to be submitted.
39	VMS software having analytics feature with full cameras calibration capability like camerafield of view, camera heights, horizontal line, virtual mimics, virtual ruler etc. using software to calibrate the camera to reduce false alarm.
40	VMS OEM should have at least 3 references (one order of should be at least 300 cameras) in India for deployment. All of these 3 references must be in any Govt./PSU/Smart cities/Safe City/City Surveillance/Defense/Airports. PO copies with completion certificate from customer must be furnished for the same.
41	The platform software used for installation of VMS, VA software must be enterpriselicense. Home edition shall not be acceptable
Client & Recorder Application	
1.	Software should be of enterprise level and able to handle maximum 250 cameras with analytics in one recorder. One master recorder shall manage a system of up to min of 180 Servers with the possibility to expand the system to include multiple master recorders.
2	The system management server shall run as a Windows service on one of the recorders.The system management server shall control the following:
	a) Overall system operation.
	b) Data communication between recorders and client programs.
	c) Maintain user and profile lists.
	d) Authenticate and authorize users and applications.
	e) Maintain system logs.
	f) Handle system diagnostics.
	g) System health monitoring
3	Software shall allow the recording, live monitoring, playback of archived video, audio anddata, network transmission and changes to settings simultaneously.
4	Server software shall enable the client to dynamically create connections between Cameras and workstations and view live or recorded video on the digital monitors (audio, video, serial ports and digital/Os)
5	Server software shall provide the client seamless operation of all cameras and workstationsavailable in the system regardless of the actual connection to different archive servers
6	Offered software shall use standard servers for all the processing and shall not need anyproprietary server hardware
7	The alarms may be triggered by the following events:
	a. Motion (or lack of motion) in camera view
	b. Change in sound level
	c. Text data string
	d. Digital input signal from an external device
	e. Missing camera signal (resulting for example from sabotage)
	f. Custom event from 3rd party application.
	G. Video Content Analytics (VCA) event from inbuilt.
8	The alarm management shall support the following automatic responses:
	a. Pre and post-recording up to 60 minutes of video and audio
	b. Opening an alarm camera window or audio window (real-time or playback) on theworkstation screen
	c. Displaying the alarm on the alarm list
	d. Activating a digital output
	e. Turning a dome camera to a preset position
	f. Starting a dome camera tour

	g. Sending an alarm e-mail message
	h. The alarm management shall be able to acknowledge alarm automatically or manually
	i. Support for multiple Alarm pop up monitors
	j. The user can add comments to alarms.
	k. The user can specify to show certain or all alarms on the time slider.
	l. Alarms can have a custom color
9	The alarm management shall support the following alarm viewing features:
	a. It should provide the facility to assign the priority level to different alarms.
	b. It should allow pass the specifically arms to specified users rather than sending all alarmsto every user.
	c. Users in same user group should see and be able to manage received alarms assigned forthe same user group. All users should see the alarm status in real time.
	d. System should have single alarm stack even though there are multiple recording servers
10	Software should allow creation of multiple camera sequences. It should be possible to set thedwell time for the cameras within the sequence.
11	Software should allow taking the backup of the recorder server configuration and restoringthe same if required.
12	Software should allow easy and user-friendly menus for camera configurations. It shallallow changing settings for multiple cameras of the same type simultaneously
13	Software should provide totally configurable user privileges with independent user rights. The user privileges are saved in profiles which can be assigned for the required users
14	Software shall allow the client applications to interact with multiple recorder servers simultaneously and allow the simultaneous display cameras from different recorders onthe same monitor
15	The client programs shall include end user client program, system management client program, browser-based client program and mobile client programs at least 10 concurrent client licenses to be provided which can later be expandable up to 50 User license for live view and playback of CCTV cameras along with dashboards etc from any remote location using internet/any other mobile data without any additional cost to WCL.
16	The end user client program shall support multiple profiles for each user
17	Client applications shall provide an authentication mechanism, which verifies the validity of theuser through the selected system management server
18	Client shall perform the following applications simultaneously without interfering with any of the Archive Server operations (Recording, Alarms, etc.)
	a. Live display of cameras and audio
	b. Live display of camera sequences
	c. Playback of video and audio
	d. Media search tools
	e. PTZ control
	f. Display and control of Maps
	g. Alarm management
	h. Digital I/O control
19	Client applications shall support any form of IP network connectivity including: AN, WAN, VPN, Internet and Wireless
20	Client applications shall support IP Multicast (RTP) and Unicast (TCP or RTP) video and audio streaming as required depending on the network capabilities
21	Client application should support both dynamic and predefined Video display layouts, forexample Full screen, 2x1, 2x2, 3x2, 3x3, 3x3+1 large , 4x2, 4x2+1 large , 4x3, 4x3+1 large , 4x3+2 large , 4x4 , 4x4+1 large , 5x5 , 6x5 + 1 large, 7x5 , 10x10 .
22	Client application shall enable playback of audio along with video. The monitor shall enablethe user to work with multiple Audio layouts containing collections of audio clips
23	Users shall be able to define and store their own layouts, which they will be able to recall later through a layout list. Each layout shall contain information about the dimensions andpositions of all windows along with image filter data and data about the active profile
24	Client application shall enable playback of audio mixed from both live and recorded audiosources, allowing the user to control the volume of each source independently as well as mute them
25	Client application shall allow operators to save bookmarks with description of the recordedand live video, audio and text data
26	Client application shall provide drag and drop facility for selection of the devices to beviewed in the viewing layout
27	Client application shall support Graphical Site Representation (Maps) functionality, wheredigital maps are used to represent the physical location of cameras and other devices throughout facility. Maps should have the capability to add the hyperlinks to create interlinked maps. It should allow the selection of any camera for display from the map

28	Client application shall be able to control pan-tilt-zoom, iris, focus, presets and domepatterns of the PTZ camera
29	Software should provide the ability to play a minimum of 32 video channels in time sync with each other. Software shall support exporting a multichannel clip with video, audio andtext channel data
30	Ability to Auto crops each camera view.
31	Should support Virtual Matrix option to build video walls and video matrixes, the matrix can be created by having a separate display server for each four monitors in the matrix, aswell as an operator console server to manage the display servers. Agile virtual matrix (AVM) operator console can be positioned in a fixed camera grid cell.
32	The device Station should have various symbol options to user to understand if the Camerais in below Conditions: Normal, Recording, No Signal, not in use, Connecting and No Connection.
33	The camera toolbar shall be displayed when the mouse is moved over a camera or if a camera is selected with other means. If the mouse is not moved for some time, the cameratoolbar disappears automatically.
	The camera toolbar shall contain at least the following items.
	Camera settings control
	Export control
	Image print control
	Camera closing and duplication control
	Two-way audio control
	View or virtual zoom control
	highlight control
	Image Control plug-in control
	360 camera de-warping control (In case of 360 Cameras)
	Other toolbar plug-in
34	Alarm Indications: The Alarm shall be easily indicated in the device tree, and in Profile Maps, the camera which is associated to an alarm shall be highlighted in yellow / Red Color.
35	Alarm Filtering Option shall be there. It shall be possible to “silence” alarms for a desiredtime period Ranging from 5 Minutes till 24 Hours or more. This is useful if alarms are unintentionally active all the time, e.g., due to adverse environmental conditions such asheavy wind, rain or snowfall
36	Each camera view should have Image Control Plug-in and each camera view can be configured individually as per the condition. The Image Control plug-in has various optionsto adjust the camera image.
A	Option to turn the image to black and white image
B	Edge highlight filter
C	Histogram filter (a form of contrast optimization filter)
D	Noise reduction filter
E	Image sharpening filter
F	De-interlace filter
G	Image flip (flips image along horizontal Axis)
H	Image mirror (mirrors image along vertical axis)
I	Brightness adjustment slider
J	Contrast adjustment slider
K	Contrast adjustment slider
37	There should be Camera Audit facility inbuilt in VMS platform including below list
A	Camera order number
B	Camera Name
C	Camera Shortcut
D	Footage start and end time
E	Footage days/Hrs.
F	Current status like, no signal, working, not configured etc.
G	Cameras reference image, Current image
H	System should have feature to make the camera Audit summary and export the camerareports
I	System should have feature to select one camera or multiple cameras for the auditsummary.
37	Audit summary:
	Audit summary should have below details:
A	camera name
B	Audit image
C	Audit status
D	Audit comment
E	Admin details
F	Export of Audit summary in .pdf file.
G	Audit logs should tell from which workstation the record is being viewed

38	Advanced Activity Search – The software should have the capability to have intelligent andadvanced activity /event search detection methods of last 25 such instances in a given period of time which will enable user to search a particular portion in the entire video where the incident / theft / bomb was kept within couple of minutes. The Video of such event can be directly exported from here itself for further process
39	The Mobile Client Version shall be available in Android and IOS. The Mobile client shall have the below Minimum Feature list: - Grid of 4 cameras visible when a tablet device isused in a landscape mode.
	- Swiping gestures can be used to switch between camera grids and also with individualcameras to get to full screen mode.
	- All system generated alarms.
	- Easy date and time search for video footage, still images can be sent via email as JPEG filesby a single tap, its PTZ control includes manual control, pre-set positions and camera tours, I/O controls, such as doors and lights, can be controlled by the Mobile Client and sites can be easily configured on the road.
40	TruStream support: for multi-streaming cameras, Client will automatically choose a streamthat matches best the grid cell resolution that the camera is displayed in.
	Alarms in Time Slider
41	Alarms can be displayed on the Time Slider
42	The setting can be controlled from Activity panel configuration (small arrow in the right ofactivity panel).
43	As the time slider is zoomed, the alarms are automatically grouped under a headingnumber that shows how many alarms are in each group.
44	Camera settings change restarts only the particular camera. (Recording continuesuninterrupted for other cameras.)
45	Support for new Nvidia H.264 decompression codec (requires Nvidia GPU)
46	Also, able to decrease CPU load significantly.
47	The VMS shall be able to support cameras at up to 60 frames per second and any resolution supported by the camera and the camera driver. The VMS shall automatically offer only supported fps and resolution combinations for user convenience.
48	We can also add Multilayer maps in the VMS
49	With the help of feature Thru Cast we can directly stream video from camera
50	2-factor authentication (offline, cell phone based)
50.1	The software should have increasing the security of the system by requiring the user to have a second authentication step besides only the user name and the password to prevent hacker to login and audit logs are specified to special person not to the user group. The Software should have the following basis features:
50.2	When user in the group tries to log in for the first time, the user is requested to use orinstall the 2-factor authentication client (e.g. Authy, Google authenticator, MS Authenticator or any other application authenticator) on user's mobile device.
51	User permissions for System Administrator
	Software should have possibility to set detailed permissions for the system manager for different user groups. This should allow for instance implementing functionality for allowing different user groups for hardware maintenance and user administration, which isuseful for large scale systems.
52	Color invert filter The software client should have color invert filter functionality both together with ordinarycolor images, as well as the black & white filter.
53	Alarm popup monitor selection algorithms Software should support below under the alarm popup settings: New alarm first: new alarm pushes previous alarm to next monitor Circulate alarms in rotation Circulate alarms back and forth
54	Software should have feature to use Intel Media SDK based codec's for H.264 & H.265 (CPU& GPU)
55	Activity MAP
I	Heat map (activity) required in VMS software so that can be used to calculate heat map (activity) from camera view by using recorder metadata for real time and playback mode...
II	Activity Map should visualize activity in the image in certain period of time. Each color should represent specific duration of activity. Activity map colors should scale so that mostactive area is reddest.

III	Activity maps can be combined by opening multiple camera views. As a result, scaling of the colors are common for all camera views so that most active area is reddest. Areas canbe masked out by left mouse button and mask can be cleared using right mouse button. Activity scaling should have color scale from Red on top, Orange, Yellow, Green and bottomto Blue with higher activity with time and percentage respectively.
IV	Software should have following features:
V	Real-time mode:
	The system should have real time Activity Map mode. Start time should be the time whennew camera view is opened into the plug-in. Activity map generation can be reset.
VI	Last hour mode:
	The system should have last hour mode option to check activity map which is queried.
VII	Custom mode:
	The system should have custom mode to check activity map which is queried.
	Common behavior for both real time and playback mode:
VIII	The software should show: If there is metadata but no activity map data in the metadatathen no message should show. If there is no metadata in specified search time, then closest metadata is searched (forwardfrom start time and backwards from end time)
56	The VMS offered must be cyber security certified with NDAA/UL Cyber security certificate/GDPR/NIST/ TPM/Cybersecurity Chipset/STQC/CERT-IN cyber security certificate from Indian Government body for mitigating cyber security risk.
VMS should have the following Video Analytics along with edge analytics included in VMS License	
	Required Parameter
1	The video analytics (VA) shall be an inbuilt solution from the VMS manufacturer where the video analytics software is included in the basic VMS installation package and work as a windows service. The VA should run in the same Recorder as that of the VMS. VA license key to be part of VMS License key to avoid complexities of multiple licenses.
A	Camera Tampering
	Camera Tampering to be shown in different scenarios:If someone defocuses the camera lens If someone moves the camera from its FOVIf someone put the cloth on camera If someone covers the camera lens with hand If someone put the torch light flash on camera, If someone put spray on camera lens
B	Enter and Exit Detection
	An “object entered” alarm is raised when an object crosses from the outside to the insideof a detection zone. Conversely, an “object exited” alarm is raised when an object crossesfrom the inside to the outside of a detection zone covering following: Calibrate the camera using 3D Calibration tool/ Video analytic platform based on AI Threshold to set from 5 sec to 20 sec. zone selection from 1 meter to 5 meters or more for detectionAlert preview in analytics configuration. 20 second video with the alarm.
C	Stopping Detection
	Objects that are stopped inside a zone for longer than the defined amount of time willtriggerthe rule and raise an alarm. Steps: Calibrate the camera using 3D Calibration tool/ Video analytic platform based on AI Threshold to set from 5 sec to 20 sec. zone or line selection 1 meter to 5 meters or more for detectionAlert preview in analytics configuration. 20 second video with the alarm.
D	Wrong way Detection
	Objects that travel in the configured direction (within the limits of the acceptance angle)through a zone or over a line trigger the rule and raise an alarm covering following: Calibrate the camera using 3D Calibration tool/ Video analytic platform based on Artificial Intelligence Limits of the acceptance angle from 5 degree to 180 degree.Alert preview in analytics configuration. 20 second video with the alarm.
E	Zones and lines – Calibrate the camera using 3D Calibration tool/ Video analytic platform based on Artificial Intelligence Zones and lines should be used on the scene to detect object alert. A zone’s shape should be changed by clicking on the edge and adding another vertex.At least 10 vertex

	should be added in a single zone
2	The Video Analytics (VA) may be designed to provide Intelligent Video Analysis for 24/7surveillance with support for 3rd party devices
3	The VA configuration shall work as an independent windows application.
4	The VA configurator shall have easy to use graphical user interface with live alarms list foreasy parameter fine tuning and feedback.
5	The VA alarms shall be recorded in the VMS similarly like other alarms, for example motiondetection, audio detection and digital input alarms.
6	The VMS shall store the VA alarm video and image files for export
7	The VA shall support video from any camera supported by the VMS.
8	The VA shall support cameras using any of the video compression formatsH.264/MPEG4/MJPEG.
9	The VMS shall support scheduling so that that VA alarms can be enabled or disabled for acertain period of time. The VA software shall be able to run at least 4 different types of analytics in one single camera.
10	Calibration
	The video analytics shall have an easy-to-use 3D calibration tool or the Video analytic platform based on Artificial Intelligence where 3D calibration objects are matched to the actual camera viewing scene. The calibration parameters include camera height, camera viewing angle and camera tilt angle. VA Configurator required to configure the analytic engine for best accuracy possible. Theconfiguration of the camera can be done using the given parameters: The camera height and the tilt angle should be set using the camera setup fields.The camera field of view The pan angle is the rotation of the scene that is viewed by user. Mimics can be used as a reference for the average human model.
11	Presence
	The Presence filter detects when an object, person or vehicle is inside or crossing a zone ora line covering following: Calibrate the camera using 3D Calibration tool/ Video analytic platform based on AI Threshold to set from 5 sec to 20 sec. zone selection from 1 meter to 5 meters or more for detection Alert preview in analytics configurator. 20 second video with the alarm.
12	Intellectual Property Right (IPR)
	The Intellectual Property Rights of Offered VMS must not reside in Country sharing Land Border with India. The VMS Offered should not be Developed/manufactured by an entity inwhich the majority shareholding of the entity is from a Country sharing a Land Border with India. OEM shall provide a declaration about the intellectual property rights as a Documentary Evidence. The OEM with IPR Residing in India shall be Preferable.
	The VMS OEM should have valid ISO Certifications: ISO 9001 ISO 27001 ISO 14001 VMS OEM should not be Blacklisted in any government organization.
13	Client may ask the bidder to do the Cyber Security audit post implementation though CERT- In empaneled vendor without any additional cost to WCL.
14	Bidders should provide the support and upgradation of the offered software during the warranty and CAMC period free of cost.

42. Licenses for AI and ML based Video analytic for 300 cameras for the following Analytics

The Video Analytics shall offer a suite of analytics rules with Artificial Intelligence to provide automatic detection of a range of motion and non-motion behavior of persons, objects and vehicles.

The provision of Video Analytics should be Strictly through Artificial Intelligence, Machine and Deep learning Technologies/solutions on video. There should be provision of 2 used cases (minimum) per camera.

Each of the video analytics use case shall be able to run on a unified Video Management Software Platform itself.

Following video analytics and features should be provided based on licensing:

- **AI Based Crowd detection**

  i. The AI Based Crowd Detection Module must detect crowd formations and triggers alarms when a specified number of people (capacity) or a specified percentage of people (occupancy) thresholds is reached in the selected area.
  ii. Should have the Functionality to create multiple regions or Zones in a Field of view of Camera & should allow the user to Specify Crowd Thresholds Individually for each region. If within any region the Crowd Density Estimation exceeds the Threshold, then the system should raise an Alert.
  iii. The System must have Configuration Options for User Defined Drawing/Setting of the Zone within the Field of view of the Cameras with Configurable Border Width & it's Colour.
  iv. The System must have Configuration Options for Drawing Multi point Crowd Monitoring Zone where the Crowd Estimation & Counting is Desired. This Crowd Monitoring Zone Border's width & it's Depiction Colour must also Configurable.
  v. The System must have Configuration Options for Inputting the User Defined Maximum Upper & Lower Limit Threshold
  vi. The System must have Configuration Option for Selecting the Alarm Interval in Seconds
  vii. It must be possible to configure Within a Single Field of View/Camera, Multiple Monitoring Zones for Crowd Estimation & Counting can be Configured with each of them having different Crowd threshold Limits, The Different zone should be Distinguished with different Monitoring Zones Border Colours.

- **AI Based Classification of objects like person, vehicle or animals**

  VA can perform object classification once the camera has been calibrated. Object classification is based on properties extracted from the object including object area and speed.

- **AI Based Traffic Congestion Detection**

  i. Traffic congestion should be classified into 3 categories i.e. Low traffic volume, Medium traffic congestion, heavy traffic congestion
  ii. Traffic congestion should calculate on the basis of number of vehicle passes through and average speed of vehicles at particular location in particular interval of time.
  iii. In case, the data exceeds a particular limit an alarm in form of SMS, E-mail, pop-up will be sent to respected authority.
  iv. Traffic congestion limit should be set manually by the user operating from remote location.

- **ATCC (Automatic Traffic Counting and Classification)**

  i. Should provide high accuracy in real time vehicle counting and classification.
  ii. Should Count the number of vehicles entering and leaving mine entry /exit checkpost
  iii. Shall Allow Users to Draw Lines /zones & Count People/vehicles Entering & Exiting in Real Time & should show the Total IN & Total OUT Count in the OSD
  iv. Minimum Classification supported should be any two wheeler, Truck/bus, large size vehicles etc.
  v. Snapshot shall be captured of each vehicle that is counted and classified.
  vi. System should have features with functions such as recording, snapshot capture, database management, reporting
  vii. Ability to Email or SMS any Video Analytics Event to mobile phones.

viii. Offline analytics possible in avi, mp4, mpeg, h264/h265 and asf file formats.
ix. Offline analytics should run in batch mode to take every file from specified folders and run analytics one by one on each file automatically.
x. Minimum and maximum object size based filtering.
xi. Define schedule of video analytics to run weekly, daily, day/night or according to user specified date and time.
xii. Define shapes, lines or zone in single camera for video analytics
xiii. Technology is based on Live Camera and Recorded Videos.
xiv. View snapshots of each event and click on event to play recording of that time period.
xv. Reporting: Report of all events possible though bar and line charts.

- **Vehicles tail gating:**

System should able to detect tail gating of vehicles at mine entry/exit check posts etc.

- **Loaded/Unloaded condition of the vehicles:**

System should be able to detect whether vehicle is loaded or unloaded at check post, weighbridges, sidings, coal stocks etc. as per requirement of WCL.

43. AI& ML based Video Analytics for 100 cameras (Fire & Smoke Detection/no of people in vehicle/Weighbridge and boom barrier tampering/Insufficient Illumination etc.)

- **AI Based Fire & Smoke Detection**

i. The system should Classify a fire/Flame in real-time Video Stream & should give an Alarm upon Detection of Fire
ii. The System should Classify Smouldering Smoke on real-time Video Stream & should give an alarm upon Detection of Smoke.
iii. The Fire & Smoke Detection Video Analytics should be developed with Advanced Image Processing and Pattern Recognition Technology.
iv. The Fire & Smoke Detection Algorithm should be able to Dense & Sparse Fire & Smoke visible in the Camera's field of View.
v. The Fire & Smoke Detection Algorithm should be based on physical Characteristics of the Fire/Flame & Smoke Pattern detection within an Incredibly short time by analysing the Video Streams.

- **AI based analytics for Following:**

System will automatically detect and generate an alarm when any of the following is detected in video stream:

- Difference in number of people inside vehicle during tare and gross weighment.
- Weighbridge and Boom Barrier tampering
- Insufficient illumination.

44. AI& ML based Video Analytics for 100 cameras (Safety Hazards: PPE KIT/Accidents/Water Logging/Saggy electrical wires etc.)

- **AI based PPE KIT detection**

  System will automatically detect and generate an alarm when a person is not wearing a safety helmet, safety harness, safety jacket, safety mask etc.

  It adheres to industry compliance and worker safety and 66rorate66ed as per WCL requirement.

- **AI based other safety hazards detection**

  System shall automatically detect and generate alarms for Safety hazards: Human presence near speeding vehicles/HEMM etc, water-logging, saggy electrical wires, any accidents etc.

  It adheres to industry compliance and worker safety and 66rorate66ed as per WCL requirement.

Features required in Analytics: (point no. 42,43,44)

- Analytics can be applied in Full HD-1080P resolution, H265, H.264 compression and 25fps.
- The VA shall support video from any camera supported by the VMS.
- Both offline and Real time analytics options available.
- Option to Email, Phone call/IVR and Push Notification Alarm of any Event to mobile phones. Push method should be without SMS
- Offline analytics possible in avi, mp4, ts, mpeg, h265, h264 and asf file formats
- Offline analytics should run in batch mode to take every file from specified folders and run analytics one by one on each file automatically.
- Pre-buffer and Post buffer recordings up to 10 minutes for video analytic events.
- Minimum and maximum object size based filtering. Filtering based on Object type.
- Define schedule of video analytics to run weekly, daily, day/night or according to user specified date and time
- Define minimum 20 shapes, lines or zone in single camera for video analytics.
- Option to run analytics in silent mode.
- View snapshots of each event and click on event to play recording of that time period.
- Ability to virtually map devices to one another in the VMS. For example Fixed cameras and PTZ cameras so that event from fixed cameras can be used to notify PTZ cameras to Zoom, Pan or tilt or go-to preset positions and take snapshots of events. PTZ Tracking should happen to track the intruding object
- Reporting: Report of all events possible though bar and line charts.
- Ability such that alerts can be searched and categorized based on this information. i.e. Timestamp (date & time), Alert Name, Alert Type, Camera Name, Camera ID.
- Each of the video analytics use-case shall be structured as an independent module that can be deployed on any camera using a simple user interface utility, providing a complete visibility of the use cases and which cameras they are running on.
- The Video Analytics system shall be compatible with the latest technological advancements in the domain of computer vision and AI. Hence, it shall be able to quickly adapt to newer libraries and AI advancements. All the analytics and use-cases shall be based on advanced AI technology, and shall not depend on traditional algorithms.

- Event Notifications: The result of each of the use case shall be in the form of events that contain the screenshot with other metadata describing the event, such as detected objects, timestamp, camera/video that generated the event and all other metadata representing the event from different use cases.
- Resource Management View: The User interface shall provide a list of all the resources available in the system such as computing servers and cameras. The status of each of the devices, whether they are online/offline shall also be available at all times.
- The algorithms powering the video intelligence system shall possess capability to operate parallel and distributed manner across a cluster of machines.
- The System shall be a real-time video analytics engine that utilizes advanced image processing algorithms to turn video into actionable intelligence. The AI based Video Analytics system shall consist of video- processing & analytics engine that works seamlessly both on saved videos or camera streams in real-time and provide events to the user based on the use-case basis. The system shall be compatible with all ONVIF compliant IP cameras with H.264/H.265 video decoding.
- It is possible to generate email or a text message to the designated recipients in case critical alerts are generated. The application shall escalate the alert to the designated users through email or a text message in case the alert is not acknowledged by the operator in a specified period of time.
- It should be possible to configure video analytics on any of the cameras from the Video Management System desktop client Application
- The VMS and VA must have tight integration so that there is no need to add cameras to VMS and VA servers separately.

  VA should allow the VA applications to configure and run as per hourly/daily/weekly schedule. Users should be able to create various schedules to deploy the VA applications as required.

Video Analytics Functional Requirements:

i. Proposed intelligent AI Based Video Analytics Software (VAS) shall have the capability to provide various alarms & triggers and should notify the Authorities if any incidence/violation happens.
ii. The System shall be a real-time video analytics engine that utilizes advanced image processing algorithms & Artificial Intelligence to turn video into Actionable Intelligence.
iii. The system shall provide configurable detection zones and lines to detect events of interest, Detection zones define an area of interest and Detection lines define a Virtual Line instead of a region.
iv. The system shall facilitate creating multiple zones and lines in a single scene to trigger various alerts
v. The system shall allow the configuration of applicable rules and manage them
vi. The system shall also enable editing the Zones and lines to the desired shape or size.
vii. The triggers generated by the applied rules shall provide visual indicators to identify the event. Such as a Green or any coloured Bounding Box changing the Bounding Box colour to Red or any other colour on event
viii. The system shall enable detecting rules in the defined areas (zones/ lines)
ix. The system shall provide a functionality for configuring timelines for various events such as abandoned object, Stopped Vehicle Detection, Wrong Way Driving Detection etc.
x. The system shall allow classification of different objects like Vehicles and people/Person.
xi. VAS should allow to add, edit, delete or disable and enable Policies.
xii. System shall have a sophisticated rule-based engine with powerful analytics capabilities that provides automatic event notification.

45. VMS Application with 128 channels/ License for live monitoring & recording at all areas:

Technical specification shall be as mentioned at point no. 43.

Licenses shall be transferrable as per requirement from one area to other.

46. NAS at areas & WCL HQ

a) Populated with 140 TB or more Usable Space from Day 1 and can be upgradable up to 180 TB with hot-swap storages.
b) Latest generation AMD/Intel scalable processors (1.7G, 8C, 11M Cache) or better
c) No of Processors: 2 processors or more
d) RAM: 32 GB or more
e) RAID (1/5/6) Controller.
f) Raid 5/6 configuration for HDDs for data redundancy from day 1.
g) It should have two or more RJ-45 ports that support 1 Gbps and 10 Gbps.
h) Microsoft Windows Storage Server Standard Edition or latest
i) USB 3.0 Ports and USB 2.0 Ports
j) Supported Protocol: Ipv4, Ipv6, TCP/IP, UDP, HTTP, HTTPS, SMTP, FTP, NTP, DNS/DDNS, DHCP, RTP/RTSP etc.
k) The Storage Server should have Failover feature in case of future needs
l) It should have AC100V ~ 240V Redundant Power supply
m) It should have adequate support and feature to add total cameras per site requirement.

47. Integrated Application for Weighment through RFID, Centering System and CCTV at weighbridges

Electronic Road Weighbridges are being used at different mines of WCL for weighment of coal with vehicles in unloaded and loaded conditions. An integrated weighment software is required for the same in place of the existing weighment software of WCL, which shall capture weighment data (tare & gross) of the vehicles using 3 systems i.e. Weighbridge Centering system, RFID system, ANPR camera and weighment detail from digitizer of the weighbridge and after cross verification and authentication weighment shall be processed and completed as per following details:

1. There is shall be a local database of vehicle details at weighbridge workstation/PC which is based on 68 rorate 68 ed 68 integrated application of WCL including RFID details, transporter details, DO details, consumer details etc.
2. Transporter details, material detail, source – destination details, DO details, consumer details etc. may also be required to be fetched through integration with ERP/SAP/any other system of WCL.
3. The existing different weighment format for different type of vehicles internal/roadsale/other etc. and data fields which are to be captured in database is enclosed at "Annexure – AA, BB,CC". The proposed integrated weighment software shall provide the existing weighment formats and if any 68rorate68ed68e68 required during entire contract period as per WCL requirement.
4. When Vehicle approaches for the weighment (Tare/gross) at weighbridge platform RFID systems and ANPR installed at weighbridge shall capture vehicle details and after cross verification if the vehicle is 68rorate68ed vehicle than it shall display the vehicle no. on weighment software screen and shall fetch other details related to vehicle as mentioned at point 1.
5. However, the weighbridge centering system proposed to be installed at weighbridge shall ensure proper positioning of the vehicle on platform. Signal light shall remain yellow in normal condition. Signal light shall turn RED when vehicle enters the platform. When vehicle is positioned properly in line with weighbridge centering system then the weighment will be enabled for capturing weight from the weighbridge 68rorate68e and signal light shall turn to GREEN and after this, weighment data shall be captured. Status of ready for weighment and weighment details etc. shall also be displayed on variable LED Display at weighbridge.
6. After weighment is completed as per the SOP then it shall display save option and reject option.
7. When Save on the weighment software screen is clicked it shall store weighment data in local data base, area server, central application related to ICCC etc and central server of ERP simultaneously. Also, the weighment completed status shall be displayed on Variable LED Display.

8. In case there is total network failure, vehicle details shall be captured through from QR receipt generated at Check post through QR cum RFID reader/ from RFID Tag of vehicle through handheld RFID reader.
9. After saving the weighment data as mentioned above at point 6, a final challan having QR code shall be generated and copy of the same shall be provided to vehicle.
10. Weighment software shall have both mode automatic/ manual, in case of manual mode also whole process shall be automated and system driven except for final saving of the weighment data which shall be done by weighbridge operator and in any case no input in weighment software shall be allowed manually. In case of fully automatic weighment system entire process shall be automated including saving of data and printing of challan for human-less operation. (if required by WCL)
11. If any step from the above is missing during the weighment of the vehicle, weighment shall not be completed and an alert shall be generated and it shall be displayed on variable LED display as weighment failed.
12. It shall be the responsibility of the successful bidder to make any changes as per WCL requirement in weighment software at any point of time during entire contract period without any additional cost to WCL. Also such software developed for weighment shall be property of WCL and all the required source code/software including all associated database shall be provided to WCL.
13. There shall also be the provision to generate shiftwise/daywise/monthly/weekly, customer wise, DO wise, transporter wise, material wise etc reports of weighment/dispatch from the software itself at all the weighbridge as per requirement of WCL.
14. In case of network failure, local registration of RFID tags as well authentication should be available with suitable software in Check post work station and at weighbridge work station and same may be uploaded/updated at AHQ server/WCL HQ server subsequently after restoration of network as per WCL requirement.

48. Integrated Application at WCL HQ and all Area HQs for RFID, ANPR and weighment software with structural Database and for control and monitoring of Complete System at C/Ps & W/Bs.

A Central Integrated application is required which shall have its central data base for entire WCL at WCL HQ along with area wise database at respective area HQ for various functions of registration, authentications, role based authorisations, location wise authorisations, operation, control, monitoring etc. including capturing of various data, report generation based on the data of different systems i.e. RFID based boom barrier access control system, ANPR system, RFID based weighment system etc. installed at check posts, weighbridges etc having following features/requirement. This application shall be accessible across WCL at all units through MPLS- VPN, Internet on web browser and mobile application.

Sl. No.	Modules/Requirement	Details of application requirement
1	RFID Module	I. There should be a RFID TAG Module for registration of Tags and assignment of RFID Tags. II. This module should also have feature to detag, delete and blacklisting etc. of RFID Tags to vehicles.
2	Transporter Module	I. Application shall have transporter module for registration of various transporters working in various mines of WCL. The registration format shall be provided by the WCL and there shall be facility to upload necessary document for registration. II. Details of the transporting work order/sales delivery work order indicating work order no and date, party details, quantity of transportation/ sale, grade of coal, source and destination for lifting of coal, validity start and end date of the order, value of the order., etc.

		III. Once the registration is completed same shall be approved by administrator/ authorised officials of WCL. IV. Transporter module of the application shall have capabilities for integration with other online services/application of central government or state government.
3	Route creation	1. Central application should have a separate module for route creation for RFID based movement at mines by selecting various POI i.e check posts, weighbridges, coal stocks etc. 2. POIs shall be selected for between source and destination where various authentication is required separately and enroute. If there are more than one check post enroute from source to destination POIs shall be distinguished for vehicle from which it has just to be passed through after authentication (i.e. enroute check posts of other mines etc.) 3. In case of Road Sale vehicles only source POIs (checkposts, weighbridge, coal stocks etc.) to be selected for authenticated entry/route in mine premises.
4	Vehicle Registration Module	1.There shall be a vehicle registration module for all the vehicles for all types of vehicles (Roadsale, internal coal carrying vehicle, WCL vehicles, others etc) as per the format provided by the WCL. 2.Vehicle registration module should be integrated with transporter module. 3.Vehicle registration module shall have facility to upload driver details including license upload, driver image upload etc. 4.Vehicle registration module shall have capability to integrate with mparivahan or any other govt online services related to transport departments for fetching details. 5.This module shall also maintain whitelist, black listed vehicle, allowed, not allowed vehicles and have feature to move/declare vehicles in these lists (blacklisted, allowed etc.)
5	User Master	Application shall have a user creatin module accessible to administrator. This module shall have option for role based user creation based on various modules of the application as per WCL requirement. User creation module shall also have option to create user for various units of WCL i.e. Area/Sub Area/mine/siding/Check post/Weighbridge etc.
6	Work flow for Internal Coal carrying vehicles	Internal Coal carrying vehicles are the vehicles which are transporting coal from mine coal stock, CHPs to railway sidings and from Coal Stocks to CHPs etc. For internal vehicles following flow/process shall be followed and is to be controlled by this application automatically/without any manual intervention: 1. Before entering the mine premises transporter and vehicles shall be registered in WCL system as per the modules mentioned above. 2. RFID tag shall be provided to all the vehicle by WCL however application shall also have feature to use Fast tag instead of WCL provided RFID Tags. 3. Application should also be integrated with existing VTS of WCL to ensure whether vehicle is fitted with GPS and same is live or not. 4. No vehicle shall be allowed in WCL premises without registration and RFID Tag and GPS. 5. A vehicle shall be allowed in a defined route created in route creation module. 6. When a vehicle reaches the source check post its RFID Tag /FastTag shall be read by the RFID reader and same shall be authenticated from central server. Simultaneously ANPR Camera at check post shall capture the image and vehicle no. provided by ANPR application shall be cross verified with the vehicle no. read through the Tags. If both the nos. (From ANPR and RFID authenticated) matches and same is authenticated from the central server database, Traffic light shall turn green, boom barrier shall open and on variable LED display “vehicle no., Authenticated” shall be displayed and vehicle shall

		be allowed in mine with a QR code-based receipt generated at check post. This receipt and QR shall have vehicle details with date and time stamp. This detail shall be stored and displayed on Check post work station also. 7. If vehicle is not authenticated from central server through RFID/Fast Tags or vehicle no. captured through ANPR application does not match, vehicle shall not be allowed to enter. Traffic light shall remain Red, Boom Barrier should not open and reason for not opening the boom shall be displayed on variable LED Display. 8. Application shall have feature for location wise disabling the cross verification of vehicle nos. from tags and ANPR by administrator/71rorate71ed person of WCL and log and reason of the same shall be recorded in application database. 9. After authentication of vehicle at check post a unique trip ID shall be created for that vehicle which shall be considered completed only when all the further steps are completed till unloading of coal at destination/siding. This trip ID shall be reflected during trip at each check point (check post , Weighbridge etc.) 10. After entering from check post vehicle will approach for tare weight at weighbridge and vehicle shall be authenticated through ANPR and RFID from central server. However, the Tare 71rorate71e shall be allowed only if vehicle is authorized at Check post and its Trip ID is generated. If authentication fails or Trip no. at check post is not generated vehicle shall not be allowed for weighment and shall be allowed only after authorization from WCL officials and manual trip shall be generated and log of the same shall be recorded in system along with the reason. 11. After tare weight vehicle will approach to coal stock/CHP for loading. 12. After loading of Coal, vehicle will approach to weighbridge for final weighment, vehicle shall be authenticated through ANPR and RFID from central server. After authentication, vehicle shall be allowed for final weighment through integrated weighment software at weighbridge. Details of weighment shall be recorded and shall be transmitted to area server, Central Server and ERP. A QR based weighment challan having vehicle image shall be generated. 13. After final weighment vehicle will approach to check post for exit. 14. At check post vehicle shall be again authenticated same as entry process. Also, it shall be verified that final weighment is completed or not. If final weighment is not completed Traffic light shall remain Red, Boom Barrier should not open and reason for not opening the boom shall be displayed on variable LED Display. Also prerecorded audio announcement shall be played on proposed PC speaker/PA system (in future if any). Such vehicle shall be allowed to exit only after 71rorate 71ed 71e71 through app from 71rorate71ed personal of WCL and log of the same with reason shall be recorded. 15. Finally, vehicle shall be allowed to exit after reading of the QR based challan from handheld QR reader including authentication and verification RFID, ANPR as mentioned above and details of vehicle along with weighment data shall be recorded as per requirement of WCL. 16. In case of any network failure local authentication, cross verification shall be available through suitable software at work station/PCs at check post and weighbridges or through SIM based handheld RFID cum QR Tag reader from server at AHQ/WCL HQ including generation of reports as mentioned in the bid and same may be uploaded/updated at server of AHQ, WCL HQ after restoration of network. 17. After exit vehicle will go towards destination location (SIDING). 18. At destination entire process from check post and weighbridges shall be followed same as followed at source.

		19. After final unloading at destination and exit from the destination check post, trip shall be completed and closed. 20. If any step is missing in above process flow a alert shall be generated. 21. If any trip is not completed after certain time period an alert shall be generated. 22. At all check post reports of vehicles entry – exit, total coal dispatched etc. shall be available locally. 23. After unloading at destination, when vehicle again reached to source destination new trip shall be generated and entire above process shall be followed.
7	Work flow for Roadsale vehicles	Roadsale vehicles are the vehicles which carries coal from mine for DO holders/private vendors. For Roadsale vehicles following flow/process shall be followed by the vehicle and is to be to controlled by this application automatically/without any manual intervention: 1. Before entering the mine, premises transporter and vehicles shall be registered in WCL system as per the modules mentioned above. 2. A Temporary RFID tag shall be provided to all the vehicle by WCL however application shall also have feature to use Fast tag instead of WCL provided RFID Tags. 3. Further work flow/ process shall be same from point 3 to point 16 of work flow for internal coal carrying vehicles. 4. After exit of the trip shall be closed and vehicle assigned RFID Tag shall be de-tagged automatically. 5. At all check post reports of vehicles entry – exit, total coal dispatched etc. shall be available locally.
8	Integration with existing GPS based VTS of WCL.	For above tracking, successful bidder shall also integrate the proposed application with the existing VTS of WCL and at all point of interest, data generating points the location of the internal coal carrying vehicle shall also be recorded in database of application and ICCC and same shall be available in various reports as required by WCL
9	Reports	The integrated application shall provide for generation of various MIS reports as per requirement by WCL. The necessary reports should be generated at check post from server including local application in case of network failure. The reports may be in respect of list of in and out vehicles at the check post vehicle wise, transporter wise and 72rorate72ed as per WCL requirement including the list of vehicles plying in the mine area at any given point of time. It is to note that with generation of necessary reports with 72rorate72ed72e72 as per WCL requirement, the paper work/ manual intervention if any shall be avoided at check post. Reports shall be generated Weighbridge wise, check post wise, mine wise, Sub Area wise, Area wise and for entire WCL for 72rorate72ed72e parameters and time period i.e. shift wise, day wise, weekly, monthly along with any 72rorate72ed72e time period. Response time for report generation shall be minimum (<30 second). Various other predefined report shall be developed/created during commencement of the project as per the requirement of WCL some of them are mentioned below: i) DO / transport order wise report of number of vehicles entered/ exited the mine. ii) Shift wise reports. iii) Weighbridge wise report. iv) Area/ Project wise Entry / Exit report v) Vehicle wise, transporter wise detailed trip report (having entire trip data in

		time, out time, weighment data along with location, image at source and destination etc.) including trip count etc. vi) Source & destination wise /route wise report. vii) Date wise report within range of dates. viii) Exception reports vis a vis Action taken / neutralization report. ix) Manual Override Report including ANPR Output and video clip of 30 seconds or customized duration as required by WCL. x) Detailed report and alerts for any system exceptions provided by authorised person of WCL with reasons mentioned. xi) Exception/anomaly report for deviation form the process flow mentioned above including bypassing RFID and ANPR authentication. xii) Any other Customizable Reports as per WCL requirement. xiii) Equipment Breakdown Report, including Uptime. Successful bidder shall ensure that database architecture shall be designed in such way that any 73rorate73ed report based on any of the data recorded at various points can be generated/made available for WCL without any additional cost to WCL during entire contract period.
10	Others	In case of network failure, local registration as well authentication should be available with suitable software in Check psot work station and at weighbridge work station and same may be uploaded/updated at AHQ server/WCL HQ server subsequently after restoration of network.

49. ICCC platform with all Integration

S. No.	Functional/ Technical Parameters	Description
1	General requirements	The Command & Control solution should be implemented and Compliance to the industry open standards based Commercial-of-the-shelf (COTS) products.
2		ICCC should support Role based access of application modules.
3		System must provide a comprehensive API (Application Program Interface) or SDK (Software Development's Kit) to allow interfacing and integration with existing systems and future application and sensors which shall be deployed on the field.
4		The platform should be able to normalize the data coming from different devices of same type and provide secure access to that data using data API(s) to application developers.
5	Command & Control	The solution must use the latest application architecture models for better interoperability and performance.
6		The proposed ICCC platform should have access through mobile application as per WCL requirement with atleast 50 users.
7		Bidders shall ensure that proposed ICCC Application and its Mobile Application offered is certified from Cert-In or their authorized partner before deployment. VAPT shall be done post deployment.
8		The platform must be able to normalize the data from various data sources such as IOT (Internet of things), IT (Informational Technology).

9		ICCC Platform shall be developed 74rorate74e the latest Microsoft .NET/any latest architecture and the back bone of the systems database will be a Microsoft SQL/MySQL/Postgres/Oracle/any latest RDBMS.
11		The proposed ICCC platform should be deployable both on-prem or on cloud.
12		The platform must be able to integrate data from different sub-systems and provide a unified view of the sub-system data over visualization dashboards.
13		The platform must have the capability to perform collection of data from the devices or sensors through the APIs provided by the sub-systems.
15		The platform must be compatible to work on web browsers.
16		Must have capabilities to achieve load balancing and high availability.
17		ICCC shall support access to ICCC platform from multiple locations through internet/MPLS VPN/mobile data.
18		Multiple users at Area control room as well as other important users at 10 Different areas of WCL should have the access to common ICCC platform installed at WCL HQ through internet/MPLS VPN network where they can view, monitor and generate reports with full functionalities of ICCC related to that particular area with user access control.
19		Important users at WCL HQ and other remote important users should have the access to full functionalities of ICCC with user access control
20	Integrations	The ICCC shall be integrated with the following existing/proposed Systems, Platforms through SDKs/APIs shared by their provider: 1. Video Management System (CCTV Surveillance System) 2. Video Analytics 3. Access Control Systems like RFID Readers 4. Boom Barriers 5. Weigh Bridges 6. Vehicle Tracking System 7. GIS platform 8. GPS Devices 9. Email Gateway 10. SMS Gateway 11. ERP/SAP Integration 12. Shall be capable of any other IoT/ IT based systems upcoming in future.
21	Video Management System (CCTV Surveillance System) Integration	ICCC Platform Solution should have the capability to be integrated with Video Management System (VMS) through SDKs and APIs shared by their provider and shall have the following functionalities:
22		1. View live video of Camera nearest to the Alert location in ICCC Application. 2. View alerts generated through edge analytics in ICCC application.
23		User can take snapshot and allocated with alert created which can be utilized for future reference.
24		All Cameras should be mapped on GIS platform with different information regarding their status, Location address.
25		The camera visual should be directly accessed through the icon on the map.
26		There should be a snapshot functionality, when the operator access a live video camera.
27		Zoom in/out camera functionality should be provided.

28		Ability to perform below mentioned video controls (if applicable) from ICCC systems by Operator:
29		Play, slide-forward, slide-backward, pause, and specify time to play recorded video.
30		Take a video still image (snapshot) from live or recorded video.
31		Move PTZ camera by clicking on camera controls to the chosen location.
32		Provide screen control in video pane to control pan, tilt and zoom PTZ camera.
33		Display in 2x2 and 3x3, 4X4, 5X5 or more window formats.
34	Video Analytics Integration	The ICCC solution should have the capability to be integrated with Video Analytics Platform through SDKs and APIs shared by their provider and shall have the following functionalities:
35		Alerts will be generated in ICCC Platform in case of any information received from the Video Analytics platform and its daily/weekly/monthly report as per requirement of WCL.
36		Geo-spatial locations of all the incidents will be plotted on GIS Map.
37		All the information received from integrated Video Analytics Platform will be visible on ICCC Platform.
38	Vehicle Tracking System Integration	The ICCC solution should have the capability to be integrated with Vehicle tracking system Platform through SDKs and APIs shared by their provider and shall have the following functionalities:
39		Track latitude and longitude or geospatial location of vehicles
40		Enable multiple vehicles to be simultaneously tracked.
41		Enable vehicles locations to be displayed on the map in ICCC Application.
42		Enable display of recent movements of tracked vehicles on a map.
43		Enable display of any vehicle on a map with GPS coordinates.
44		Enable search and find tracked objects by vehicle details.
45		Operator should be able to get Vehicle's attributes by clicking on the icon of vehicle on GIS map.
46	GIS Map Integration	ICCC application shall be provided with GIS Map. Application shall be readily available with the OSM/Google/Bing/ as a base map or shall be configurable with any OGC compliant map data layer. ICCC application shall have map centric design where all major operations can be performed through map.
47		All alerts should be mapped in GIS map
48		ICCC application shall support for receiving different types of alerts.
49		GIS map shall have all basic features of creating any point of interest point or affected area.
50		GIS map shall have plotted all Cameras/Sensors deployed across the area of WCL.
51		GIS map shall enable search on Map for any alert by type or subtype.
52		Distance measuring tool shall be part of GIS panel.
53		On receiving alerts, GIS map shall zoom on alert location.
54		Clicking on any alerts in GIS map shall allow to acknowledge or close the alerts. Same shall be possible from alert panel.
55		Alert Panel and GIS panel shall be in sync and support multi-screen.
56		Clicking on any Alert shall show nearest Cameras, from where live viewing of Camera shall support.

57		Operator shall be able to take Snapshot of Live streaming and save image.
58		Operator shall have capability to Create alerts when viewing something on Camera and attaching the snapshot taken.
59		All alerts shall be mapped to various SOPs, where authorities shall be informed through SMS or Email. It shall be responsibility of successful bidder to provide necessary SMS & email gateway.
60		Operator shall be able to draw a free hand shape on GIS map and shall be able to perform following functionalities: • Alert list shall be populated in a window which are generated in area within the drawn shape on GIS Map. • Operator Shall be able to perform certain action on listed Alerts like close the alert, assign nearest responder and execute SOP. • Responder list shall be populated in a window which are available in area within the drawn shape on GIS Map. • Operator shall be able to Send the Message to selected Responders. • Operator shall able to see health status of all sensors/IP devices which are available in area within the drawn shape on GIS Map.
61		Operator can assign to nearest field responder from drag and drop option from GIS Map as well as assigned from Alert panel.
62		Platform shall have Map view widgets with support of different base maps and additional map layers imposed on the base map.
63		Platform shall be able to integrate and visualize map layers provided by Client for different layers such as mine boundaries, routes, check posts, weighbridges other point of interest of WCL etc. These layers can be contextually enabled or disabled by the operator for situational awareness.
64		Platform shall support the Map functionalities such as zoom-in, zoom-out, re-centre, search, filter, area selection, zoom to marker level, multi-select, selection of a specific element to see more details of the same, change of the base map, selection/deselection of layer maps for visualization.
65		Platform shall visualize on the map different vehicles, IoT Devices & Sensors, CCTV Cameras and other IoT Elements. These layers shall show contextual information on the icons when mouse-over and also have different colour of icons for easy representation of the state of the IoT elements. A summary panel shall show the legends and the corresponding counts.
66		Platform shall have capability to show heatmap as additional map layer on top of pre-selected map layers.
67	Alert Management	The Platform shall support the following Alert Management functionality:
68		Operator can access complete information related with Alert.
69		Operator shall be able to assigned nearest responder to an alert from the alert Panel its self
70		Shall support Geospatial rendering of Alert information. Platform must have the ability to show the alerts over the map view so that there is a sense of awareness amongst the platform users where the alert has occurred.
71		Shall provide facility to capture critical information such as location, name, status, time of the event and be modifiable in real time by multiple authors. Events shall be captured in standard formats to facilitate event correlation and reporting.
72		Operator shall be able to print audit log of an alert from the alert panel which should contained all the activities performs against the alert.
73		Application shall provide visual indication for the severity of alert , like if severity of alert is high it shall show upward-arrow , if low then downward-arrow shall be visible against each alert in alert panel. Automatic pop-up of high severity alert.

74		Platform shall have differentiated colour for multiple criticalities of the alert that are sourced from the sub-systems or generated in the platform.
75		Application shall provide visual indication in alert panel if alert crossed escalation time.
76		Operators shall be able to perform the following actions: • Change the Alert state. • Edit the Alert. • Change the description • Change the priority level • Attach additional entities to the Alert. • Link related Alert. • Attach a document as a URL link to the Alert. It shall be possible to query the Alert history filtering by: • Alert type • Alert state • Location • Priority • Trigger time range • Alert owner
77		Operator shall be able to change the severity of an alert from the alert panel itself after analysing the alert.
78		Platform shall have the ability to change the severity of an alert and the ability to capture the comments when change in criticality is performed by platform users.
79		Platform users shall have the capability to create manual events from the alert Management module by providing appropriate domain, alert type, description, location details and image/video for proof of alert.
80		Operator shall have clear visual indication that alert have an attachment or not.
81		Platform users shall have the ability to comment and collaborate on any event that is visible and provide more evidence, if necessary, in the form of image or video.
82		Alert attachments shall be accessible from the alert panel and user should not be required to open the complete alert to view the alert attachments.
83		Operator shall be able to short the alert based on severity, status, created time, assigned responder, alert type, alert sub type and source of alerts.
84		Alert comments shall also receive the image and video evidences submitted by the field responder, if field responder assigned for the alert.
85		Operator shall be able to clear an alert from the alert panel with mandatory remarks.
86		Operator shall be able to define up to ten escalation levels associated with the Type and Jurisdiction of an alert.
87		Operator shall be able to escalate the alert from alert panel and application shall find appropriate escalation level automatically and a SMS and Email shall be dispatched to qualified escalation level.
88		Create and modify user-defined alert types. An unrestricted number of user-defined alert types shall be supported.
89		Operator shall be able to schedule the creation of alert.
90		User shall be able Set the priority level of an alert.
91		User shall able to view the history / activity perform against the Alert.
92		Provide the ability to group alerts by source and by type.

93		The platform shall generate Notification/ Alert messages as per the incidence / events that are received, that should be visible within the Dashboard and the Field Responder Mobile App or web portal if required.
94		All system messages (notifications, alerts and alarms) shall always be available from the Notifications View.
95		ICCC platform shall support to deliver message. The Notification service shall support min two types of notification methods:
96		1. Email notification
97		2. Short Messaging Service (SMS) notification
98		3. It shall be responsibility of successful bidder to provide necessary SMS & email gateway.
99	Architecture and Data Connectors	Platform shall have the ability to connect to different source systems using varied connection protocols and consume the data that can be either used for ingestion into the platform database or be directly pushed for the visualization layer to be consumed by visualization layer or be exposed as an API to be consumed by 3rd party.
100		Platform shall be an IP enabled solution. All communication between the servers and other clients shall be based on standard TCP/IP protocol.
111		ICCC API/SDK shall be available for third party system to use.
112		Platform shall be able to consume the data from any API/SDK.
113	Standard Operating Procedures (SOPs)	Platform shall provide the ability to assign SOP to an alert type.
114		Platform shall provide the ability to approve or reject an SOP from getting executed for a created alert.
115		Platform shall provide an ability to trigger multiple tasks at the same time.
116		Platform shall provide an ability to trigger tasks to Field Responder mobile application through SOP.
117		The field responder/concerned official shall enter Action Taken/ response using mobile application and report oof the same shall be available on ICCC platform.
118	Escalation Rules	Platform shall provide the Escalation capability if the SOP is not completed within the pre-defined duration. Duration can be set by an operator and can be updated if required.
119		Platform shall provide the capability to create Escalation levels so that escalation hierarchy can be established when the SOPs are not executed within the pre-defined duration.
120		Escalation rules shall be region-based and can be assigned to an SOP if escalation is required.
121		Escalation rules shall trigger both notification and email to the users for which the escalation level is assigned so that appropriate action can be taken by the user on the alert instance that is escalated.
122	Visualization	Platform shall have capability to create grid-based widget system to create different visualization elements and compose it over dashboards.
123		Platform shall be capable of providing different widgets like charts, data grids, KPI, map, timeline.
124		Platform user shall be able to change the theme that are allocated by the admin user for the tenant.
125		Platform visualization shall be intuitive that the two or more widgets shall be able to communicate with each other wherein the change in one or more widgets shall affect the other widgets in the dashboard.
126		Platform shall allow widget to drilldown from one level to next level and also allow other related widgets data to be automatically updated based on the selected drilldown level.

127		Platform shall be able to embed other websites/portals/standalone pages into the dashboard.
128	Notifications	Platform shall be able to source the events from the sub-systems and be able to show in the form of notification so that the platform user can take necessary action on the alerts.
129		Platform shall be able to show the escalation on an SOP Instance to an escalated user in the notification section.
130		Platform users shall be able to navigate from the notification section to the alert management section by perform click action on the notification.
131		Platform shall have an ability to unmute or mute notification sound for the alerts.
132		Notification section shall have the ability to represent graphically from which domain/sub-system the event is received.
133		Platform users shall receive the notification based on the Data Access Control restriction that is set for the domain for the derived roles.
134	Reports	Platform shall have an ability to schedule reports from the report section.
135		Platform shall have the ability to fetch reports based of selected parameters and can download it in Excel or PDF format.
136		Platform shall be able to preview the report before scheduling the report.
137		Platform shall be able to generate the report Daily, Weekly and Monthly.
138		Platform shall have the ability to pause the report schedule and resume it when required.
139		Platform shall have the necessary audit trail if the schedule got executed or failed, with appropriate transaction ids to trace in case of failures.
140	Role based Access Control (RBAC)	In-built default Roles should be available in the Platform.
141		Admin shall have the ability to derive new roles from the default roles.
142		Default roles shall have the default features access capabilities predefined and can’t be changed at any time.
143		Platform shall have the ability to assign appropriate features access levels to the roles.
144		Platform shall have the ability to assign appropriate domains access to the roles.
145		Platform shall have the ability to assign appropriate region access to the roles.
146		Platform shall have the ability to assign appropriate roles to the Users, and the users created would be able to see the data and access the features basis the role that has been assigned.
147		1. The users at area control room as well as other important user at area shall have the access to ICCC through internet/MPLS/mobile network with all functionalities of that particular area including access to all sub systems and reports, dashboards etc with user and role based control. 2. The user at WCL HQ and users across WCL shall have access through internet/MPLS/mobile network with full functionality of ICCC for entire WCL or multiple areas with user and role based control as per WCL requirement.
148	Dashboards	Integration platform shall have KPI dashboard along with various analytics for end user.
149		GIS Analysis: Platform should be equipped with heat map analysis along with clustering of alerts to indicate the area affected.
150		Comparative Analysis: User should have option to compare two-time intervals along with alert type and subtype to measure the effectiveness of applying some policy.

151		Trend Analysis: User should have visibility of all trends in system i.e., month wise, day wise, alert wise, season wise, time interval based.
152		Solution shall be enabled with any word like area/sub area etc and operator can easily identify maximum used key words.
153		User shall allow to extract event based dash boards at areas as well as WCL HQ.
154		The ICCC solution shall provide area wise different dash boards at the respective areas including through mobile application. Also the same ICCC solution shall provide consolidated dash boards of different reports etc. of entire WCL as well as area wise at ICCC , WCL HQ including through mobile application as per requirement of WCL
155	Intelligent Dispatch Centre	Identify & dispatch mobile resources available nearby the Alert location at mines.
156		The alert shall include location and incident details.
157	Intelligent Operator dash board management	The proposed ICCC shall have a provision for configuring intelligent area wise dash boards to control and manage area specific / entire WCL sensors/IP devices based on the mine locations, critical area or sensors to monitor as per situation demands for focused surveillance etc.
158	Remote User Module	Supervisors/ Sr. officials remotely can access the system and monitor the dash boards, alerts received, action taken status, response etc. including through mobile application as per WCL requirement.
159	Mass Notification System	Provide a single web-based dashboard to send notifications to target audiences using multiple communication methods including SMS, E-mail.
160	Workflow Engine	User shall be able to create the dynamic workflows with Drag and Drop ease.
161		Workflow can be created base on action / status change of an Alert.
162		User shall be able to attach multiple activities with single workflow with Drag and Drop.
163		All the activities shall execute in sequential order as they are created / attached with the work flow.
164		User shall be able to attach single workflow with the Alert generated from different sub systems.
165		User shall be able to de-attach the workflow from Alert Type.
166		User shall be able to create multiple work flow without restricting a user.
167		User Shall be able to detached the Workflow from Alert Type in case it is not required.
168	Scheduler	User Should be able to schedule an Alerts/Event for a period at specific time.
169		User should be able to schedule to broadcast a message to individual or group users of ICCC application.
170		User shall able to remove any scheduled event.
171		All scheduled event shall be mapped to Calendar view in form of day, week or month.
173		Operator shall create and share any inspection, preventative maintenance, training etc schedule as required by WCL through SMS/Eamil.
174		Any incident report/alert shall be scheduled and to be shared with the designated users/officials as per requirement of WCL .
175	Custom Query Builder	ICCC Platform shall provide user to search the system data based on the query designed by operator dynamically.
176		User shall be able to design the dynamic query using boolen operator like AND & OR.
177		User should be able to design dynamic query using conditional operator like IN, Greater Then, Less Then, Equal To, between and not between etc.

178		User shall able to save these query templates for future use.
179		Search data can be taken as Print report in form of Excel/CSV or PDFetc.
180	Alert Search	Operator shall be able to search alerts created based on some predefined parameters. Like From and To Date, Alert type, Alert area, alert sub type and status of alerts.
181		Operator shall be able to do analysis on searched data.
182		Pre – defined charts should be generated automatically based on search data as per requirement of WCL.
183		Operator shall be able to change the type of chart as per the WCL requirement.
184		Operator shall be able to Map any chart type as per the requirement.
185		Operator shall be able to enable or disable the level and legends of any chart panel as per the requirement.
186		Operator shall be able to change the X – Axis data of any chart from the search results.
187	Correlated Alerts	Application shall allow an admin operator to set the correlation parameters like correlation distance, Time , location etc.
188		Application shall provide correlation notification in case any newly generated alert qualifies the defined correlation criteria.
189		Operator shall be able to tag two correlated alerts manually after modifying the correlation criteria as per requirement.
190		After tagging two alerts child alert should close automatically as per requirement.
191		Application shall provide the count of alerts generated from same source in alert panel.
192		Operator shall be able to view summary of alerts generated from same source and analyzed the similarity by clicking on counts of similar alerts.
193		Operator shall be able to close all similar alerts with single close action to avoid the repetitive work.
194	Post Alert Analysis	Solution shall be displaying all Alert related details by just entering the alert ID.
195		Post Alert analysis shall have complete information of Similar Alert generated within predefined time, are/mine locations etc.
196		Administrator shall have the ability to change the predefined time period for displaying the similar alert.
197		Complete history of alert action shall be visible under post alert analysis.
198		System shall rate the alert execution based on certain parameter such as, closing time, priority, Action perform etc.
199		Supervisors remotely can access the system and monitor the alerts received, action taken status, response etc. including thru mobile application
200		Supervisor shall be able to add remarks against alerts including thru mobile app.
201		Supervisor shall be able to give star ratings to an alert after analysing the complete details on single page including thru mobile application.
202	User configuration function	The ICCC application shall have provision to use predefined templates for configuration and dash boards creation as per areas/ mines requirement. User/operator can also create of their own 81rorate81ed template via drag / drop , widget functionality etc. as per the WCL requirement.
203	Field Responder Mobile App General Requirements:	The ICCC shall support mobile apps for various off-the-shelf smartphones and tablets. The mobile apps shall communicate with the Mobile Server of ICCC over any WIFI or mobile network connection.

204		Integration platform should have Work force mobile app.
205		Mobile app should receive alerts from integration platform with incident location
206		Mobile app should be used for GPS tracking of Resources.
207		Mobile app should have the feature to update its status by acknowledge, enroute and arrive on the assigned alert.
208		Mobile app user should submit the action taken report/response in form of text and should be able to attach audio, video files or images with the alert.
209		Action taken report should be visible at integration platform.
210		Mobile application should have the facility to create POIs on the map to update the new locations to keep the map updated from 82rorate82ed users
211		All the communication between the mobile apps and ICCC platform will be on HTTP and also on HTTPS by adding TLS encryption.
212	SOS Mobile App General Requirements:	The application should provide functionalities enforcing User safety.
213		User should be able to register themselves using SOS application with minimal information like Name, Phone number, gender, age and address across WCL command area.
214		User shall be able to create SOS alert in integrated command-and-control centre application.
215		Application should capture two pictures from front mobile camera and two from back camera automatically and attached with Created SOS alert.
216		Number of images can be configured in application as per the requirement.
217		Application /User shall capture 10 second video from mobile camera and attached with SOS alert created.
218		User shall be able to attached Image, additional textual information as remarks in case SOS alert is active and not closed.
219		User real time location shall be tracked from command-and-control center during active SOS alert.
220		User shall view all the alerts generated by him at least as per the requirement.
221		User shall save up to five contacts number with in the application. In case SOS button pressed by user one predefined SMS should be delivered to saved Contacts.
222		SOS Mobile App shall be the integral part of ICCC Application and shall not be a Third-party Application.
223		User Application should be available for Both Android and IOS mobile users.
224	Chatbot functionality	Chatbot should be part of ICCC application and provide a platform to users to get the static as well as dynamic information about the WCL requirement .
225		User can register a complaint from Chatbot into ICCC application.
226		User can view the status of registered complaint.
227		ICCC can broadcast to all chatbot users relevant information as and when needed.

228	Application Server Performance	Operator shall be able to monitor following parameter of ICCC application servers on real time bases with in the ICCC application or through integration with NMS as per requirement. • CPU performance counter of Application server deployed • RAM Performance counter of Application server deployed • /Sec disk transfer and free and used space of drive • Lan Adaptor uses configured in Server • System performance counter like running process , file write operations / sec, file control operations / sec etc. • IIS performance counters like Request /sec, Request Wait Time ,Request Failed , Success Request etc. Above parameters can be customizes as per the requirement
229	Database Performance	Operator should be able to monitor following parameter of ICCC database server on real time bases with in the ICCC application as per WCL requirement.. • Total Active requests on database. • Lock Request / sec. • Transactions / sec on database. • Database file size . • Processor Queue length. • User Connections. • Static Performance counters.
230	Document Management	Document management shall be integral part of the ICCC platform
231		User shall be able to create dynamic file system / Folders of users' choice.
232		User shall be able to upload PDF, Word, Excel, CSV, JPEG, GIF etc. file into application to manage
233		Uploaded files shall be accessible based on user rights with password protection.
234		User should make secure the file by encrypting and should not be modify without decrypting the same.
235		User Should be able to lock the file, so it cannot be download or access to delete from the file system
236		Application shall be able to maintain all the action perform on a file which include view, downloads, Encrypted, decrypted renaming etc.
237		All the Logs should be accessible for further analytics.
238		Version of uploaded files shall be maintained in application itself.
239		User shall be able to rename the uploaded file.
240		User shall be able to see the dashboard and over view of complete the action performed by a user.
241	ICCC OEM Criteria	• ICCC Platform OEM should have ISO 9000; ISO 20000/ISO27001.
242		• The ICCC OEM can be of global repute or Indian OEM should have been incorporated at least 5 years from the date of tender release . ICCC Platform OEM should have office and support center in India.
243		• OEM Should have at least 3 Workorders refernces with completion certificate from any smart cities project/any other Govt/PSU in India. Necessary document in this regard to be submitted.
244	Other Features	1. ICCC platform shall provide entire summary for various data (i.e. total coal dispatched, no. of trips, deviations, alarms etc.) for a particular point of interest (i.e check post, coal stock, weighbridge etc.) on GIS Map by clicking for a particular time period or instance.

		2. ICCC platform shall provide data insight from other sub systems for alarms/deviation instances generated from a particular subsystem for entire trip. Example: if deviation generated form VTS system than it shall provide entire trip detail from Check posts, weighbridge including CCTV footage/images, ANPR details at various POIs, coal loaded qty etc. for that vehicle. Same shall be done for all sub systems generated alarms. 3. ICCC platform shall provide event analysis through cross data verification form all the subsystems. 4. ICCC platform shall provide event analysis summary for vehicles for vehicles i.e. frequent/habitual offenders etc., transporter fleet, mine, area wise analysis for violations/deviations/alarms. 5. User friendly/configurable layouts, dashboards 6. ICCC platform shall be scalable for integration of various system in future (i.e. IIOTs etc.)

50. 51 MTR Tower WITH GUY WIRE WITH CIVIL WORKS:

The Tower height required: As required to establish successful communication link between Remote locations. The actual tower height is required to be finalized by the bidder on proper radio site survey of various locations. Vendor need to erect tower with civil foundation.

1. Bidders are to quote 51 mtrs towers.
2. The foundation for mounting the mast should be properly cemented as per IS 456 or latest
3. Mast/tower should be capable of supporting at least 160 Km/hour wind speed. The towers shall be designed as per IS 875 for wind load calculation and IS 800 and IS 4091 for design practices.
4. The Mast should be made of GI pipes as per IS (IS – 1239 or latest)
5. Masts should be erected straight and should have minimum four bolts in the foundation to erect the mast.
6. All the bolts and Nuts should be properly secured and should have anti rusting coating.
7. The guy wires, three anchors minimum, should be aligned at 120 degrees each and should be anchored at a minimum distance of 9 meters away from the centre of the base. If distance specification cannot be met, four guy wires (aligned at 90 degrees each) or more should be used. The Guy wires should be multi stranded and hot dipped and have a minimum of 10 mm thickness. Guy wires should be greased throughout the length.
8. Tower shall have facility for climbing to the top.
9. Separate Lightening arrestor (in addition and shall be under the scope of the supply of the tower) made of copper shall be installed and mounted at the top with its connecting wire running to earth pit.
10. Separate maintenance free Class – 1 Earthing (in addition and shall be under the scope of the supply of the tower) of less than 1 Ohms shall be installed with the tower
11. Tin coated copper wire IS mark of gauge 50 sq. mm shall be installed for connecting lightning arrestor to the earthing.
12. Twin type aviation warning lights at the top level
13. Manufacture's identity marking and item marking shall be provided on each section by punching & painting for Enabling easy assembly and traceability. A plate indicating the manufacturer's identity, year of manufacture, wind velocity and the maximum load capacity of the tower shall be indicated for display at the bottom of the tower.

51. 42 MTR Tower WITH GUY WIRE WITH CIVIL WORKS:

The Tower height required: As required to establish successful communication link between Remote locations. The actual tower height is required to be finalized by the bidder on proper radio site survey of various locations. Vendor need to erect tower with civil foundation.

1. Bidders are to quote 42 mtrs towers.
2. The foundation for mounting the mast should be properly cemented as per IS 456 or latest
3. Mast/tower should be capable of supporting at least 160 Km/hour wind speed. The towers shall be designed as per IS 875 for wind load calculation and IS 800 and IS 4091 for design practices.
4. The Mast should be made of GI pipes as per IS (IS – 1239 or latest)
5. Masts should be erected straight and should have minimum four bolts in the foundation to erect the mast.
6. All the bolts and Nuts should be properly secured and should have anti rusting coating.
7. The guy wires, three anchors minimum, should be aligned at 120 degrees each and should be anchored at a minimum distance of 9 meters away from the center of the base. If distance specification cannot be met, four guy wires (aligned at 90 degrees each) or more should be used. The Guy wires should be multi stranded and hot dipped and have a minimum of 10 mm thickness. Guy wires should be greased throughout the length.
8. Tower shall have facility for climbing to the top.
9. Separate Lightening arrestor (in addition and shall be under the scope of the supply of the tower) made of copper shall be installed and mounted at the top with its connecting wire running to earth pit.
10. Separate maintenance free Class – 1 Earthing (in addition and shall be under the scope of the supply of the tower) of less than 1 Ohms shall be installed with the tower
11. Tin coated copper wire IS mark of gauge 50 sq. mm shall be installed for connecting lightning arrestor to the earthing.
12. Twin type aviation warning lights at the top level
13. Manufacture's identity marking and item marking shall be provided on each section by punching & painting for Enabling easy assembly and traceability. A plate indicating the manufacturer's identity, year of manufacture, wind velocity and the maximum load capacity of the tower shall be indicated for display at the bottom of the tower.

52. 21 MTR SELF SUPPORTED TOWER:

1. 3 or 4 leg self-supporting tower of height minimum 21 meters (or as per site requirement) from the surface.
2. The tower shall comprise sections of suitable lengths (not exceeding 3 mtrs).
3. The material used shall be mild steel/HT steel as per IS 2062:2006 and foundation bolts shall be as per IS5624.
4. The towers shall be designed as per IS 875 for wind load calculation and IS 800 and IS 4091 for design practices.
5. Wind load shall be considered based on area of tower structure and also ladder, safety rings, mounted equipment, platform etc.
6. All ferrous metal shall be 50-micron thick hot dip zinc galvanized (internally and externally).
7. The complete drawing details of the tower
8. Erection & Foundation Diagram of Tower shall be submitted along with bid document
9. The tower foundation shall be designed based on the maximum wind speed experienced by the tower (160 Km/hr), and the weight of the tower and the safe bearing capacity (10 tons / sq. meter).
10. The foundation shall be of Reinforced Concrete and the foundation depth shall be 0.16 X total height of the tower. Backfilling should have well compacted.
11. Concrete foundation shall be prepared with a mixture of concrete, pebbles and sand in 1:1:2 [M25] ratios by the supplier.
12. Concrete mix grade shall be evaluated by subjecting the readymade concrete mix to cube test while making the foundation

13. The tower shall be fixed on the concrete platform with suitable bolts and these bolts shall be 150 micron thick galvanized.
14. It shall have a provision to mount a camera to one of the tower leg members.
15. It shall have a provision to mount a radio communication equipment on one of the tower leg members.
16. Tower shall have facility for climbing to the top.
17. Separate Lightening arrestor (in addition and shall be under the scope of the supply of the tower) made of copper shall be installed and mounted at the top with its connecting wire running to earth pit.
18. Separate maintenance free Class – 1 Earthing (in addition and shall be under the scope of the supply of the tower) of less than 1 Ohms shall be installed with the tower
19. Tin coated copper wire IS mark of gauge 50 sq. mm shall be installed for connecting lightning arrestor to the earthing.
20. Twin type aviation warning lights at the top level
21. Manufacture's identity marking and item marking shall be provided on each section by punching & painting for Enabling easy assembly and traceability. A plate indicating the manufacturer's identity, year of manufacture, wind velocity and the maximum load capacity of the tower shall be indicated for display at the bottom of the tower.

53. 15 MTR SELF SUPPORTED TOWER

1. 3 or 4 leg self-supporting tower of height minimum 21 meters (or as per site requirement) from the surface.
2. The tower shall comprise sections of suitable lengths (not exceeding 3 mtrs).
3. The material used shall be mild steel/HT steel as per IS 2062:2006 and foundation bolts shall be as per IS5624.
4. The towers shall be designed as per IS 875 for wind load calculation and IS 800 and IS 4091 for design practices.
5. Wind load shall be considered based on area of tower structure and also ladder, safety rings, mounted equipment, platform etc.
6. All ferrous metal shall be 50-micron thick hot dip zinc galvanized (internally and externally).
7. The complete drawing details of the tower
8. Erection & Foundation Diagram of Tower shall be submitted along with bid document
9. The tower foundation shall be designed based on the maximum wind speed experienced by the tower (160 Km/hr), and the weight of the tower and the safe bearing capacity (10 tons / sq. meter).
10. The foundation shall be of Reinforced Concrete and the foundation depth shall be 0.16 X total height of the tower. Backfilling should have well compacted.
11. Concrete foundation shall be prepared with a mixture of concrete, pebbles and sand in 1:1:2 [M25] ratios by the supplier.
12. Concrete mix grade shall be evaluated by subjecting the readymade concrete mix to cube test while making the foundation
13. The tower shall be fixed on the concrete platform with suitable bolts and these bolts shall be 150 micron thick galvanised.
14. It shall have a provision to mount a camera to one of the tower leg members.
15. It shall have a provision to mount a radio communication equipment on one of the tower leg members.
16. Tower shall have facility for climbing to the top.
17. Separate Lightening arrestor (in addition and shall be under the scope of the supply of the tower) made of copper shall be installed and mounted at the top with its connecting wire running to earth pit.

18. Separate maintenance free Class – 1 Earthing (in addition and shall be under the scope of the supply of the tower) of less than 1 Ohms shall be installed with the tower
19. Tin coated copper wire IS mark of gauge 50 sq. mm shall be installed for connecting lightning arrestor to the earthing.
20. Manufacture's identity marking and item marking shall be provided on each section by punching & painting for Enabling easy assembly and traceability. A plate indicating the manufacturer's identity, year of manufacture, wind velocity and the maximum load capacity of the tower shall be indicated for display at the bottom of the tower.

54. 7 Mtr Pole (4 Inch Dia) for CCTV at additional location

Type of Pole	Cylindrical/Tubular Pole
Mounting Bracket	With
Material of Pole	Mild Steel
Finish	Galvanized
Pole/Mast Dia at Top (minimum)	8 centimeter
Pole/Mast Dia at Top (maximum)	10 centimeter
Pole Thickness	3.6 millimeter
Pole / Mast Height	7 meter
Type of Fixing	With Base Plate

55. One time repair & Painting of existing 15 mtr towers

a) Repairing of all the sections
b) Repairing and strengthening of foundation.
c) Replacement of Guy Wires / ropes
d) Painting of the Towers
e) Replacement/ provisioning of lightening arrestor.

56. CAT 6 Cable (Armoured)

CONSTRUCTIONAL	
"CAT6 Cable can transmit data at 1000 Mbps (~1 Gigabit per second) with a frequency of 250 MHz and suitable for 10BASE-T, 100BASE-TX Fast Ethernet and 1000BASE-T / 1000BASE-TX (Gigabit Ethernet)."	Yes
Maximum DC resistance – in Ohm/Km	Max. 100 Ohm/Km
Conductor Material	Bare Copper
Conductor Insulation Material	Polyethylene
Inner jacket material	PVC
Conductor stranding	Solid
Cable should have internal cross separator	Yes
Storage temperature range	-20 deg.C to +70 deg. C
Operating temperature range	-20 deg.C to +60 deg. C
Each meter printed with sequential length counter of cable apart from marking requirement as per relevant specification and certifications	Yes
Generic	
Cate 6 cable (Out door use) conforming to TIA/EIA-568 C.2 or ISO/IEC:11801 latest	Yes

Cable category	CAT6 UTP – Outer jacket PVC with Aluminium Armoured wire
Conductor diameter	0.57 mm (23 AWG)
Conductor count	8
Length of cable in a bundle (Mtrs)	305 mtrs
CERTIFICATIONS	
Category 6 cable shall have valid verified certificate from ETL /Intertek/UL/3P /GHMT /Delta as per CAT 6 standards ANSI//TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	Yes
If "Yes" Certificate Number - Must declare Gov. ISO/IEC:11801-21	
UL Marking on Cable	Yes
Availability of complete and satisfactory type test Report from Central Government / NABL/ ILAC accredited laboratory as per Governing Specification	Yes

57. CAT 6 Cable (indoor, S/FTP)

GENERIC	
Cate 6 cable conforming to ANSI/TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	Yes
Cable category: Category 6 Unshielded/Unshielded twisted pair or Category 6 Foiled/Unshileded twisted pair or Category 6 Shielded /Foiled Twisted Pair	CAT6 S/FTP
Cable colour	Grey
Conductor diameter	0.57 mm (23 AWG)
Conductor count (inNos.,)	8
Length of cable in a bundle (Mtrs) 305 mtrs.	
CONSTRUCTIONAL	
"CAT6 Cable can transmit data at 1000 Mbps (~1 Gigabit per second) with a frequency of 250 MHz and suitable for 10BASE-T, 100BASE-TX Fast Ethernet and 1000BASE-T / 1000BASE-TX (Gigabit Ethernet)."	Yes
Maximum DC resistance – in Ohm/Km	Max. 100 Ohm/Km
Conductor Material	Bare Copper
Conductor Insulation Material	Polyethylene
Cable jacket material	Fire retardant PVC
Conductor stranding	Solid
Cable should have internal cross separator	Yes
Storage temperature range	minus 20 degree C to plus 60 degree C
Operating temperature range	minus 20 degree C to plus 60 degree C
Each meter printed with sequential length counter of cable apart from marking requirement as per relevant specifications and certifications	Yes
CERTIFICATIONS	
Category 6 cable shall have valid verified certificate from ERTL/ETL /Intertek/3P/GHMT /Delta/UL as per CAT 6	Yes

standards ANSI//TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	
UL Marking on Cable	Yes

58. Power Cable 1.5 sq mm 3 core (camera)

GENERIC	
Classification of cables for improved Fire performance category	C2 - FR-LSH
Nominal Area of Conductor (in Sq. mm)	1.5
Number of core (in Nos.)	3
CONSTRUCTION	
Material of conductor	Plain Copper
Conductor material standard	as per IS:8130:2013 latest
Construction of the conductor	Stranded
Insulation	XLPE
Properties of XLPE insulation	as per Table 1 of IS:7098 (Part 1):1988 latest as per Table 1 of IS:7098 (Part 1):1988 latest
Type of inner sheath	Thermoplastic
ARMOURING	
Type of cable	Armoured cable
Material of armouring	Galvanized round steel wire
Type of armouring	Single wire
OUTER SHEATH	
Outer sheath standard	Conforming to IS:5831:1984 latest
Type of outer sheath	PVC-ST2
CERTIFICATION	
Availability of type test report from Govt. Lab/ NABL accredited LAB / ILAC accredited LAB	Yes as per Cl.15 of IS:7098 Part 1
Availability of Optional Test Reports	Cold bend test for outer sheath, Cold impact test for outer sheath, Resistance test for Armour
Agreed to furnish all the test reports and certificates to buyer on demand	Yes

59. Power Cable 6 core 1.5 sq mm (Reader)

GENERIC	
Classification of cables for improved Fire performance category	C2 - FR-LSH
Nominal Area of Conductor (in Sq. mm)	1.5
Number of core (in Nos.)	6
CONSTRUCTION	
Material of conductor	Plain Copper
Conductor material standard	as per IS:8130:2013 latest
Construction of the conductor	Stranded
Insulation	XLPE

Properties of XLPE insulation	as per Table 1 of IS:7098 (Part 1):1988 latest as per Table 1 of IS:7098 (Part 1):1988 latest
Type of inner sheath	Thermoplastic
ARMOURING	
Type of cable	Armoured cable
Material of armouring	Galvanized round steel wire
Type of armouring	Single wire
OUTER SHEATH	
Outer sheath standard	Conforming to IS:5831:1984 latest
Type of outer sheath	PVC-ST2
CERTIFICATION	
Availability of type test report from Govt. Lab/ NABL accredited LAB / ILAC accredited LAB	Yes as per Cl.15 of IS:7098 Part 1
Availability of Optional Test Reports	Cold bend test for outer sheath, Cold impact test for outer sheath, Resistance test for Armour,
Agreed to furnish all the test reports and certificates to buyer on demand	Yes

60. Main power cable 2.5 sq mm 3 core

GENERIC	
Classification of cables for improved Fire performance category	C2 - FR-LSH
Nominal Area of Conductor (in Sq. mm)	2.5
Number of core (in Nos.)	3
CONSTRUCTION	
Material of conductor	Plain Copper
Conductor material standard	as per IS:8130:2013 latest
Construction of the conductor	Stranded
Insulation	XLPE
Properties of XLPE insulation	as per Table 1 of IS:7098 (Part 1):1988 latest as per Table 1 of IS:7098 (Part 1):1988 latest
Type of inner sheath	Thermoplastic
ARMOURING	
Type of cable	Armoured cable
Material of armouring	Galvanized round steel wire
Type of armouring	Single wire
OUTER SHEATH	
Outer sheath standard	Conforming to IS:5831:1984 latest
Type of outer sheath	PVC-ST2
CERTIFICATION	
Availability of type test report from Govt. Lab/ NABL accredited LAB / ILAC accredited LAB	Yes as per Cl.15 of IS:7098 Part 1

Availability of Optional Test Reports	Cold bend test for outer sheath, Cold impact test for outer sheath, Resistance test for Armour
Agreed to furnish all the test reports and certificates to buyer on demand	Yes

61. Power cable, 1 sq mm, 4 core for sensors

GENERIC	
Classification of cables for improved Fire performance category	C2 - FR-LSH
Nominal Area of Conductor (in Sq. mm)	1
Number of core (in Nos.)	4
CONSTRUCTION	
Material of conductor	Plain Copper
Conductor material standard	as per IS:8130:2013 latest
Construction of the conductor	Stranded
Insulation	XLPE
Properties of XLPE insulation	as per Table 1 of IS:7098 (Part 1):1988 latest as per Table 1 of IS:7098 (Part 1):1988 latest
Type of inner sheath	Thermoplastic
ARMOURING	
Type of cable	Armoured cable
Material of armouring	Galvanized round steel wire
Type of armouring	Single wire
OUTER SHEATH	
Outer sheath standard	Conforming to IS:5831:1984 latest
Type of outer sheath	PVC-ST2
CERTIFICATION	
Availability of type test report from Govt. Lab/ NABL accredited LAB / ILAC accredited LAB	Yes as per Cl.15 of IS:7098 Part 1
Availability of Optional Test Reports	Cold bend test for outer sheath, Cold impact test for outer sheath, Resistance test for Armour, Not applicable
Agreed to furnish all the test reports and certificates to buyer on demand	Yes

62. HDPE Pipe

GENERIC	
Conformity to Indian Standard	IS:9537(Part-3) Latest
Classification of Conduit	Medium Mechanical Stresses
CONSTRUCTIONAL	
Material	PVC CONDUIT PIPE
Nominal Size of the Conduit, (mm)	40
Length (Meters)	3
Socket ended conduit (at one end)	Yes

63. Casing – Caping

GENERIC	
Conformity to Indian Standard	IS:9537(Part-3) Latest
Classification of Conduit	Medium Mechanical Stresses
CONSTRUCTIONAL	
Material	PVC
Nominal Size of the Conduit, (mm)	20
Length (Meters)	4
Socket ended conduit (at one end)	No

64. 24 port patch panel

Constructional	
Applications: 0BASE-T, 100BASE-TX Fast Ethernet, 1000BASE-T (IEEE802.3) , 100VGAnyLAN (IEEE802.12), 250 MHz Broadband Video, Voice, T1, ISDN, 155/ 622 Mbps ATM , Power over Ethernet (POE, POE+, 4 PPOE)	Yes
Material of patch panel	Cold Rolled Steel
Modular plug fitting (RJ 45)	Non individual ports
Plug Insertion Durability	≥ 750 mating cycles
Holder for connector / module	Yes
Dust protection for information outlet	No
Generic	
CAT 6 patch Panel conforming to ANSI/TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	Yes
Patch panel suitability for (Category 6 Unshielded/Unshielded twisted pair or Category 6 Foiled/Unshielded twisted pair)	CAT 6 U/UTP
Height of patch panel	1U
No. of ports (RJ 45)	24 Ports Loaded
Cable Management (Rear side)	With
Certification	
Category 6 patch panel / information outlet shall have valid verified certificate in channel from ETL /3P /GHMT /Delta/UL/Intertek as per CAT 6 standards ANSI//TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	Yes
Availability of complete and satisfactory type test Report from Central Government / NABL/ ILAC accredited laboratory as per Governing Specification	Yes
All the test reports shall furnish to the buyer/consignee on demand	Yes

65. Cat 6 patch cord 1 mtr

GENERIC	
Cate 6 patch cord conforming to ANSI/TIA/EIA-568 C.2 or ISO/IEC:11801 latest	Yes
Patch cord type : Category 6 Unshielded/Unshielded twisted pair or Category 6 Foiled/Unshielded twisted pair	CAT6 U/UTP
Patch cord colour	Grey
Conductor diameter	24 to 26 AWG
Length of Patch cord (Mtrs)	1.0
CONSTRUCTIONAL	

Applications: 0BASE-T, 100BASE-TX Fast Ethernet, 1000BASE-T (IEEE802.3) , 100VGAnyLAN (IEEE802.12), 250 MHz Broadband Video, Voice, T1, ISDN, 155/ 622 Mbps ATM , Power over Ethernet (POE, POE+, 4 PPOE)	Yes
Termination type / Connection type	Insulation Piercing Connection (IPC)
Modular plug	RJ45
Plug insertion durability	≥ 750 mating cycles"
Conductor Material	Stranded copper
Conductor Insulation Material	Polyethylene
Cable jacket material	Fire retardant PVC
Storage temperature range	-20 deg.C to +60 deg.C
Operating temperature range	-20 deg.C to +60 deg.C
CERTIFICATIONS	
Category 6 patch cord shall have valid verified certificate in channel from ETL /3P/GHMT /Delta/Intertek /UL as per CAT 6 standards ANSI//TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	Yes
UL Marking on Cable	Yes

66. Acrylic Sheet/Sticker (for vehicle no. identification through ANPR)

A. Yellow-coloured radium acrylic sticker of size (4" X 16") with 4" large size black-coloured standardized font displaying the vehicle registration number needs to be affixed on top of the windshield so that the clear view of the vehicle registration number can be recorded through CCTV camera or through ANPR system installed at weighbridges and entry / exit barriers.

B. It will be bidder's responsibility to paste Vehicle registration number sticker/paint Vehicle registration number (as per WCL requirement time to time) on vehicles.

Special terms & Conditions

1. The successful bidder will supply all items and services specified in the Bill of Quantity (BoQ) as well as mentioned in terms & condition of bid document, conforming to the technical specifications given in the bid document/ Buyer Specification Document. Supply of all services, material, hardware, software, along with all necessary accessories as required to complete the installation, fixing of equipment and all the cabling work, civil work, transportation work, uninstallation & shifting work, periodical cleaning of equipment during the contract period will also be the responsibility of the successful bidder.
2. It shall be the responsibility of the successful bidder to ensure that all the installation, cabling work, civil work etc. are done as per the industry standards, to comply with any future audit and certifications of entire infrastructure.
3. The bidder shall also upload the make and model (wherever applicable) of all materials quoted by them along with technical document/OEM Datasheet in their bid to ascertain the technical acceptability of materials quoted. Failure to declare make and model of materials quoted and/or non-submission of technical document/OEM Datasheet may result in outright rejection of the bid.
4. Bidder will have to supply the Installation & Operation Manual along with necessary driver software with required licenses, if any, for all the supplied devices / software wherever is required.
5. **DELIVERY, INSTALLATION AND COMMISSIONING PERIOD:**

The successful bidder is required to complete delivery, installation & commissioning of all items offered as part of the technical solution/BOQ as per terms & conditions of contract at all WCL HQ, All area Hqtrs and sites of Subarea offices, Weighbridges and checkposts within 8 (Eight) Months from the date of the acceptance of the order.

Delivery of materials: within 4 months from the date of issue of order.

Installation, testing, commissioning and acceptance: within 8 months days from the date of issue of order.

WCL reserve the right for acceptance of the system after commissioning as required on prorata basis at any stage for commencement of warranty services. However, the installation, commissioning of balance sites if any shall be completed within 30 days from the date of communication of site handing over from WCL end.

However, in case of extension of delivery period becomes essential, the successful bidder will send their request for extension of delivery period clearly mentioning the reasons for extension of delivery period, to the purchaser before expiry of delivery period. In the event of failure to supply, install & commission of the system within the stipulated delivery period, the successful bidder must obtain extension of delivery period, with or without liquidated damage, before dispatch / supply of the ordered goods. Supplies made without obtaining extension of delivery period shall be liable for non-acceptance at the stores.

6. PAYMENT TERMS:

a. 80% value of the equipment { except (i) VMS application (ii) AI&ML based video analytics, (iii) Weighbridge integration application (iv) Integrated application for weighbridges and checkposts (v) ICCC software) and accessories and 100% taxes and duties and other charges shall be made within 21 days after receipt and acceptance of items with all accessories by the consignee and also receipt and acceptance of Security Deposit / Performance Bank guarantee (as specified in the tender document) by WCL.

b. Balance 20% payment of the equipment and 100% of installation & commissioning charges shall be released within 21 days from submission of bills after successful completion of installation, commissioning and acceptance of commissioned equipment at sites by respective Areas of WCL and subsequent issuance of certificate for final Installation, integration, commissioning and acceptance of the system for entire WCL by GM (E&T) WCL to their entire satisfaction based on acceptance certificate issued by Areas. For successful commissioning of equipment the supplier has to depute competent person at site and provide technical assistance required for commissioning and initial testing of the equipment.

c. 100% value of item (i) VMS application (ii) AI&ML based video analytics, (iii) Weighbridge integration application (iv) Integrated application for weighbridges and checkposts (v) ICCC software and other software shall be made after successful completion of installation, commissioning and acceptance of commissioned system at site by respective Areas of WCL and subsequent issuance of certificate for final Installation, integration, commissioning and acceptance of the system for entire WCL by GM (E&T) WCL to their entire satisfaction upon presentation of acceptance certificates issued by the Areas .

d. For CAMC charges: On quarterly basis after completion of each quarter for the whole CAMC contract period of 5 years after deduction of penalty if any as per SLA terms and conditions.

7. Last quarterly bills shall be settled after end of the contract period after adjusting all outstanding dues.

8. No interest is payable on any amount whatsoever to the successful Bidder/ contractor.

9. The company reserves the right to recover/ enforce recovery of any overpayments detected after payment as a result of post payment audit or technical examination or by any other means, notwithstanding the fact that the amount of disputed claims, if any, of the contractor exceeds the amount of such over payment and irrespective of the facts whether such disputed claim of the contractor are the subject matter of arbitration or not. The amount of such overpayments may be recovered from the subsequent bills under the contract, failing that from contractor's claim under any other contract with the company or from the contractor's security deposit or the contractor shall pay the amount of overpayment on demand.

10. Amount payable/ recoverable for any subsequent change in GST will be made to/from the successful bidder/contractor after departmental verification of such changes of tax law issued by statutory authority.

11. No Mobilisation advance shall be paid to the successful bidder/contractor.

12. **PERIOD OF CONTRACT:** The period of Contract for the Job is six years (1 Year Warranty and 5 years of CAMC) from the date of successful commissioning & acceptance of the system. The period of Comprehensive Annual Maintenance will start only after completion of warranty period and acceptance of the same by WCL. The deemed date of start of the 60 months CAMC period shall be notified by Engineer in-charge, WCL to the successful bidder.

13. DISMANTLING, SHIFTING AND REINSTALLATION OF ITEMS/EQUIPMENT:

    No charges will be payable to the successful bidder for dismantling of installed items/equipment in this project. However, in case of re-Installation of this equipment at new locations, re-Installation charges/shifting charges will be on mutually agreed rates with justification.

14. Successful commissioning & acceptance of system by WCL means the successful bidder/contractor is required to complete the installation & commissioning of entire system as per terms & conditions mentioned in the tender document in all respect. A commissioning report in this regard, duly vetted by Nodal officer of each area is required to be submitted at the office of Engineer incharge by the successful bidder/contractor. After receiving the commissioning report from each area, Engineer In charge will issue a Acceptance report pertaining to entire system, which will in turn treated as Acceptance date of entire system and six year contract period will start from this date. The Engineer incharge for this project is GM(E&T)/HOD(E&T),WCL,HQ,Nagpur.

15. However, if any equipment is not put in use by any area or any location ceases to exist at the time of installation, then bidder will not be responsible for that and complete payment will be released to bidder as per above mentioned payment terms, but during the contract period, it is responsibility of the bidder to install the equipment or location, free of cost, that was not put to use by Area or ceases to be exist as and when required by WCL.

16. PAYING AUTHORITY: GM(F), WCL HQ, Nagpur

17. LOWEST PRICE CERTIFICATE: The Bidder should submit a certificate and upload the same in "CERTIFICATES" along with the offer confirming the prices quoted in the Tender are the lowest and not higher than as applicable to other Govt. Depts. / Undertakings including other Subsidiaries of CIL/Private Organizations.

18. The Supplier must submit a price certificate in all their invoices raised during the entire contract period in the following format: - "It is certified that the prices, indicated in this invoice is not higher than the amount billed to other Govt. organizations / PSUs / Private Organizations during the contract period."

19. Performance Bank Guarantee:- Successful tenderer will have to submit performance bank guarantee for 10% of the order value of items only (landed cost of items ordered inclusive GST) valid for a period of 3 months beyond Guarantee / Warranty and the same shall be released on receipt of satisfactory performance throughout the guarantee period. Performance Bank Guarantee has to be

submitted for the order value of items only (landed cost of items ordered inclusive GST), which will be arrived at by adding all the Taxes applicable, such as GST to the FOR Destination Price of the materials on order. The Performance Bank Guarantee shall be released after receipt of satisfactory performance and no claim certificate from the user department.

20. Performance Bank Guarantee applicable for CAMC is to be submitted at the start of the CAMC and shall be applicable at a rate of 5 % of the order value of items only (landed cost of items ordered inclusive GST) which shall be given by supplier after completion of warranty period. The 10 % PBG submitted after award of contract shall be released only after new PBG for the CAMC period is submitted and accepted by buyer/consignee after due verification. Bank guarantee for CAMC is to remain valid till completion of CAMC period plus one year. The bank guarantee for CAMC shall be submitted to buyer directly. In case, seller fails to submit the PBG or does not provide services for the CAMC contract after expiry of warranty period then PBG of equipment shall be forfeited.
21. Local content certificate from the manufacturer of offered model has to be given as per % indicated below for these 5 items:
    1. 24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module : minimum 60%
    2. 24 Port L-3 Smart Managed access Switch with at least 2 SFP Port along with module : minimum 60%.
    3. 2 KVA UPS with **3** Hr Back up : minimum 50%
    4. 5 KVA UPS with 4 Hr Back up : minimum 50%
    5. 10 KVA UPS with 4 Hr Back up : minimum 50%

22. CAMC & warranty Terms and conditions :

The bidder has to enter SLA as mentioned below.

1. Complete comprehensive maintenance of all the hardware and software of CCTV system, RFID boom barrier system, RFID weighbridge automation system , IP Radio network, Switches, UPS, Towers, existing 15 mtr towers and other associated system etc. (including repairs and replacement of materials supplied & for the services) during CAMC & warranty period.
2. The CAMC services for UPS includes replacement of batteries during CAMC period of 5 years.
3. Warranty and CAMC service includes repair, replacement of failure items, servicing of system free of cost to WCL
4. All types of breakdown calls are to be attended within four hours and rectified within another 06 hours, for which the bidder shall post Service Engineers at strategic locations for repair and maintenance of the complete system at 10 Areas & HQ of WCL as mentioned below, for entire contract period of six years including one year warranty & five years of comprehensive AMC on reporting the complaint by Telephone / Fax / Email/ etc.
5. During Warranty & CAMC period, the vendor should deploy for smooth operation of the system with onsite maintenance support comprising minimum two service engineers at Ballarpur, Wani, Nagpur areas and minimum one service engineer at Chandrapur, Umrer, Wani North, Majri, Patherkera,

Kanhan and Pench areas and one project manager, one service engineer and one application support engineer at WCL HQ to ensure availability of complete system in WCL as per SLA. The successful bidder will provide name and contract number of service engineers deployed including identity document. In case of the deployed engineers are on leave, it is the responsibility of bidder to provide the substitute as required.

6. However, if the successful bidder fails to restore the breakdown within 10 days, WCL shall have the right to get the failure rectified departmentally or through other agencies. The equipment so restored shall continue to be under existing CAMC of the existing service provider till the end of the contract. In such a case of restoration of the equipment through departmentally or by other agencies, the cost of such restoration along with 10% handling charges shall be recovered from the running bills, performance security or any other dues of the service provider. If such amount is not recoverable from any dues of the service provider, then service provider shall reimburse to WCL for the due amount by any means within 30 days of such claim made by WCL.
7. During the CAMC period, if any equipment is to be taken outside the premises of WCL, the successful bidder should replace the existing equipment with a spare working equipment of the same make and model or higher specification model of the same make, and configure to work in the network seamlessly, so that there should not be less number of equipment or equipment of lesser specifications installed than the equipment ordered, installed and commissioned at any point.
8. Period of CAMC services will be for a period of five years after one year warranty.
9. Maintenance holder shall ensure that during tenure of the service period (Warranty & CAMC), any spares replaced by the maintenance holder shall be certified by the WCL engineer and to be recorded in the spare register.
10. Complete service/call reports shall be submitted along with the CAMC bills for the period of claim on satisfactory completion of service period.
11. If any parts / spares / components replaced, the old part so removed are the property of the maintenance contractor during Warranty & CAMC period.
12. The maintenance contractor is responsible for the repairing of defects caused on account of the normal wear and tear of equipment's during Warranty & CAMC period.
13. Any damage caused to the equipment/ system due to lightning and/or abnormal power supply has to be rectified/ repaired/ corrected by the service provider without any extra cost to the WCL during warranty and CAMC period.
14. Service exclusions: Service do not cover the repair for damages or service failures caused by remaining force majeure conditions excluding lightning and abnormal power supply. However ,the damaged items due to Force majeure conditions shall be replaced with new items by the bidder on chargeable basis a with mutually agreed rates on proper justification.
15. Providing of all hardware & software, maintenance services, software upgrades, modification in the software as required shall be provided by the bidder during warranty period along with CAMC work is to be done by the bidder.
16. The prospective bidders have to maintain the sufficient spares for hardware, software and other related equipment along with the required qualified maintenance personnel at strategic location to provide satisfactory maintenance support for the offered system during the contract period to ensure SLA .
17. WCL command Areas are available in 2 states Madhya Pradesh & Maharashtra. GST invoices of Madhya Pradesh & Maharashtra regions shall be submitted separately.

    GSTIN of WCL for Maharashtra : 27AAACW1578L1ZW

    GSTIN of WCL for Madhya Pradesh : 23AAACW1578L1Z4

18. Quarterly invoices of CAMC shall be submitted in triplicate to the office of GM(E&T), WCL HQ along with area wise availability report of systems as per SLA duly certified by Area Engineer (E&T) as well as authorised representative of GM (E&T) for WCL HQ, indicating bifurcation of Area wise CAMC charges of submitted invoices.

19. The quarterly CAMC charges shall be released within 21 days from the date of submission of bills in triplicate in the office of the GM(E&T) after the completion of each quarter and deduction of penalty (if any) as specified in SLA terms.

20. Paying authority : GM(Fin.)-HOD, WCL-HQ, Nagpur

21. SLA Terms & Penalty:

Penalty Calculation :

(i) Cameras with network connectivity

If the footage of CCTV camera with network connectivity is not recorded in recording devices present in the Command Control Center due to breakdown of any hardware, software and network connectivity, then penalty would be imposed on Bidder and the same would be deducted from the respective quarterly CAMC bills on pro-rata basis.

Computation of monthly average availability and penalty will be done separately for each CCTV camera with network connectivity on monthly basis as follows:

$$\text{Availability (A1)} = \frac{[\text{n X no. of days in month X24} - (\text{H1} + \text{H2} + \ldots + \text{Hn})\ ] \text{X100}}{\text{n X no. of days in month X 24}}$$

n – no. of IP-Bullet & IP-Dome cameras

H – Total hours of footage of CCTV cameras not recoded in recording device of Command Control Center in the month.

The bidder shall give uptime guarantee of 97% of monthly average availability for all CCTV camera with network connectivity. In case availability falls below the above level for the respective CCTV camera with network connectivity, the penalty shall be imposed.

(ii) **RFID boom barrier Access control system** :

If RFID based boom barrier & ANPR based access control system installed at check-post at Mine entry & exit or any other location as decided by WCL is under breakdown due to fault of any hardware or software, Network connectivity then penalty would be imposed on Bidder and the same would be deducted from the respective quarterly CAMC bills on pro-rata basis.

Computation of monthly average availability and penalty will be done separately for each RFID boom barrier Access control system on monthly basis as follows:

$$\text{Availability (A2)} = \frac{[\text{n X no. of days in month X24} - (\text{H1} + \text{H2} + \ldots + \text{Hn})\ ] \text{X100}}{\text{n X no. of days in month X 24}}$$

n – no. of RFID based boom barrier & ANPR based access control system at check posts

H – Total hours of Access control system at check posts are under break down in the month.

The bidder shall give uptime guarantee of 97% of monthly average availability for all RFID based boom barrier & ANPR based access control system. In case availability falls below the above level for the respective access control system, the penalty shall be imposed.

(iii) **RFID ANPR Camera based weighment integration at Road weighbridges** :

If RFID ANPR Camera based weighment integration at Road weighbridges is under breakdown due to fault of any hardware or software, Network connectivity then penalty would be imposed on Bidder and the same would be deducted from the respective quarterly CAMC bills on pro-rata basis.

Computation of monthly average availability and penalty will be done separately for each RFID ANPR Camera based weighment integration at Road weighbridges system on monthly basis as follows:

$$\text{Availability (A3)} = \frac{[\text{n X no. of days in month X24} - (\text{H1} + \text{H2} + \ldots + \text{Hn})\ ] \text{X100}}{\text{n X no. of days in month X 24}}$$

n – no. of RFID ANPR Camera based weighment integration at Road weighbridges

H – Total hours of RFID ANPR Camera based weighment integration at Road weighbridges are under breakdown in the month.

The bidder shall give uptime guarantee of 97% of monthly average availability for all RFID ANPR Camera based weighment integration at Road weighbridges. In case availability falls below the above level for the respective weighment integration at Road weighbridges, the penalty shall be imposed.

(iv) Area Command Control Center :

If any equipment installed at Area command Control Center is under break down due to fault of any hardware or software, network connectivity then penalty would be imposed on Bidder and the same would be deducted from the respective quarterly CAMC bills on pro-rata basis.

Computation of monthly average availability and penalty will be done for each Area Command Control Center on monthly basis as follows:

$$\text{Availability (A4)} = \frac{[\ \text{no. of days in month X24} - \text{H})\ ] \text{X100}}{\text{no. of days in month X 24}}$$

H – Total hours of which any equipment at each area command control center is under break down in the month.

The bidder shall give uptime guarantee of 97 % of monthly availability for area command control center. In case availability falls below the above level for the area command control center , the penalty shall be imposed.

All the 10 Areas of WCL shall derives Availability under above mentioned 4 heads i.e. A1, A2, A3 & A4.

$$\text{Overall availability for the month (A) of an Area} = \frac{\text{A1} + \text{A2} + \text{A3} + \text{A4}}{4}$$

(v) Integrated Command Control Center(ICCC) at HQ:

If any equipment installed at Integrated Command Control Center(ICCC) at HQ is under break down due to fault of any hardware or software, network connectivity then penalty would be imposed on Bidder and the same would be deducted from the respective quarterly CAMC bills on pro-rata basis.

Computation of monthly average availability and penalty will be done Integrated Command Control Center(ICCC) at HQ on monthly basis as follows :

$$\text{Availability (B)} = \frac{[\text{ no. of days in month X24} - \text{H)] X100}}{\text{no. of days in month X 24}}$$

H – Total hours of which any equipment at Integrated Command Control Center(ICCC) at HQ is under break down in the month.

The bidder shall give uptime guarantee of 99% of monthly availability for Integrated Command Control Center(ICCC) at HQ. In case availability falls below the above level for the Integrated Command Control Center(ICCC) at HQ , the penalty shall be imposed.

Overall Availability of areas for any month should be greater than or equal to 97% and 99% for WCL HQ. If the overall availability of any month goes below the stipulated percentage availability, penalty shall be deducted from the running bills of service provider on pro-rata basis on the quarterly CAMC value for corresponding quarters. The bidder should enter into an SLA agreement with WCL & must ensure up time of 97 % monthly availability.

If the overall availability goes below 90%, double the penalty amount as calculated from above formula shall be deducted from the running bills of service provider.

If the monthly availability falls below 85% for a particular month, no CAMC charges shall be paid for that month.

During payment of quarterly penalty bill, the penalty amount if any, shall be deducted from the billed amount of corresponding billing period.

During the period of warranty period, the penalty amount if any as per SLA, the successful bidder shall deposit the amount to WCL. Failing to do so by successful bidder, the performance bank guarantee deposit shall be revoked.

If the personnel required as mentioned in bid document, to be deployed at Command Control Centre of Areas & Hq as well as at field location of areas are not found available, Rs.1000/-per man shift per day shall be deducted from overall quarterly rental payment payable to bidder.

Planned Downtime means any time when the equipment's is unavailable because of maintenance, configuration/reconfiguration or other services with the prior approval of Engineer In charge or his authorised representative. Such services may include but are not limited to restarting applications, rebooting servers, applying patches or fixes, reconfiguring storage allocation, reloading data and making DNS & firewall changes to close security holes. Planned downtime will not be added to total downtime hours for calculation of availability. Dust cleaning of all the equipment inclduing cameras wherever required is to be done once in a month during the contract period.

All the Areas and its locations of WCL are situated in very harsh & lightening prone environment. The Bidder is required to ensure adequate protection of the equipment (going to be installed at various locations) from lightning, surge, spike, over-voltage, short circuit, input reverse polarity, induced transient etc. It shall be the responsibility of Bidder to install all necessary protection equipment required in lightning prone areas, harsh & Industrial Load conditions for maintaining the SLA. If any equipment damaged/fails on above account, the bidder is required to replace/ repair the equipment / devices free of cost during entire contract period.

23. OWNERSHIP RIGHTS :-

All the application software developed (i.e. RFID based weighment application software; RFID & ANPR based access control software, , Online Web Based online Portal for vehicle management, integration softwares used for various system integration, Integrated Command Control Center software etc.) and hardwares used for these mentioned softwares & services mentioned in the bid document will become property of WCL after completion of contract.

The selected Bidder shall handover all passwords (login, database etc.), authentication etc., all data, material, information, flow diagram and documents (including design documents, database design / diagrams, the source code with Third Party controls/software, etc.) collected / generated during development / implementation of the project to WCL

a) The application softwares and the source code with version control system shall be submitted separately to WCL

b) Bidder should handover all login password, authentication etc after end of contract .

24. Malicious Code Certificate: Bidder and its OEMs should upload following certificate in the bid:-

a) This is to certify that the Hardware and the Software being offered, as part of the contract, does not contain Embedded Malicious code that would activate procedures to :-

i. Inhibit the desires and designed function of the equipment.
ii. Cause physical damage to the user or equipment during the exploitation.
iii. Tap information resident or transient in the equipment / network.

b) The entity will be considered to be in breach of the procurement contract, in case physical damage, loss of information or infringements related to copyright and Intellectual Property Right (IPRs) are caused due to activation of any such malicious code in embedded software.

25. SITE SURVEY: The Bidder at the Bidder's own responsibility, cost & risk is encouraged to visit and examine the site of works and its surroundings and obtain all information that may be necessary for preparing the Bid and make a detail survey before submitting the bid. The costs of visiting the Site shall be at the Bidder's own expense. It shall be deemed that the tenderer has visited the site/area and got fully acquainted with the prevailing site conditions and fluctuations thereto whether he actually visits the site/area or not.

26. ACTION PLAN: The successful bidder shall prepare an action plan for completion of job as per schedule in consultation with GM(E&T)-HOD, WCL or his authorized representative detailing schedule of different activities with their start date and finish date, to complete the project as per terms of Delivery schedule.

27. All Platform/Software provided by the Bidder must be of latest and stable versions available. The Platform / Software used should not be declared End of Life/End of Support/End of Sale for the next 5 years from the Final Go Live of the platform. If such instance arises, Bidder shall bear the cost of replacement/upgrade.

28. The bidders will confirm their acceptance of the following Liquidated Damage Clause:

29. In the event of failure to supply, install & commissioned the entire system within the stipulated period and in the event of breach of any of the terms and conditions mentioned in the supply order/contract, WCL, shall be entitled at its option either to enforce the following:

a) If the Supplier/ contractor fails to complete the installation and commissioning of entire system at all handed over sites within the delivery period, liquidated damages shall be recovered from the

bills of the Supplier/ contractor at the rate of 0.5% of the total supply order value/ Contract value per week delay subject to maximum 10% of the total order/contract value.

b) To cancel the order/contract or a portion thereof, and if so desired to purchase the stores at the risk and expenses of the defaulting supplier and also/or

c) To purchase elsewhere after notice to the successful tenderer on the account and at the risk of the defaulting supplier, the equipment/stores not supplied or others of similar description without canceling the supply order in respect of the consignment not yet due for supply/or

d) Whenever under this supply order/contract, any sum of money is recoverable from and payable by the supplier, WCL, shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum or which at any time thereafter may become due to the successful tenderer in this or any other contract, should this sum be not sufficient to recover the full amount recoverable. The successful tenderer shall pay to WCL, the balance amount on demand of the remaining balance. The supplier shall not be entitled for any gain on any such purchase.

e) To forfeit the security deposit fully or in part.

30. All Active Components of Hardware items and Software offered by the bidder must be IPv6 ready with backward compatibility i.e. IPv4 compliant. Bidder shall submit a certificate to this effect from the respective OEMs. Bidder must be able to configure the System in IPv4, IPv6 or combination of both configurations as per the requirement of WCL during entire contract period.

31. Bidder shall provide all patches and updates of Firmware for Active Components of system during the entire contract period (six years) as and when released by OEMs without any additional cost to WCL.

32. The Bidder should not bid / supply any equipment / item that is likely to be declared end-of-sale during the entire contract period. In case of such happening, such devices should be replaced with a similar or higher model of supplied make, by the Bidder, without sacrificing the performance of the system free of cost (undertaking for the same has to be submitted by the bidder of all the active components of Hardware and Software).

33. The Bidder's responsibility shall include but not limited to the supply of all items, services as per details given in Technical Specification, Terms & condition of Bid and / or agreed upon, after final bid evaluation. The Bidder has to ensure the compatibility of all the material supplied or integration with the existing infrastructure in addition to ensuring compatibility among them. Any additional material (cables, interfaces, equipment, software, hardware, part of the equipment, etc.) not exclusively mentioned in the Bid Document but required for successful installation, commissioning and operation of the system are in the scope of the Bidder without any extra cost to WCL .

34. The responsibility for Quality Check, Packing, Supply, Transportation, Transit Insurance, Local delivery, Receipt, Unloading, Handling, Storage at site, System Integration, Conduit laying, Cabling, Civil work, Installation, Testing, Commissioning of systems and also Documentation, Certification from OEMs, Warranty and CAMC to be supplied and commissioned as mentioned in bill of Quantity (BoQ) and bid documents shall be of the bidder.

35. RISK PURCHASE :- In the event of failure of the supplier to deliver or dispatch the stores within the stipulated date/period of the supply order or in the event of breach of any of the terms and conditions mentioned in the supply order/ contract, WCL shall have the right to purchase the stores from elsewhere after due notice to the defaulting supplier at the risk and cost of the defaulting supplier. In the event of failure of the supplier as detailed above, the cost as per risk purchase exercise may be recovered from the Earnest Money Deposit/ Security Deposit/ Performance Security/PBG of the supplier and/or bills submitted by the supplier against the same contract or any other contract pending in the same Subsidiary Co. and/or in any other Subsidiary Companies /CIL. GST will be charged / levied on Risk Purchase as

per the provision of GST Act Rule thereon. Risk purchase action may be initiated under any of the following conditions:

a) When the supplier fails to deliver the materials even after extending the delivery period.

b) When the supplier fails to respond to purchaser's request for supply of the materials and fails to provide any genuine and bonafide reason for the delay in supply.

c) When the supplier breaches any of the terms and conditions of the supply order/ contract during the entire contract period and as a result fails to execute the order satisfactorily.

36. CONTRACT EXTENSION: If the Successful bidder provides the satisfactory service during the six year contract period, then the contract may be extended in favour of successful bidder by WCL, by another one year and also subsequent years at same rate of 5^{th} year CAMC, terms & conditions.

37. If the contract is extended, the successful bidder is required to extend the validity of Performance Bank Guarantee(PBG) in respect to extended years.

38. A confirmation in this regard is also need to be submitted by the bidder along with their bid.

39. PACKING :- All equipment and materials supplied against this contract shall be suitably protected, covered in water proof packing and the packing should be strong enough to prevent damage or deterioration during transit handling till the time of final commissioning. The bidder shall be responsible for any loss or damage during transportation, handling and storage due to improper packing.

40. POWER SUPPLY: WCL shall provide 220 V (+ 20%) single phase, 50 Hz, AC single power source at each location. It will be Bidder's responsibility to ensure conversion of power from AC to DC, if required. The power supply unit shall have output over-voltage/ short circuit/ input reverse polarity protection which is to be provided by the bidder. Reliable over voltage and over current protection circuits should be inbuilt in power supply units of the equipment. The power supply units should be self- protecting and protect connected equipment against conducted interferences, noise, voltage dips, surges and impulses that may be present in the power supply sources.

41. TRAINING: The Bidder shall arrange to provide training (as & when required during entire contract period) to the WCL E&T/Concerned Executives/Concerned Personals covering System configuration, Operations and security without any extra cost to enable them to configure and troubleshoot System problems efficiently. The training course shall be structured and supported by programmed illustrations, videos, etc. The training shall be imparted by experienced personnel only. The Bidder shall provide lecture notes, handouts and other documentation during the training.

    The training courses for WCL Executives shall be conducted (as & when required by WCL) at bidder / OEM manufacturing premises/training centre on dates to be mutually decided with Engineer In charge/GM(E&T), WCL. The course contents and duration shall be mutually decided GM(E&T) and the Bidder, for which the Bidder shall submit detailed schedule for training.

    The bidder should also provide training for min. period of 2 weeks at sites to all the concerned WCL staff to get them acquainted with the installed System at WCL which would include details about functioning and troubleshooting etc. of each installed System etc.

42. PRICE FALL CLAUSE : If the tenderer at any time during the period of contract concluded, reduces rental charges of the similar type of system or services and offers it to other Govt./Public Sector organization/CIL or its subsidiaries at a price lower than the price chargeable under the contract, the tenderer shall forthwith notify such reduction to the undersigned and rental charges of the similar type of system or services after the date of coming in force of such reduction shall stand correspondingly reduced.

43. PRICE CERTIFICATE: The firm will certify that the prices charged by them under the Work/Contract are not higher than the prices charged by them for similar System/ machine / equipment (similar model)

to other Govt. department/Public Sector undertaking, including CIL and its subsidiaries. Price certificate is required to be submitted along with bills raised by the bidder/ the contractor.

44. COMPENSATION: The contractor shall be responsible to their employees who work on whole system, situated in the company's premises in different projects/units/HQ at various location for any injury sustained by them.

45. TERMINATION OF CONTRACT: The contract may be rescinded and the security deposit and other dues of this work or any other work done under the company may be forfeited and brought under the absolute disposal of the company if in the opinion of the company (i) either the work is not progressing satisfactorily or is not likely to be completed within the stipulated time or (ii) if the contractor fails to comply with the terms and conditions of the tender.

46. In case Bidder fails to comply with the terms and conditions of tender, including maintenance of warranty, WCL is free to get the work executed through alternate agency at the risk and cost of the Tenderer.

47. SAFETY: the safety of the workman engaged by the bidder/ contractor is the sole responsibility of the bidder/ contractor. The bidder/ contractor shall make all possible measures for safety as per statutory provisions. Any compensation on account of damage of person or properties of the bidder/ contractor has to be been borne by the Contractor. It shall be governed as per statutory requirement.

48. ACCOMODATION: Office accommodation to Service Engineer at WCL HQ and technical manpower at WCL area control rooms may be provided by WCL during installation & contract period. However, residential accommodation to service engineers may be provided by WCL during installation, warranty and CAMC period on availability , if any as per company rules.

49. LABOUR LICENSE: The bidder/ contractor must obtain & process the labor license as per prevailing laws & same has to be produced to the engineer, if asked by WCL

50. CHILD LABOUR: The bidder/ contractor shall abide by the provisions of OHSAS: 18001 and SA: 8000 or any related provisions. For example, child labor shall not be engaged, no unwilling worker will be engaged by force, payment shall be made as per minimum wages declared by Govt. time to time permissible working hours as per rule, good healthy working environment etc.

51. ADJUSTMENT OF THE DUES: If any sum found due from any payable to the company by the contractor in connection with this contract or any other contract/contracts, the company shall have right and liberty to adjust the same out of the due under other contract.

52. TRANSPORTATION & INSURANCE :- All transportation, transit insurance required for supply and commissioning of the complete System are to be arranged by the bidder and no extra cost shall be paid for the same by WCL. Any damage to the material and system supplied through this contract TBNI (to be noted for information) till the handover of the system shall be the responsibility of the vendor and insurance (if any) required to mitigate the risk shall be borne by the vendor.

    The bidder has to arrange transportation on their own for Man & Material during entire contract period. No transportation will be provided by WCL.

53. SETTLEMENT OF DISPUTE: It is incumbent upon the contractor to avoid litigation and disputes during the course of execution. However, if such disputes take place between the contractor and the department, effort shall be made first to settle the disputes at the company level. a) The contractor should make request in writing to the engineer in charge for settlement of such disputes/claims within 30 (thirty) days of arising of the cause of disputes/claims falling which no disputes/claims of the contractor shall be entertained by the company. b) If the difference still persists, the redressal of the dispute may be sought in the court of law.

54. JURISDICTION OF COURT: All disputes are subject to Nagpur court jurisdiction only

55. Payment of Provident Fund for the workmen employed by bidder for the work & services as per the Law prevailing under provision of CMPF/EPF and allied scheme valid from time to time shall be responsibility of the bidder. They should furnish such proof, if asked by WCL

56. All spare parts and components have to be supplied and installed free of cost at site during the period of contract

57. Warranty/Guarantee: The bidder shall guarantee that the material / equipment, which include all hardware & Software of complete system, UPS, etc supplied under this contract, shall be in accordance with the contract specifications and shall have no defects arising out of design, materials or workmanship and shall carry respective manufacturer's standard warranty. The supplier will be responsible for smooth functioning of the material / equipment, which include all the Hardware, Software, UPS, etc supplied under this contract, for the entire period of the contract, from the date of successful installation, commissioning and acceptance. The supplier must ensure that no major breakdown occurs due to manufacturing / design / material / workmanship defect during the contract period. In case of any failure / malfunctioning of the material / equipment, which include system Hardware, Software, UPS, etc supplied under this contract, due to reasons other than those attributable, with facts and figures, to external factors beyond control of the successful bidder such as faulty main power supply, alteration / tempering, misuse or negligence by unauthorized person, repair or replacement of the same will be arranged by the supplier free of cost.

58. Suspension, Cancellation & Foreclosure of Contract:

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

Commits default/breach in complying with any of the terms & conditions of the contract and does not remedy it or fails to take effective steps for the remedy to the satisfaction of the officer-in-charge nominated by the consignee for this purpose,

OR

shall offer 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, OR

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 WCL or its authorized representative.

a. Notwithstanding anything contained hereinbefore, if the successful bidder/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 WCL is of the opinion that the successful bidder/supplier is not in a position to complete the work within schedule time or within a reasonable extended period, in such case WCL shall be entitled without prejudice to its right to fulfilment, to engage other at the risk and cost of the successful bidder/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 bidder/supplier from WCL or from other subsidiary company of Coal India Limited, Kolkata.

b. If the successful bidder/supplier is under liquidation either by a resolution passed by the company or by an order of court, not being a voluntary liquidation proceeding for the purpose of amalgamation or reorganisation, or a receiver or manager is appointed by the court on the application by the debenture holders of the company, if any.

c. On cancellation of the contract or on termination of the contract, for reasons as specified above, WCL or its authorised representative will have the powers :

i. To determine the amount to be recovered from the bidder for completing the remaining 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 WCL after cancellation of the contract.

ii. 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 bidder shall be called upon to pay the same on demand.

59. The successful bidder is responsible for all unpacking assembling, wiring, installation, cabling between equipment units & components and connection to power supplies. The successful bidder will test all systems operation and perform all the necessary set up, configuration and customization for successful operation of the systems in accordance with contract requirements.

60. The successful Bidder shall be fully responsible for the successful virus free functioning by providing a suitable anti-virus software licensed for regular updates for the entire contract period and integrated operations of the system as a whole and the omission of any item/component in this document shall not be sufficient reason for non-performance of the system at a future date.

61. The Service 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. Service provider shall sign an Integrity Pact as per format provided in the tender document.

62. Patent Rights: The bidder shall indemnify the WCL against all 3rd party claims of software piracy & infringement of intellectual propriety 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 Bidder shall act expeditiously to extinguish such claim. If the Bidder fails to comply and WCL is compelled to pay compensation to a third party resulting from such infringement, the successful Bidder shall be responsible for the compensation including all expenses, court costs and lawyer fees to WCL

63. FORCE MAJOUR CLAUSE : The contractor shall not be liable for failure to perform any of its obligations arising out of this contract if such failure results from any natural calamities like fire, earth quake, floods etc. or explosion, accident, strikes, lockouts, industrial dispute, labour trouble, civil-commotion, riots etc.

64. AWARENESS OF ACTS, RULES & REGULATIONS : The contractor/Bidder shall familiarize himself and fully comply with provisions of all the Acts/Rules/Regulations and orders of the State/Central Govt. applicable to the work, e.g. Payment of wages Act, Workmen's Compensation Act, Contract Labour (R&A) Act etc. and shall be fully responsible and liable for due observance of the same. The company (WCL) shall have no responsibility/liability and the company shall be fully indemnified by the contractor against all such claims.

65. The bidder may offer / quote higher technical specifications wherever applicable and shall be accepted. However, there will not be any preference based on the offered higher specifications.

66. The successful bidder will be responsible to complete the entire job in all respects including any other material/work necessary to complete the job satisfactorily though specifically not covered under the scope of the work without any additional cost to WCL.

67. EMD EXEMPTION: The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as per GeM GTC with the bid. Under MSE category, only manufacturers for

goods of relevant category of tender are eligible for exemption from EMD. Traders are excluded from the purview of this Policy. Under MSE category only service provider under relevant category of tender are not eligible for EMD exemption.

Documents to be submitted:

i. The bidder should submit the chart specifying the offered model and make all the items including IP cameras, IP Radios, RFID reader, Boom barrier, Servers, work station, Network switches, Firewall, UPS, VMS, NVRs and other materials as per BoQ.

ii. The bidder must submit the parawise compliance of technical parameters of NIT including the CAMC terms and conditions of the Agreement & other terms and conditions.

iii. The bidder must submit the valid Type Approval Certificate from WPC for the offered model of IP Radio and RFID reader. The submitted approval certificate must be valid on the opening date of tender.

iv. The bidder must submit the test certificate for the IP 67 certification of the IP Radios, IP Cameras.

v. The bidder must submit copies of BIS certification of offered items, wherever applicable.

vi. The vendor should submit the authorization in original from the manufacturer of offered IP Cameras, VMS, NVR, servers, work station, firewall, IP Radios, Switches and UPS mentioning the specific tender no. for participating and for provision of comprehensive AMC for five years after one year warranty & spares & service support for six years from the date of commissioning.

vii. The bidder must submit an undertaking to provide comprehensive service support with spares for all the tendered items for 5 years after one year warranty.

viii. The vendor should submit an undertaking to take the responsibility for the following:

a) To interface/integrate the exiting cameras with the offered VMS at areas

b) To seamless integration of offered VMS and cameras at areas and ICCC platform at WCL HQ with existing I2V VMS and Video analytics for live monitoring and play back.

c) To integrate the existing GPS/GPRS based Vehicle tracking system, ERP application with the offered ICCC platform at WCL HQ

ix. The bidder will furnish the 24x7 help desk details to WCL.

x. The bidder should submit technical write up and technical literature / brochure of all major components including IP cameras, IP Radios, RFID reader, Boom barrier, Servers, work station, Network switches, Firewall, ICCC, VMS, NVRs and UPS along with system block diagram mentioning solution of the offered system including system integration in support of justification of various features / parameters / specifications of the system to meet the requirement stipulated in this document.

xi. The bidder must submit the ONVIF certificate for the offered IP Cameras, VMS & NVRs.

xii. The bidder must submit the copy of supply order received in the past for the offered 'Type and Model' of the (i) IP Fixed Bullet Camera//IP Dome camera/IP ANP camera, (ii) Boom barrier system,(iii) RFID Reader (iv) 24 port L3 Managed Industrial switch, VMS server/RFID server, PTMP/PTP Radio , 10 KVA UPS , work station, firewall from the Mining Industry and/or from other Industries (Private or Govt./Public Sector Undertaking). & satisfactory performance certificate from user for a period of not less than one year from the date of its commissioning against above supply order in support of provenness criteria as mentioned in the bid.

xiii. The bidder should submit the necessary documents for past supply reference etc for VMS and ICCC as mentioned the bid.

xiv. To submit the copy of other documents/certificates , if any as mentioned in the bid.

ANNEXURE-AA

WEIGHT SLIP / CHALLAN (Washery Circuit)

For Removal of GST Goods **WESTERN COALFIELDS LIMITED**
From mines under rule 11 (Under jurisdiction of Nagpur Courts only)

Regd. Office: Coal Estate, Civil Lines, Nagpur 440001	Works: Name & address of Source Mine & TIN	GSTIN No. PLA No. Chap Sub Hd No.	Name and address of Consignee:	Challan/Gate Pass No.: Date: Time of Removal: Authenticated: Authorised Signatory
	27011200 Bituminous Coal	CEC	Range	Mode : By Road Truck No.:
Range:	Assessee Code	Divn.	Divn.:	

DO No. & Date	DO Valid Upto	Delivery Point		DO Quantity
Bal.Qty. To be lifted:	Consumer Code:			
		MT	MT	

No. and Date of Notification under which any concession of duty claimed:

Destination (Name of site)	
Specification of Goods	Bituminous Coal
Grade	
Type of Consumer	Power/Non-Power/e-Auction

Gross Weight (Kgs)	
Tare Weight (Kgs)	
Net Weight (Kgs)	(A)
Rate per MT (Rs.)	Input from DO (a)
Sizing Charges per MT	Input from DO (b)
Commitment/Beneficiation Charges per MT	Input from DO (c)
STC per MT	Input from DO (d)
Royalty per MT	Input from DO (e)
S.E.D per MT	Input from DO (f)
Total Ass. Value per MT	(a) + (b) + (c) + (d)+(e)+(f) = (B)
Assessable Value	**(A) x (B) = (C)**
GST @ 18%	(C) x 18% = (D)
Education Cess @ 2%	(D) x 2% = (D1)
S.H. Edu. Cess @ 1%	(D) x 1% = (D2)
TOTAL GST Payable	**(D) + (D1) + (D2)**

Duty Payable in Words : (` only)

Certified that the particulars given above are true and correct and the amount indicated represent the prices actually charged excluding other statutory levies and that there is no flow of additional consideration directly or indirectly from the buyers.

For WCL- (name of Unit)

E&OE (Authorised Signatory)

WESTERN COALFIELDS LTD. **Sub Area** **Area** **Weigh Bridge No.**

DO No. DO Date Customer Code/Name: Loading Dt.

Gate Pass No. Truck No. Product Code/Name
Time In Time Out

From Code From Mine To Code: To Name:

Transporter Code/Name Gross: Tare Net

ANNEXURE BB
Weighbridge data format (ASCII FILE FORMAT)
Field Name
WCL GSTIN NO
ARV NO
ARV DATE
"ARV QTY"
"HSN CODE"
"UNIQUE BID ID"
"CONSUMER TYPE"
"PARTY CODE"
"PARTY NAME"
"PARTY GSTIN NO"
"PARTY STATE CODE"
"PARTY STATE NAME"
"W/B CODE"
"UNIT CODE"
"GRADE"
"DELIVERY CHALLAN NO."
"DELIVERY CHALLAN DATE"
"DESPATCH DATE"
"DESPATCH TIME"
"DESTINATION"
"DEST STATE CODE"
"DEST STATE NAME"
"TRUCK NO."
"GROSS WT."
"TARE WT."
"NET WT."
"STC QTY."
"PROGRESSIVE QTY."
"BALANCE QTY."
"BASIC RATE"
"COMMIT/BENE RATE"
"CRUSHING RATE"
"STC RATE"
"EVACUATION F.C. RATE"
"ROYALTY RATE"
"DMF ON ROYALTY RATE"
"NMET ON ROYALTY RATE"
"MPGATSVA RATE"
"MP TRANSIT FEE RATE"
"CGST RATE"
"SGST RATE"
"IGST RATE"
"STATE_COMP_CESS"
"BASIC AMT."
"COMMIT/BENE AMT."
"CRUSHING AMT."
"STC AMT."
"EVACUATION F.C. AMT."
"ROYALTY AMT."
"DMF AMT."
"NMET AMT."
"MPGATSVA AMT."
"MP TRANSIT FEE AMT."
"TAXABLE AMT."
"CGST AMT."
"SGST AMT."
"IGST AMT."
"STATE_COMP_CESS AMT."
"NET VALUE"
"HEAP NO."

ANNEXURE-CC

WEIGHT SLIP / CHALLAN

For Removal of GST Goods from mines under rule 11

WESTERN COALFIELDS LIMITED
(Under jurisdiction of Nagpur Courts only)

Regd. Office: Coal Estate, Civil Lines, Nagpur 440001

Works: Name & address of Source Mine & TIN

GSTIN .No. PLA No. Chap Sub Hd No. 27011200 Bituminous Coal

Name and address of Consignee:

CEC Range Assessee Code

Challan/Gate Pass No.: Date: Time of Removal:

Authenticated: Authorised Signatory

Mode : By Road Truck No.: Divn.

Range: Divn.:

DO No. & Date | DO Valid Upto | Delivery Point | DO Quantity | Bal.Qty. To be lifted: | Consumer Code:

MT MT

No. and Date of Notification under which any concession of duty claimed:

Destination	
Specification of Goods	Bituminous Coal
Grade	
Type of Consumer	Power/Non-Power/e-Auction
Gross Weight (Kgs)	
Tare Weight (Kgs)	
Net Weight (Kgs)	(A)
Rate per MT (Rs.)	Input from DO (a)
Sizing Charges per MT	Input from DO (b)
Commitment/Beneficiation Charges per MT	Input from DO (c)
STC per MT	Input from DO (d)
Royalty per MT	Input from DO (e)
S.E.D per MT	Input from DO (f)
Total Ass. Value per MT	(a) + (b) + (c) + (d)+(e)+(f) = (B)
Assessable Value	**(A) x (B) = (C)**
GST @ 18%	(C) x 18% = (D)
Education Cess @ 2%	(D) x 2% = (D1)
S.H. Edu. Cess @ 1%	(D) x 1% = (D2)
TOTAL GST Payable	**(D) + (D1) + (D2)**

Duty Payable in Words : (` only)

Certified that the particulars given above are true and correct and the amount indicated represent the prices actually charged excluding other statutory levies and that there is no flow of additional consideration directly or indirectly from the buyers.

For WCL- (name of Unit)

E&OE

(Authorised Signatory)

WESTERN COALFIELDS LTD. Sub AreaArea Weigh Bridge No.

DO No. DO Date Customer Code/Name : Loading Dt.

Gate Pass No. Truck No. Product Code/Name

Time In Time Out

From Code From Mine To Code : To Name :

Transporter Code/Name

Gross

Net Tare

Commercial Terms and conditions

Bidders should read the following terms and conditions and accept while participating in tender/bid for respective items (those are applicable to them):

1. Eligibility Criteria for Bidders:

(Documents related to Eligibility Criteria should be submitted by the bidders, along with offer)

a) Only the Local Suppliers i.e. Class – I Local supplier (a supplier or service provider, whose goods, services or works offered for procurement has local content equal to or more than 50%) and Class – II Local Supplier (a supplier or service provider, whose goods, services or works offered for procurement has local content more than 20% but less than 50%) are only eligible to Quote.

Note: The minimum local content % for following item shall be as follows :

(1) 24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module : 60%

(2) 24 Port L-3 Smart Managed Industry grade access Switch with at least 2 SFP Port along with module : 60%

Following 3 items are covered in the notified List of items reserved for Class I only as per DPIIT for local content value of 50% or more .

(1) 2 KVA UPS with 3 Hr Back up

(2) 5 KVA UPS with 4 Hr Back up

(3) 10 KVA UPS with 4 Hr Back up

The Local suppliers (Class I / Class II) shall have to submit the certificate regarding the quantum (Percentage) of the local content and shall also give details of the location(s) at which the local value addition is made as per the Annexure "A" of NIT.

Non-Local Supplier means a supplier or service provider, whose goods or services offered for procurement have local content less than 20%. Non-Local Suppliers are not eligible to participate in this Domestic Tenders which meant only for Indigenous Manufacturers / Local Suppliers.

Local content means the amount of value added in India, which is the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.

For definitions of 'Local Supplier', 'Local Content and 'Margin of Purchase Preference' refer following clauses:

The definitions of 'Local Supplier', 'Local Content and 'Margin of Purchase Preference' are as follows:

(i) 'Class - I Local Supplier' means a supplier or service provider whose Goods, Services or Works offered for procurement, has Local content equal to or more than 50% as defined under this Order.

(ii) 'Class - II Local Supplier' means a supplier or service provider whose Goods, Services or Works offered for procurement, has Local content more than 20% but less than 50%, as defined under this order.

iii) Non – Local Supplier means a supplier or service provider whose Goods, Services or Works offered for procurement, has Local content less that or equal to 20%, as defined under this order.

iv) "Local Content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

(v) "Margin of Purchase Preference' means the maximum extent to which the price quoted by a local supplier may be above the L I for the purpose of purchase preference. The margin of purchase preference is 20%.

Verification of local content: (i) The 'Class - I Local Supplier' / 'Class - II Local Supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the minimum local content requirement for 'Class - I Local Supplier' / 'Class - II Local Supplier' as the case may be. They shall also give details of the location(s) at which the local value addition is made.

(ii) In cases of procurement for a value in excess of Rs. 10 crores, the 'Class - I Local Supplier' / 'Class - II Local Supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

(iii) CIL/ Subsidiary Companies may constitute committees with internal and external experts for independent verification of auditor's/ complaints.

(iv) False declarations will attract banning of business of the bidder or its successor(s) as per provisions of CIL Purchase Manual 2020 along with such other actions as may be permissible under law.

(v) A local supplier who has been debarred by any procuring entity for violation of above order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities.

Note: Indigenous / Indian Manufacturer, if referred anywhere in the NIT, means a local supplier

b) Indian Agent of Local Supplier: (Broadly includes Distributor, Dealer, Channel Partner etc.) Procurement should generally be made from manufacturers only.

However, if the manufacturer does not quote directly to any organisation in India as a matter of its corporate policy (except in situations like supplies to OEM /OES/ OPM, supplies of spares and consumables bundled with supply of equipment, supplies to customers not covered by dealer network due to geographical/ logistics constraints), the procurement shall be made from its authorised Indian Agent based on the tender specific authorisation issued by the manufacturer mentioning tender reference number and date and validity of such authorization for (i) **IP Fixed Bullet Camera/IP Dome Camera / IP ANPR Camera** , (ii) **Boom Barrier System** (iii) **RFID Reader, (iv) 24 Port L3 Smart Managed Industrial Grade Switch,** (v) **RFID Server/VMS Server,** (vi) **PTMP Radio/PTP Radio,** (vii) **10KVA UPS ,** (viii) **Workstation &** (ix) **Firewall**.

c) The average Annual Financial Turnover of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the total estimated value of the tender. Documentary evidence in the form of a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid.

The list of documents to be submitted by the bidder:

i) The Local content declaration has to be submitted by the bidder as a complete set of the offered items as per the Annexure "A" of NIT.

Note: The minimum local content % for following item shall be as follows :

(1) 24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module: 60%

(2) 24 Port L-3 Smart Managed Industry grade access Switch with at least 2 SFP Port along with module: 60%

Following 3 items are covered in the notified List of items reserved for Class I only as per DPIIT for local content value of 50% or more .

(3) 2 KVA UPS with 3 Hr Back up

(4) 5 KVA UPS with 4 Hr Back up

(5) 10 KVA UPS with 4 Hr Back up

ii) Local Suppliers (Class-I Local Supplier and Class – II Local Supplier): In case the bidder is a Local supplier (Class-I Local Supplier and Class – II Local Supplier), they have to submit scanned self attested copy of the valid registration with NSIC / SSI/ DIC / Udyog Aadhaar / Registrar of Companies / any other document issued by statutory bodies etc, to establish themselves that they are the manufacturer of the offered items along with certificate regarding the quantum (Percentage) of the local content and details of the location(s) at which the local value addition is made as per the Annexure of NIT for (i) **IP Fixed Bullet Camera/IP Dome Camera / IP ANPR Camera** , (ii) **Boom Barrier System** (iii) **RFID Reader, (iv) 24 Port L3 Smart Managed Industrial Grade Switch,** (v) **RFID Server/VMS Server,** (vi) **PTMP Radio/PTP Radio,** (vii) **10KVA UPS ,** (viii) **Workstation &** (ix) **Firewall**.

iii) In case of Indian Agent of Local Supplier (Class-I Local Supplier and Class – II Local Supplier):

1. Self attested copies of the Manufacturing credentials of the Local Supplier viz valid registration with NSIC / SSI/ DIC / Udayam / Registrar of Companies / any other document issued by statutory bodies etc to establish that their Principal is the manufacturer of the offered items along with certificate (to be issued by Local supplier) regarding the quantum (Percentage) of the local content and details of the location(s) at which the local value addition for (i) **IP Fixed Bullet Camera/IP Dome Camera / IP ANPR Camera** , (ii) **Boom Barrier System** (iii) **RFID Reader, (iv) 24 Port L3 Smart Managed Industrial Grade Switch,** (v) **RFID Server/VMS Server,** (vi) **PTMP Radio/PTP Radio,** (vii) **10KVA UPS ,** (viii) **Workstation &** (ix) **Firewall** is made as per the Annexure "A" of NIT.

2. A tender specific authorization issued by the manufacturer mentioning tender reference number and date and validity of such authorization for (i) **IP Fixed Bullet Camera/IP Dome Camera / IP ANPR Camera** , (ii) **Boom Barrier System** (iii) **RFID Reader, (iv) 24 Port L3 Smart Managed Industrial Grade Switch,** (v) **RFID Server/VMS Server,** (vi) **PTMP Radio/PTP Radio,** (vii) **10KVA UPS ,** (viii) **Workstation &** (ix) **Firewall** (Format as per Annexure "B & C" NIT).. Authorization should be pre-dated (from the tender opening) and should be properly signed and its validity should correspond to the delivery period stipulated in the Tender Enquiry.

3. Undertaking from the manufacturer that, as a matter of its corporate policy, it does not quote directly to any organization in India (except in situations like supplies to OEM / OES/OPM, supplies of spares and consumables bundled with supply of equipment, supplies to customers not covered by dealer network due to geographical / logistics constraints). If, subsequently, at any stage, it is found that it has quoted directly to any organization in India excepting the situations mentioned above, it shall be liable for penal action as per provisions of the NIT and the CIL Purchase Manual 2020, if the justification provided by the bidder has not been considered adequate and satisfactory by the procuring entity. Further, if at any stage, it is found that agency commission has been paid by the manufacturer/ principal without declaring the agent, the commission will be recovered with interest

4. Undertaking from the manufacturer that it will accept the responsibility for the satisfactory execution of orders placed on the authorized agents including warranty/ guarantee obligations.

5. Undertaking from the manufacturer that, wherever necessary, it will provide requisite inspection and testing facilities at its works in respect of orders placed on authorized agent.

6. Undertaking from the manufacturer that the authorized agent's price will not exceed that which the manufacturer would have quoted.

7. Undertaking from the manufacturer that in the event of placement of order on their authorized dealer, the goods supplied / goods offered for inspection would be accompanied by a certificate stating that the goods have been manufactured by them.

8. Undertaking from the manufacturer that No agent / Middle man / Liaisoning agent or any entity in any name other than the disclosed authorized Indian Agent is involved in the process of procurement of goods and services.

(if subsequently at any stage, it is found that it has given a false certificate, it shall be liable for penal action as per the provisions of CIL Purchase Manual 2020).

9. Undertaking from the bidder (authorized dealer) that he will be responsible for all the contractual obligations including quality aspects, replacement of part/items and warranty/ guarantee obligations, and also will be responsible for providing the required after sale service.

10. The business entity of the Indian Agent should be in existence for 3 years on the date of tender opening, irrespective of date of appointment as Indian Agent. The relevant self attested document in this regard is to be submitted along with the offer.

11. The average Annual Financial Turnover of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the total estimated value of the tender (as specified against each item). Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid

Note:

1. If both the Local Supplier (Class – I Local Supplier and Class – II Local Supplier) and the Indian Agent participates in this tender, then the offer of the Indian Agent will be rejected.

2. One manufacturer can authorize only one Indian agent.

3. If Indian Agents submits bid on behalf of a manufacturer, the same agent shall not submit a bid on behalf of another manufacturer in the same tender for the same item / product.

2) BANNED OR DELISTED OR DEBARRED OR PUT ON HOLIDAY SUPPLIERS

The manufacturer as well as the bidder (if bidder is not the manufacturer) will give a declaration (As per Annexure D) that they have not been banned or de-listed or debarred or 'Put on Holiday' by any Government or quasi-Government agencies or PSUs. If a bidder and/or manufacturer has been banned or delisted or debarred or 'Put on Holiday' by any Government or quasi Government agencies or PSU, this fact must be clearly stated and it may not necessarily be a cause for disqualifying them.

However, If the manufacturer/bidder is banned or delisted or debarred or 'Put on Holiday' by DoE/MoC/WCL / CIL, the offer shall be not be considered for further evaluation.

3. Pre-contract Integrity Pact: Applicable for this tender.

Details of IEM

Names, Full Address, Phone no and email Id of both the Independent External Monitors are as under:

Sl no	Name of IEM	Address	e-mail ID	Mobile No
1	Shri Sudhir Kumar, IAS (Retd)	Flat no 8022, ATS – One Hamlet, Sector- 104, PO Maharshi Nagar, Noida - 201304	sukuag@hotmail.com	9560430245
2	Shri. Anil Kaushal, ITS(Retd)	A-1/245, GF, Janakpuri, New Delhi - 110058	kaushal.anil17@gmail.com	8800028118

4 Clarification of Bids/ Shortfall/ Confirmatory Documents:

After evaluation of the uploaded documents, shortfall documents, if required, shall be sought from the bidder. For this purpose, **maximum 1 chance** shall be given. The time period for the clarification will be 7x24 hrs given to the bidders to upload these clarifications / shortfall documents. The bidder will upload the requested documents within the specified period and no additional time will be allowed in this regard

for on-line submission of documents after the maximum 1 chance, of 7x24 hours duration. If the bidder does not comply or respond by the specified date & time, his tender will be liable to be rejected. The shortfall information/documents shall be sought only in case of historical documents as per GeM provision/rules.

5. Payment terms:

As per 'clause 6' of special terms and conditions

Note: All MSME vendors/suppliers are advised to get themselves registered on TReDS platform (www.treds.in) or on www.rxil.in and avail the facility of the TReDS.

6. Submission of Bills: **The supplier will submit the following documents along with bills to the paying authority**:

a. Four copies of the Supplier's invoice, Pre-Receipted and Stamped showing Contract Number, Goods description, quantity, unit price, total amount and GST No. of Ultimate Consignee.

b. Receipted Challan/ Consignment Note of all the consignments.

c. Manufacturer's Test / Inspection Certificate.

d. Manufacturer's Warranty /Guarantee Certificate.

e. Lowest Price Certificate

f. Any other document(s) required as per contract / Technical specifications of the bid / contract.

7. Performance Bank Guarantee:- Successful tenderer will have to submit performance bank guarantee for 10% of the order value of equipment only (landed cost of items ordered inclusive GST) valid for a period of 3 months beyond Guarantee / Warranty and the same shall be released on receipt of satisfactory performance throughout the guarantee period. Performance Bank Guarantee has to be submitted for the order value of items only (landed cost of items ordered inclusive GST), which will be arrived at by adding all the Taxes applicable, such as GST to the FOR Destination Price of the materials on order. The Performance Bank Guarantee shall be released after receipt of satisfactory performance and no claim certificate from the user department.

Performance Bank Guarantee applicable for CAMC is to be submitted at the start of the CAMC and shall be applicable at a rate of 5% of the order value of equipment only (landed cost of items ordered inclusive GST) which shall be given by supplier after completion of warranty period. The PBG submitted after award of contract shall be released only after new PBG for the CAMC period is submitted and accepted by buyer/consignee after due verification. Bank guarantee for CAMC is to remain valid till completion of CAMC period plus 3 months. The bank guarantee for CAMC shall be submitted to buyer directly. In case, seller fails to submit the PBG or does not provide services for the CAMC contract after expiry of warranty period then PBG of equipment shall be forfeited.

(This is in addition to the Security Deposit to be submitted @10% of order value)

Note: The PBG can be submitted by the OEM or their authorized dealer for the supply of Equipment and for CAMC.

8. E-PBG for 10%, as indicated in bid document is towards security deposit and to be deposited as per GeM provision. Security Deposit (E-PBG-10%) will be released after successful completion of supplies and acceptance of the material as per contractual terms and submission of performance bank guarantee. (This has to be submitted by the bidder

only)

In addition to Security deposit the successful bidder has to submit PBG in offline mode for 10% of contract value as per **Format of PBG Attached at Annexure-'G'.**

9. CONSIGNEE AND ALLOCATION: As indicated in the bid document.

10. Bidder to submit the following commercial documents along with their offer / bid documents in addition to documents sought in technical specification:

1. Pre-Contract Integrity Pact
2. Local content certificate (as per Annexure "**A**")
3. Documents in support of Eligibility (documents as applicable for Manufacturer / Indian Agent including Annexure "**B**" and Annexure "**C**", as the case may be)
4. Non-Banning Certificate/Declaration as per **Annexure "D"**
5. Lowest Price Certificate- Annexure "**E**"
6. Undertaking of Price Fall Clause as per **Annexure "F"**
7. **The average Annual Financial Turnover of the bidder** during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the total estimated value of the tender. Documentary evidence in the form of a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid.

Annexure "A "

SELF CERTIFICATE TOWARDS LOCAL CONTENT

(to be submitted by the Local supplier/bidder **choose any one below condition, as applicable**)

(1) This is to certify that we fall in the category of Class I Local Supplier and the Goods offered by us against this tender has the local content equal to or more than 50%. The details of Location(s) at which the Local value addition is made are as under:

OR

(2) This is to certify that we fall in the category of Class II Local Supplier and the Goods offered by us against this tender, has the local content of more than 20% but less than 50%. The details of Location(s) at which the Local value addition is made are as under:

Value addition is done at the following location:

Address of Location / Factory _____

_____

_____

Authorized Signatory of

Local Supplier

Date:

Seal of the firm

(Note: 1. To choose any one above condition, as applicable)

NOTE 2:- In cases of procurement for a value in excess of Rs. 10 crores, the 'Class - I Local Supplier' / 'Class - II Local Supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

NOTE 3:

i) The Local content declaration has to be submitted by the bidder as a complete set of the offered items as per the above format.

ii) The minimum local content % of the following items should be submitted by the local supplier/bidder as per the above format:

a. 24 Port L-3 Industrial Grade distribution switch with 2 SFP port and module: 60%
b. 24 Port L-3 Smart Managed Industry grade access Switch with at least 2 SFP Port along with module: 60%
c. 2 KVA UPS with 3 Hr Back up: 50%
d. 5 KVA UPS with 4 Hr Back up: 50%
e. 10 KVA UPS with 4 Hr Back up: 50%

iii) The manufacturer/OEM has to submit the local content certificate for the following items as per above format:

a. IP Fixed Bullet Camera/IP Dome Camera / IP ANPR Camera
b. Boom Barrier System
c. RFID Reader
d. 24 Port L3 Smart Managed Industrial Grade Switch
e. RFID Server/VMS Server
f. PTMP Radio/PTP Radio
g. 10KVA UPS
h. Workstation
i. Firewall.

ANNEXURE – "B"

FORMAT FOR AUTHORIZATION TO BE SUBMITTED BY THE INDIAN AGENTS :(to be typed on the Principals letter head and should be pre dated(prior to tender opening date and properly signed)

To
General Manager (MM)
Western Coalfields Ltd

Dear Sir.

We, M/s. (.…. name of the Principal firm…….) represented by the undersigned, Mr/Ms..... Director/ Partner /Legal Attorney / Proprietor /Employee / Accredited Representative hereby authorize M/s._____(Name of the Bidder firm) to participate in the tender and submit the offer and enter into contract / Supply order, on our behalf against this tender. This authorization is valid till the successful execution and completion of contract period against this tender. We further confirm that:

1. As a matter of our corporate policy, we do not quote directly to any organization in India (except in situations like supplies to OEM / OES / OPM, supplies of spares and consumables bundled with supply of equipment, supplies to customers not covered by dealer network due to geographical/ logistics constraints). If, subsequently, at any stage, it is found that we have quoted directly to any organization in India (except in situations like supplies to OEM / OES / OPM, supplies of spares and consumables bundled with supply of equipment, supplies to customers not covered by dealer network due to geographical/ logistics constraints), we shall be liable for penal action as per provisions of the NIT and the CIL Purchase Manual 2020. Further, if at any stage, it is found that agency commission has been paid by us without declaring the agent, the commission may be recovered with interest.
2. We will accept the responsibility for the satisfactory execution of orders placed on the authorized agent including warranty/ guarantee obligations.
3. Wherever necessary, we will provide requisite inspection and testing facilities at our works in respect of orders placed on authorized agent.

4. The price quoted by our authorized agent will not exceed the price which we would have quoted.

a) In the event of placement of order on our authorized dealer , the goods supplied / goods offered for inspection would be accompanied by a certificate stating that the goods have been manufactured by us.

b) We further confirm that No agent / Middle man / Liasoning agent or any entity in any name other than our authorized Indian Agent is involved in the process of procurement of goods and services against this tender. If subsequently at any stage, it is found that false certificate is given, we shall be liable for penal action.

c) We have never been banned or de-listed or debarred or 'Put on Holiday' by any Government or quasi-Government agencies or PSUs.

OR

d) We were banned/de-listed/debarred/'Put on Holiday' by the organization named "----------" for a period of year/s, effective from to ----------for----------(the reasons to be mentioned).

e)

Signature of Authorized signatory of Principal

Date & Seal of the firm

ANNEXURE – "C"

UNDERTAKING TO BE SUBMITTED BY THE INDIAN AGENTS
(to be typed on the Indian agent letter head)

To
General Manager (MM)
Western Coalfields Ltd

Dear Sir.

Against the Tender no:_____, we have quoted as the authorized dealer / indian agent of M/s. _____who is the manufacturer of the offered products. We confirm that we will be responsible for all the contractual obligations including the quality aspects, replacement of parts / items , warranty / guarantee obligations and also provide the after sales and services.
We have submitted the following documents.

1. Tender specific authorization from the Principal including the specific confirmations as required as per the terms of the NIT.

2. Self attested copies of the Manufacturing credentials of the Principal to establish the principal is the manufacturer of the offered items alongwith the certificate for Local content issued by the Local Supplier

3. The self attested copy of the documents to prove that our business entity is existence for 3years on the date of tender opening.

Signature of Authorized Dealer / Indian Agent

Date:
Seal of the firm

Annexure -D

BANNED OR DELISTED OR DEBARRED OR PUT ON HOLIDAY SUPPLIERS DECLARATION

This is to certify that we have not been banned or de-listed or debarred or 'Put on Holiday' by any Government or quasi-Government agencies or PSUs.

Signature of Bidder
Date:

Seal of the firm

OR

If bidder has been banned / Delisted /Debarred/ Put on Holiday, by any Government or quasi- Government agencies or PSU, then bidder has to indicate the details below:

(1) Name of the Organisation which has banned the bidder:
(2) Ban Period :
(3) Reasons for BANNING OR DELISTING OR DEBARRING OR PUT ON HOLIDAY:

Signature of Bidder
Date
Seal of the firm

Note: In case the bidder is an authorized dealer/distributor, BOTH manufacturer as well as authorized dealer/distributor has to submit the "Banned or Delisted or Debarred or Put on Holiday" declaration as per format above

Annexure- "E"

LOWEST PRICE CERTIFICATE

This is to certify that the prices quoted/charged by us for the offered/supplied items are the lowest prices as applicable to any other Organization / Ministry / Department of the Govt, of India or Coal India Ltd. and /or its Subsidiaries or other PSU or any other private organization.

Signature of Bidder

Date:

Seal of the firm

ANNEXURE – 'F'

PRICE FALL CLAUSE

If the contract holder reduces its price or sells or even offers to sell the contracted goods or services following conditions of sale similar to those of the contract, at a price lower than the contract price, to any person or organization during the currency of the contract, the contract price will be automatically reduced with effect from that date for all the subsequent supplies under the contract and the contract be amended accordingly.

The provisions of price fall clause will however not apply to the following:

i) Export/Deemed Export by the supplier.

ii) Sale of goods or services as original equipment prices lower than the price charged for normal replacement.

iii) Sale of goods such as drugs, which have expiry date.

iv) Sale of goods or services at lower price on or after the date of completion of sale/placement of order of goods or services by the authority concerned, under the existing or previous Rate Contracts as also under any previous contracts entered into with the Central or State Government Departments including new undertakings (excluding joint sector companies and or private parties) and bodies.

Note:

a. The currency of contract will mean the period till completion of supply.

b. The bidder will be asked to submit a copy of the last (latest) purchase order for the tendered / similar item(s) received by them from any Organization/ Ministry/ Department of the Govt. of India or Coal India Ltd. and/or its Subsidiaries or other PSU or any other private organization, along with the offer as applicable.

c. It shall be responsibility of the supplier to inform the purchaser of offer to supply / supply of the ordered /similar item(s) at a lower rate to any Organization / Ministry / Department of the Govt. of India or Coal India Ltd. and/or its Subsidiaries or other PSU or any other private organization during the currency of the contract.

d. The supplier shall submit a certificate along with the bill(s) that it has not offered to supply / supplied the ordered/ similar item(s) at a lower rate to any organization / Ministry / Department of the Govt. of India or Coal India Ltd' and/or its Subsidiaries or other PSU or any other private organization.

e. The provisions of fall clause will however not apply for purchase value up to Rs. 2.00 lakh.

ANNEXURE – "G"

Performance Bank Guarantee Format

Re : Bank Guarantee in respect of Agreement / Contract / Purchase Order vide no ..... dated..... between Western Coalfields Limited and..... (Name of Supplier Company)

Messers ..... a Company / Firm having its office at No. ..... (hereinafter called 'the Contractor') has entered into the Agreement / Contract / Purchase Order vide no ..... dated ..... (hereinafter called 'the said agreement') with Coal India Limited, Kolkata on behalf of Western Coalfields Limited (Name of the Purchaser Company) hereinafter called ('the Company') to supply..... stores / materials amounting to Rs..... on the terms and conditions contained in the said agreement.

The .....(name of the bank) (hereinafter called 'the bank') having its Office at ..... has at the request of the Contractor agreed to give the guarantee as hereinafter contained.

We ..... (name of the bank) do hereby unconditionally agree with the Company that if the Contractor shall in any way fail to observe or perform the terms and condition of the said agreement or shall commit any breach of its obligations thereunder, the bank shall on demand and without any objection or demur pay to the Company the said sum of Rs ..... or any portion thereof without requiring the Company to have recourse to any legal remedy that may be available to it to compel the Bank to pay the same, or calling on the company to compel such payment by the contractor.

Any such demand shall be conclusive as regards the liability of the Contractor to the company and as regards the amount payable by the Bank under this guarantee. The Bank shall not be entitled to withhold, payment on the ground that the contractor has disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between the Company and the contractor regarding the claim.

We, the Bank - further agree that the guarantee shall come into force from the date hereof and shall remain in full force and effect till the period that will be taken for the performance of the said agreement which is likely to be the .... day of ..... but if the period of agreement is extended either pursuant to the provisions in the said agreement or by mutual agreement between the contractor and the Company the Bank shall renew the period of the guarantee failing which it shall pay to the Company the said sum of Rs.....or such lesser amount out of the said sum of Rs.....as may be due to the Company and as the Company may demand. This guarantee shall remain in force until the dues of the Company in respect of the said sum of Rs.....and interest are fully satisfied and the company certifies that the agreement regarding re-payment of the said sum of Rs..... has been fully carried out by the contractor and discharges the guarantee.

The Bank further agrees with the Company that the Company shall have the fullest liberty without the consent of the Bank and without affecting in any way the obligations hereunder to vary any of the terms and conditions of the said agreement or to extend the time for performance of the said agreement from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the contractor and to forbear to enforce any of the terms and conditions relating to the said agreement and the Bank shall not be relieved from its liability by reason of such failure or extension being granted to the contractor or through any forbearance, act or omission on the part of the Company or any indulgence by the Company to the contractor or any other matter or thing whatsoever

which under the law relating to sureties would but for this provisions have the effect of relieving or discharging the Guarantor.

The Bank further agrees that in case this guarantee is required for a longer period and it is not extended by the Bank beyond the period specified above the Bank shall pay to the Company the said sum of Rs..... or such lesser sum as may then be due to the Company and as the Company may require.

Notwithstanding anything herein contained the liability of the Bank under this guarantee is restricted to Rs.....only. The guarantee shall remain in force till the .....day of.....20.. and unless the guarantee is renewed or a claim is preferred against the Bank within the validity period and / of the claim period from the said date, all rights of the company under this guarantee shall cease and the Bank shall be released and discharged from all liability hereunder except as provided in the preceding clause.

The Bank has under its constitution power to give this guarantee and .....(Name of the person) who has signed it on behalf of the Bank has authority to do so.

The Bank Guarantee shall be Operational at (Branch Address)…….Nagpur for all purposes.

The details of beneficiary bank for sending details of BG under SFMS Platform is furnished below

Name of beneficiary and details	
Name	Western Coalfields ltd
Area	Head Quarter
Bank A/c No: / Cust ID of beneficiary	Current Account no: 005905018053; Customer Id: 556096497 ; ICICI Bank Ltd, Commercial Banking, 9C/A& 9C/B, Ground Floor, Shriram Towers, LIC Square, Nagpur – 440001,Maharashtra
IFSC code	ICIC0000059
Bank Manager Name & Ph no:	UJJWAL KITE: Ph n: 0712-6627389
BG ADVISING MESSAGE – 760COV / 767COV via SFMS	
Field Number	Particulars
7035	ICICI0000059
7037	WCL556096497

Dated this.....Day of.....20...
Place
Signature of the authorized person
For and on behalf of the Bank

Format for Pre Contract Integrity Pact
General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made ***on day of bid submission***, between on one hand, Coal India Limited/Subsidiary Cos. (hereinafter called the "BUYER / Principal", which expression shall mean and include,unless the context otherwiserequires,his successors in office and assigns) of the First Part **and Undersigned who is authorized to sign the bid**(hereinafter called the"BIDDER/Seller/Contractor"which expression shall mean and include,unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure the tendered Stores/Equipment/Items/Goods and the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER is a Central Public Sector Unit.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to :-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERs to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Section 1 – Commitments of the Principal:

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

a. No employee of the Principal, personally or through family members, will in connection with the tender for , or the execution of a contract, demand ; take a promise for or accept,for self or third person,any material or immaterial benefit which the person is not legally entitled to.

b. The Principal will,during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c. Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/ PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s):

(1) The Bidder(s) / Contractor(s) commit themselves to take all measures necessary to prevent corruption. The Bidder(s) / Contractor(s) commit themselves to observe the following principles during participation in the tender process and during the contract execution.

a. The Bidder(s) / Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

b. The Bidder(s) / Contractor(s) will not enter with other Bidders info any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices,specifications,certifications,subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

c. The Bidder(s) / Contractor(s) will not commit any offense under the relevant IPC/ PC Act; further the Bidder(s) / Contractor(s) will not use improperly, for purposes of competition or personal gain,or pass on to others,any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d. The Bidder(s) / Contractors(s) of foreign origin shall disclose the name and address of the Agents/ representatives in India , if any, Similarly the Bidder(s)

/Contractors(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s) / Contractor(s).Further, as mentioned in the Guidelines all the payments made to the Indian agent/ representative have to be in Indian Rupees only. The guidelines and terms and conditions for India agents of foreign supplier shall be as per the provisions mentioned in the NIT.

e. The Bidder(s) / Contractor(s) will, when presenting their bid, disclose any and all payments made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

f. Bidder(s) / Contractor(s) who have signed the Integrity Pact shall not approach the Courts while representing the matter to IEMs and shall wait for their decision in the matter.

(2) The Bidder(s) / Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder, before contract award, has committed a transgression through a violation of Section2 or in any other form such as to put his reliability or credibilit yas Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

(1) If the Bidder/Contractor/Supplier has committed a transgression through a violation of Section2 such as to put his reliability or credibility into question,the Principal is also entitled to exclude the

Bidder / Contractor / Supplier from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case. In particular the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3years.

(2) A transgression is considered to have occurred if the Principal, after due consideration of available facts and evidences within his / her knowledge concludes that there is a reasonable ground to suspect violation of any commitment listed under Section 2 i.e " Commitments of Bidder(s) /Contractor(s).

(3) The Bidder accepts and undertakes to respect and uphold the Principal’s absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such

exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

(4) If the Bidder / Contractor / Supplier can prove that he has restored / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely."

Section 4 - Compensation for Damages

(1) If the Principal has disqualified the Bidder(s) from the tender process prior to the awardaccordingtoSection3,the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.

(2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall been titled to demand and recover from the Contractor liquidated damages of the Contract value of the amount equivalent to Performance Bank Guarantee.

Section 5 - Previous transgression

(1) The Bidder declares that no previous transgressions occurred in the last three years with any other Company in any country conforming to the anti-corruption approach or with any Public Sector Enterprise in India that could justify his exclusion from the tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6 - Equal treatment of all Bidders / Contractors / Subcontractors

(1) In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor.

(2) The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

(3) The Principal will disqualify from the tender process all bidders who do not signthis Pact or violate its provisions.

Section 7 - Criminal charges against violating Bidder(s) / Contractor(s) / Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8 - Independent External Monitor

(1) The Principal appoints competent and credible Independent External Monitor for this Pact after approval by Central Vigilance Commission. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

(2) The Monitor is not subject to instructions by the representatives of the parties and performs his/her functions neutrally and independently. The Monitor would have access to all Contract documents, whenever required. It will be obligatory for him / her to treat the information and documents of the Bidders/Contractors as confidential.

He/ she reports to the Chairman, Coal India Limited / CMD, Subsidiary Companies

(3) The Bidder(s) / Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/ her request and demonstration of a valid interest, unrestricted and unconditional access to their project documentation. The same is applicable to Sub-contractors.

(4) The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Sub-contractor(s)with confidentiality. The Monitor has also signed declarations on 'Non-Disclosure of Confidential Information ' and of 'Absence of Conflict of Interest'. In case of any conflict of interest arising at a later date, the IEM shall inform Chairman, Coal India Limited / CMD, Subsidiary Companies and recuse himself / herself from that case.

(5) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

(6) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he/ she will so inform the Management of the Principal and request the Management to discontinue or take corrective action,or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(7) The Monitor will submit a written report to the Chairman, Coal India Limited/CMD, Subsidiary Companies within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

(8) If the Monitor has reported to the Chairman, Coal India Limited / CMD, Subsidiary Companies, a substantiated suspicion of an offense under relevant IPC/ PC Act, and the Chairman, Coal India Limited / CMD, Subsidiary Companies has not, within the reasonable time taken visible action to proceed against such offense or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

(9) The word 'Monitor' would include both singular andplural.

Section 9 - Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 month s after the last payment under the contract, and for all other Bidders 6 month safter the contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by Chairman Coal India Limited / CMD, Subsidiary Companies.

Section 10 - Other provisions

(1) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

(2) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

(3) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(4) Issues like Warranty / Guarantee etc. shall be outside the purview of IEMs.

(5) In the event of any contradiction between the Integrity Pact and its Annexure, the Clause in the Integrity Pact will prevail.

Section 11- Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

Section 12- Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

Section 13 - Other Legal Actions.

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

(For & On behalf of Bidder/ Contractor)