



For PAA

For Contractor

CONTRACT DOCUMENT

PAKISTAN AIRPORTS AUTHORITY

NAME OF WORK:

**PROVISION, INSTALLATION, TESTING AND COMMISSIONING OF
NEW UNDER VEHICLE SURVEILLANCE SYSTEM (UVSS), HYDRAULIC
ROAD BLOCKER AND SHED AT MAIN ENTRANCE GATE OF IIAP**



For PAA

i)

For Contractor



1.	Date and time of Receipt of Bid(s)	As per Tender Notice
2.	Date and time of opening of Bid(s)	As per Tender Notice
3.	Submission of Bids	Online through EPADS By Single Stage-Two Envelope Procedure & Divisional Engineer ES E&M, North/IIAP Islamabad office

**Divisional Engineer ES E&M
North/IIAP, Islamabad**

GENERAL INSTRUCTIONS

- 1) Bids shall be submitted electronically on PPRA EPADS portal.
- 2) Bidders are advised in their own interest to review the contents of Bidding Documents thoroughly and perform due diligence at their own cost prior to participating in the bidding process.
- 3) The Bid Security shall be in the form as prescribed in the Invitation to Bids.
- 4) Original instrument of Bid Security must be submitted at the time of Bid Opening in sealed envelope well before the closing date and time mentioned in Invitation to Bids and its scanned copy must be attached with the electronic bid to be submitted online on EPADS.
- 5) Should a Bidder fail to submit original instrument of Bid Security in sealed envelope before the closing date and time of Bid Opening or does not attach its scanned copy with the electronic bid, their bid shall be rejected out rightly.
- 6) All Bidders are requested to submit the bidding documents, without making any changes to the original text, complete with drawings, specifications etc. containing the signatures of the Bidder's representative on each and every page of the documents.
- 7) The Bidders are advised to submit physical (hard form) bid in original on the date and time mentioned in the invitation to bids to assist in evaluation, however that is not mandatory. In case of any discrepancies between the bid submitted physically and on EPADS, the latter shall prevail.





For PAA

For Contractor

DECLARATION

It is hereby solemnly affirmed and declared that I / we are not serving employees of any Government organization including PAA, and that it is further assured that if I / we had been previously engaged with PAA as an employee, then that service or employment had ceased to be in effect two years prior to the date of advertisement for this Work.

It is hereby further solemnly affirmed and declared that no serving or retired employee who has not completed two years after retirement from PAA is employed at our Contracting business.

It is hereby further undertaken and guaranteed that no serving or retired employee who has not completed two years after retirement from PAA shall be permitted to have any financial interest in the said Contracting business during the currency of this Contract with PAA.

It is clearly understood and agreed that in the event of a breach of the above undertaking during the currency of this Contract, the said Contract shall be liable to immediate cancellation in which case the security deposits and all other monies due or which may become due to PAA shall stand forfeited and be absolutely at the disposal of the PAA.

[Contractor's Signatures with Seal]



For PAA

iv)

For Contractor



INVITATION TO BIDS

Date: _____

1. Pakistan Airports Authority, invites bids from eligible Constructors licensed by the Pakistan Engineering Council in the appropriate category C-4 or above and applicable specialization code(s) CE-1(i), CE-10, CE-11, BC-01(ii), EE-02, EE-04, ME-07(v) for the Works named on the cover page.
2. The bidding process shall be conducted in line with the single stage two envelope procedure as per PPRA rule 36(b), and is open to all potential eligible bidders registered in the EPADS.
3. All bids must be accompanied by Bid Security amounting to Rs. 1.5 million in an acceptable form as per the prescribed guidelines, refer clause 14 of "Instructions to Bidders".
4. The electronic bids prepared in accordance with the instructions prescribed in the electronic bidding documents must be submitted through EPADS on or before the bid closing date and time. Electronic bids will be opened by using EPADS on the same day 30 minutes after bid closing time.
5. The bidders are required to attach and submit following documents with technical bid. (copies of original documents must be signed & stamped by bidder and duly attested by Notary Public/Oath Commissioner)
 - a) Scanned Copy of CNIC of owner, attorney
 - b) Scanned original valid PEC License
 - c) Copy of valid NTN Certificate
 - d) Copy of valid Professional Tax Certificate
 - e) Power of Attorney (if applicable)
 - f) Affidavit for no blacklisting and details of pending litigation, if any
 - g) Signed and Stamped Bidding Documents
 - h) All documents as per Appendix-G
 - i) Technical Submittal

**Divisional Engineer ES E&M
North/ IIAP, Islamabad**





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INSTRUCTIONS TO BIDDERS

1. The invitation to bids shall contain the name of work to be carried out as well as the date for submitting and opening the bids and the time allowed for carrying out the work; also the amount of *bid security* to be deposited with the bid. Copies of the specifications, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by Pakistan Airports Authority (PAA) shall also be open for inspection by the Contractor at the office of the Additional Director / Project Manager / Divisional Engineer during office hours.
2. Where a bid is being submitted by a firm, it must be signed separately by each partner thereof, or in the event of the absence of any Partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so, such power-of-attorney to be produced with the bid and a Photostat of the Partnership Deed should accompany the bid.
3. Where a firm of Contractors is an incorporated company registered under the Companies Act, the Contractors shall furnish the following documents:
 - a) Memorandum and Articles of Association together with a copy of certificate of incorporation.
 - b) In case the Contract is to be signed by one of the Directors of the Contractor's Company, a certified copy of the resolution of the Board of Directors or a Photocopy of the General Power of Attorney executed by the Company authorizing such Directors to enter into and sign the Contract with PAA.
4. The memorandum of work and the schedule of materials to be supplied by the PAA and their issue rates, shall be filled, and completed in the office of Divisional Engineer before the bidding document is uploaded on EPADS.
5. The bidder shall also produce a certificate of registration with the Income Tax Authority, and proof of being Active Taxpayer and attach it with the bid.
6. Bidders may request clarification of the Bidding Documents by sending a written query to the PAA through EPADS. The PAA may, if deemed appropriate, respond to the request at least two days before the bid submission deadline.
7. PAA may, at its discretion convene a pre-bid meeting to provide clarifications on the Bidding Documents. If held, the date, time, and venue of the meeting shall be specified on the EPADS. Bidders are encouraged to submit any queries in writing no later than seven (7) days prior to the scheduled meeting. The minutes of the meeting, including all questions raised and responses provided, shall be promptly circulated to all recipients of the Bidding Documents.
8. Bidders are advised to visit and inspect the Site and its surroundings at their own risk and cost, and to conduct all necessary due diligence to obtain sufficient information for the preparation of their bids and execution of the Contract. PAA shall permit such visits, subject to prior coordination; however, bidders and their representatives shall enter the site entirely at their own risk and shall indemnify and hold harmless the PAA, its personnel, and agents from any liability, loss, damage, injury, or expense arising from or related to such visits.
9. PAA may amend the Bidding Documents at any time before the bid submission deadline, either on their own or in response to a bidder's request for clarification, by issuing a written addendum. Each addendum will become part of the Bidding Documents and will be shared with all purchasers, who must acknowledge receipt in writing. If needed, PAA may extend the bid submission deadline to allow bidders sufficient time to consider the changes.
10. Bidders who propose any alteration in the work specified in the said form of an invitation to bid, or in the time allowed for carrying out the work, or which contain any other condition of any sort,





will be liable to rejection. No single bid shall include more than one work, but Contractors who wish to bid for two or more works shall submit a separate bid for each work.

11. No alterations or additions shall be made by the Contractor in the schedule of quantities and rates must be filled in ink (blue or black) or typed out both in figures and words clearly and legibly in the columns provided in the schedule of Quantities. All corrections must be signed by the Contractors.

12. Bidders shall not be reimbursed any cost of any kind whatsoever incurred by them in connection with preparation and submission of their Bids.

13. Arithmetical errors in the bid will be rectified on the following basis:

- a) If there is a discrepancy between the amounts in figures and in words, the amount in words will govern; and if there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the PAA there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.
- b) If the bidder quotes different rates for the same items across sub-heads, or attaches page(s) containing items with varying rates for the same item(s), the lowest unit rate will be considered for evaluation.
- c) If the bidder does not accept the corrected / evaluated amount of bid, their bid will be rejected, and bid security shall be forfeited.

14. Bids shall be accompanied by a Call Deposit Receipt, Pay Order, or a Banker's Cheque of the amount given in the Memorandum as Bid Security. The Bid Security shall be returned to the unsuccessful bidders, after the work has been awarded.

15. The quoted bid rates or amounts shall be inclusive of all taxes (but excluding provincial sales tax on services), duties, and cess, etc as applicable fourteen (14) days prior to the date of bid opening, and no claim on this account shall be entertained by PAA.

16. The completed Bid form shall be submitted in accordance with the instructions prescribed by PPRA for submitting electronic bids through EPADS on or before the closing date and time. Electronic bids will be opened by using EPADS on the same day 30 minutes after bid closing time.

17. Original bid submitted electronically shall also be submitted physically along with *Bid Security* in a Sealed Envelope and addressed and delivered in person or sent by Registered post / courier so that it reaches well in time before the opening date, as notified by the PAA. The sealed envelope shall have the name of work, as mentioned in invitation to bids, written on top of it. In case of any discrepancies between the bid submitted physically and on EPADS, the latter shall prevail. The instrument of Earnest Bid Security shall compulsorily be submitted in physical form on the opening date and time, whereas submission of the bid physically is recommended but not mandatory.

18. When a bid is accepted, a receipt for the *bid security* forwarded therewith shall thereupon be given to the Contractor. In the event of a bid being rejected the *bid security* forwarded with such unaccepted bid shall thereupon be returned to the Contractor.

19. The receipt given by an accountant or clerk for any money paid by the Contractor will not be considered as an acknowledgement of payment to the PAA and the Contractor shall be responsible for seeing that he procures a receipt signed by the Divisional Engineer or his authorized officer.

20. Bids will be opened and read in public on the date and time for the opening. Bidders whose bid security is received after the time set for receipt shall be rejected. Bidders who submit their bid security but their bids are not uploaded on EPADS or fail to show on EPADS will be considered and held as non-participants.





21. Additional Director / Project Manager / Divisional Engineer or his duly authorized representative shall open bids in the presence of intending Contractor who may be present at the time and will enter the amounts of all the bids in a Comparative Statement in a suitable form.
22. PAA reserves the rights to postpone the date or time of submission and opening of Bids. Should the date of opening the Bids be postponed, PAA shall give notice of such postponement.
23. The bid shall remain valid for a period of One Hundred & Twenty (180) days from the date of bid opening. In exceptional cases, before this period expires, PAA may request an extension—no longer than the original validity period. Bidders may refuse to extend the bid validity without losing their Bid Security. Those who agree must extend the Bid Security accordingly but cannot change their bids.
24. PAA is not bound to award the Contract to the lowest or to any Bidder and reserves the right to reject any or all Bids and to waive any formalities in the Bids received such as deviations in the use and presentation of the specified Bidding Documents and forms, if it appears to be in the interest of the PAA.
25. Bid shall be accepted by the competent officer of PAA. The acceptance of the Bid shall bind the Bidder to execute the Contract Agreement within the specified period failing which the Bidder shall forfeit his Bid Security not as penalty, but as liquidated damages.
26. For works costing more than Rs. 10 Million, the Contractor shall furnish to the PAA within fourteen (14) days after receipt of Letter of Acceptance, a Performance Security in the form of an irrevocable Bank Guarantee from the Banks approved by PAA (as per the list provided in Appendix-E to Bidding Documents) for an amount equaling to five percent (5%) of the total amount of bid at the time of signing the agreement. The irrevocable Performance Security shall have validity till thirty (30) days after the date of final completion of works. The bond for Performance Security shall be executed on non-judicial stamp paper of appropriate value.
27. For works costing more than Rs. 65 Million, the Contractor may be given a Mobilization Advance of up to 10% of the bid cost by PAA on production of an irrevocable bank guarantee of an equivalent amount from Banks approved by PAA (as per the list provided in Appendix-E to Bidding Documents). The same will be recovered at the rate of 10% of gross amount of the running bills of the Contractors.
28. Prior to engaging in the bidding process, the bidders should at their own cost, read and acquaint themselves with the PAA's procedure for blacklisting of contractors and suppliers available on PAA website: (<https://paawebadmin.paa.gov.pk/media/fdpcknji/caao-003-escw.pdf>)
29. The contractor shall supply the following equipment for use at ES Directorate, HQPAA office, to support the requisite project activities. The supplied equipment shall become the property of the client upon completion of Defect Liability Period (DLP) and no claim whatsoever in this regard will be entertained by client.
 - (i) 03 Nos. Laptops-Dell 16 Plus 2 in-1 DB06250 Intel Core Ultra 7 256V 16GB 1 TB SSD 16 inch WUXGA 2Kx360 Touch Display Backlit KB FPR Win 11 Ice Blue or Equivalent
 - (ii) 01 No. HP Laser Jet M612DN Black Printer or equivalent





MEMORANDUM

- a) **Name of Work** Provision, Installation, Testing and Commissioning of New Under Vehicle Surveillance System (UVSS), Hydraulic Road Blocker and Shed at Main Entrance Gate of IIAP
- b) **General Description of Works** --As Per Attached BOQ--
- c) **Bid shall be enclosed with (Bid Security)** PKR 1,500,000/- Call Deposit Receipt, Pay Order, or a Banker's Cheque from a scheduled bank in Pakistan, of an amount mentioned in the invitation to bids.
- d) **Security Deposit (including Bid Security)** Five per cent (5%) of the Contract Price.
- e) **Deduction of Income Tax** As per Income Tax Ordinance 2001 amended from time to time.
- f) **Time allowed for the work** 08 Months (from the date of written order to commence)
- g) **Bill of Quantities** As per attached schedule.



PAKISTAN AIRPORTS AUTHORITY

BOQ

NAME OF WORK: PROVISION, INSTALLATION, TESTING & COMMISSIONING OF NEW UNDER VEHICLE SURVEILLANCE SYSTEM (UVSS), HYDRAULIC ROAD BLOCKER AND SHED AT MAIN ENTRANCE GATE OF IIAP

GENERAL ABSTRACT OF COST

Sub Head - A

E&M Works

Total Sub Head - A = Rs. _____

Sub Head - B (I/II/III)

Civil Works

I Main UVSS Shed = Rs. _____

II Control Room, Electric Room and Allied Works = Rs. _____

III Water Supply and Sanitary Installations = Rs. _____

Total Sub Head - B (I+II+III) = Rs. _____

Grand Total (Sub Head A + Sub Head B) = Rs. _____

PAKISTAN AIRPORTS AUTHORITY
(ES E&M Works Division IIAP)

Name of Work: Provision, Installation, Testing and Commissioning of New Under Vehicle Surveillance System (UVSS), Hydraulic Road Blocker and Shed at Main Entrance Gate of IIAP

Sub Head-A: E&M WORKS

BOQ

Ref. No.	DESCRIPTION	QUANTITY		RATE		UNIT	TOTAL (PKR)
				Figures (PKR)	Words (PKR)		
1	Supply, Installation, Testing, Commissioning & Integration of Complete Area Scan UVSS System Package (all-Inclusive) comprising one (01) pit-mounted heavy-duty Area Scan UVSS (minimum 4K resolution); two (02) inductive loops (one for vehicle entry triggering of camera and lights and one for automatic de-activation after vehicle exit); operator workstation with Intel Core i-7 (12th Generation or above) processor, minimum 16 GB RAM and 2 TB storage (Dell / HP / Fujitsu or equivalent); 27-inch LED display; one (01) ANPR/LPR camera system (minimum 4 MP) with OCR software; one (01) driver face camera (minimum 4 MP); two (02) mounting poles; CAT-6 or fiber optic cable (FOC) cabling for complete system where required; inc. software configuration; testing, calibration; and one-time on-site training by OEM. The job shall also include all associated civil works, including excavation, RCC foundations for UVSS, camera poles and equipment, trenching, conduit laying, inductive loop cutting, laying, sealing and reinstatement, surface restoration, and all allied civil works complete in all respects, as per attached specifications and to the satisfaction of the Engineer-in-Charge.	4	Job			P/Job	
2	Providing, installation, configuration, and commissioning of a Centralized UVSS Management Server (CMS) Application for unified monitoring and management of up to five (05) UVSS units, including server-based CMS application installed on dedicated hardware for centralized management, five (05) client software licenses/packages for operator workstations, real-time monitoring of vehicle undercarriage scans, high-resolution image storage and archival, multi-user access control, event logging and alert management, database backup and recovery facilities, and complete system integration to ensure reliable centralized operation, complete in all respects as per specifications and instructions of the Engineer-in-Charge.	1	Job			P/Job	

 3	Providing, supply, installation, configuration, testing, and commissioning of an enterprise-grade CMS server and rack infrastructure, comprising a 1U rack-mount server chassis with sliding rails, equipped with one (01) Xeon Silver-class processor, 32 GB DDR4 ECC registered memory (2 × 16 GB), four (04) × 4 TB enterprise-grade SAS/SATA hot-plug hard disk drives, hardware RAID controller with minimum 2 GB cache, four (04) × 3.5-inch hot-plug drive caddies, dual redundant power supply units (1100 W each), and integrated enterprise-grade remote server management license, complete with all accessories including rails, power cords, and documentation. The system shall be installed in a 42U floor-standing 19-inch server rack cabinet of 600 mm width and 1000 mm depth, fabricated from heavy-duty steel construction, complete with perforated front and rear doors, lockable side panels, roof-mounted cooling fans, rack-mount power distribution units (PDUs), cable management accessories, and a complete grounding kit with mounting hardware, fully integrated and ready for operation as per specifications and instructions of the Engineer-in-Charge.	1	Job			P/Job	
4	Providing, supply, installation, testing, and commissioning of an Automatic Boom Barrier System suitable for security checkpoints, comprising a heavy-duty automatic boom barrier with minimum 5 million MTFB/MCBF, supporting a straight or folding boom arm up to 6.0 meters, driven by a high-performance electromechanical motor for continuous 24/7 operation, with adjustable opening and closing speeds for medium to high traffic. The system shall include an integrated control panel interfaced with UVSS, access control systems, and push buttons, along with safety features such as obstacle detection, emergency stop, and manual release, housed in an outdoor-rated, corrosion-resistant enclosure. The scope shall also include supply and installation of a VR10 radar vehicle detection system (as an alternative to inductive loop detector) for detection of stationary and moving vehicles, fully interlocked with the boom barrier control logic for safety and automatic operation. The system shall operate on 220–240 VAC, 50 Hz and include all civil works (excavation, concrete foundation, anchor bolts, conduits, and reinstatement), complete in all respects as per specifications and instructions of the Engineer-in-Charge.	4	Jobs			P/Job	
5	Providing, supplying, installation, fitting, fixing and commissioning of 12 Core steel armoured single mode Fiber Optics Cable in 2 inch light weight HDPE pipe buried in the ground and dully covered with warning cable tiles. The scope of work also includes provision, installation, fitting and fixing of 2x2 inch steel manhole at every 200 meters to the satisfaction of the Engineer-in-Charge.	1500	RM			P/RM	
 6	Providing, fixing and installing of 24u Floor Mounted IT Rack (with dual PDU) with Qty. 03 Network Cable Managers and Qty.01 Cat-06 Patch Panel Loaded complete in all respect as approved by the Engineer incharge.	1	Job			P/Job	

 7	Providing, Fixing & Installing 24 port POE Network switch with Qty. 04 single mode compatible SFPs including network integration and software configuration, complete in all respect as approved by the engineer incharge as required.	2	Job			P/Job	
8	Providing, supplying, installation, fitting, fixing and commissioning of 24 port ODF with Up & down fiber connectivity with required programming as needed, complete in all respect as approved by the Engineer incharge.	3	Job			P/Job	
9	Providing, installation, testing and commissioning of 3 meter LC-SC pair, complete in all respect as approved by the Engineer incharge.	16	Job			P/Job	
10	Providing, installation, testing and commissioning of 10 meter LC-SC pair, complete in all respect as approved by the Engineer incharge.	6	Job			P/Job	
11	Splicing of the Fiber Optic cable with Splicing machine and its allied matrail ,i/c complete testing & commissioning as approved by the Engineer incharge.	48	Job			P/Job	
12	Providing, punching, testing and commissioning of RJ-45 connector on both sides, complete in all respect as approved by the Engineer incharge.	100	Job			P/Job	
13	Providing and fixing of 25x25mm uPVC duct fitted on surface as required.	300	meter			P/RM	
14	Providing and installation of STP Cat-6 cables between UVSS system and Airport IT network in existing PVC conduit/duct i/c connectors complete in all respect as approved by the Engineer Incharge	600	meter			P/RM	
15	Providing and fixing of flexible pipe for CCTV Cat-6 cabling complete in all respect as approved by the Engineer Incharge	150	meter			P/RM	
16	Providing and installation of Cat-6 patch cords 4 meters with the end terminals in UVSS rooms.	40	Job			P/Job	
 17	Providing, supply, installation, testing, and commissioning of True Online Uninterruptible Power Supply (UPS) systems of 3 kVA capacity, based on double-conversion technology with pure sine wave output, built-in Automatic Voltage Regulation (AVR), LCD status display, and USB/communication interface for monitoring and diagnostics, complete with internal batteries. The UPS systems shall be suitable for continuous operation and for powering server rack equipment, networking devices, and security systems, complete in all respects as per specifications and instructions of the Engineer-in-Charge.	2	Job			P/Job	

 18	Supply, Installation, Testing & Commissioning of Hydraulic Road Blocker (K12 Rated), surface-mounted, heavy-duty anti-ram security barrier suitable for airport / high-security installations, complete with hydraulic power unit, PLC-based control panel, drive cabinet, manual control pendant, emergency manual operation, and all accessories, complete in all respects as per specifications and instructions of the Engineer-in-Charge.	4	Job			P/Job	
19	Supply, Installation, Testing, Commissioning of minimum 06 megapixels resolution, fixed POE camera with 32 GB SD card preinstalled, inside UVSS shed, 4mm lens, IP-67 rated or better, and its integration with Airport IT network including all liscences.	7	Job			P/Job	
20	Supply, installation, testing and commissioning of 4 megapixels PTZ Camera with 32 GB SD card preinstalled i/c. controller having specifications: At least 48x or higher zoom, Focal Length supporting ranges from 6 mm to 288 mm, 48x Optical Zoom or higher, Max. Resolution 2560x 1440 @ 25fPS, Digital Zoom 16X, IR Distance 500 mtr, Protection IP67 or better, and its integration with Airport IT network including all liscences (if any), complete in all respect as approved by the Engineer incharge.	2	Job			P/Job	
21	Supply, Installation, Testing, Commissioning of Fixed Traffic Camera with 32 GB SD card preinstalled, inside UVSS shed, having capability of counting vehicles and minimum 04 megapixels resolution with 4mm lens and its integration with Airport IT network including all liscences (if any), complete in all respect as approved by the Engineer incharge.	1	Job			P/Job	
22	Supply, Installation, Testing, Commissioning of workstation for central monitoring of UVSS Shed's CCTV cameras with minimum 13 Gen, Core i7 CPU, 16 GB Ram, 1 TB HDD, 4 GB Nvidea Graphics Card and 43 inch LCD supporting HDMI ports, alongwith allied accessories such as keyboard and mouse. The job also includes provision installation testing commissioning of 64 channel ANR supported NVR and its integration with UVSS shed cameras through Airport's IT network for central monitoring through this workstation.	1	Job			P/Job	
 23	Supply, installation, testing, and commissioning of M.S. fixed bollards fabricated from mild steel round pipe of 8-inch diameter with 8 mm wall thickness, complete with 2 ft x 2 ft mild steel base, 1.2 mm thick M.S. top cap, and finished with MS powder coating suitable for outdoor conditions. The bollard height shall be 700 mm above finished ground level, complete with high-visibility reflective tape on the top portion. The item shall include all associated civil works, comprising excavation/digging, foundation preparation, concrete, proper alignment and leveling, backfilling, compaction, and making good, as well as transportation, loading, unloading, manpower, tools, tackles, and materials, complete in all respects and to the satisfaction of the Engineer-in-Charge.	100	Jobs			P/Job	

 24	Relocation of existing 60 kVA Diesel Generator Set along with associated Automatic Transfer Switch (ATS) Panel from UVSS Location-1 on Main Incoming Road of Islamabad International Airport (IIAP) to the newly proposed UVSS location on Main Incoming Road of IIAP, including safe dismantling and isolation, disconnection of all power, control, signaling and earthing cables; loading, transportation and shifting with proper handling and safety precautions; re-installation, placement and alignment on the already provided foundations at the new location; re-termination of all power, control and earthing cables for both generator and ATS panel; complete testing, commissioning and functional verification, including changeover operations of ATS and generator load testing, complete in all respects and to the satisfaction of the Engineer-in-Charge.	1	Job			P/Job	
25	Providing & installation final testing, energization and commissioning of split type wall mounted T3 rated Air-conditioner DC inverter (heat and cool with R 410A), 1.5 tons capacity (18000 BTU / Hr) in the specified place as per attached technical specifications. The job includes all inter connections of outdoor unit fitted on roof or angle iron frame powder coated, making inter connection of the unit with suitable sizes of wire ,3 pin switch, also piping uPVC for condensed water, refrigerant pipes, PVC duct and civil work etc as required approved make, refrigerent topup to required level, PVC duct and civil work etc complete in all respect as per instruction of Engineer In-Charge.	3	Jobs			P/Job	
26	Providing, installation, testing and commissioning of Refrigerant Copper Pipe, 22 gauge with all type of fittings like, elbow, clamping, aero flex insulation, wrapping tape, etc complete- in all respect as approved by the Engineer Incharge.						
a	size 1/4" dia	25	RFT			P/RFT	
b	size 1/2" dia	25	RFT			P/RFT	
c	size 3/8" dia	25	RFT			P/RFT	
d	size 5/8" dia	25	RFT			P/RFT	
 27	Providing & laying 4 core 16mm ² , PVC insulated & PVC sheathed, 600/1000 volts grade with stranded copper conductor , armoured underground, L.T cable buried in the ground dully covered with sand and warning cable tiles as per Pak. P.W.D specification as required.	150	RM			P/RM	

	28	Supply & drawing of 6mm ² , single core, PVC insulated wire in all kinds existing or given conduit/cable duct as per Pak. P.W.D specification as required.	150	RM			P/RM
	29	Wiring for submain with 2 x 4 mm ² , PVC insulated wire 300/500 volts grade, single core, stranded copper conductor wire in 20 mm (3/4") dia PVC conduit recessed in the wall, column and roof etc including 1.5 mm ² insulated wire single core as ECC as required.	90	RM			P/RM
	30	Wiring for sub-main with 2x 2.5 mm ² , PVC insulated wire 300/500 volts grade, single core, stranded copper conductor wire in 20 mm (3/4") dia uPVC conduit recessed in the wall, column and roof etc including 1.5 mm ² PVC insulated wire single core wire as ECC as required.	180	RM			P/RM
	31	Providing & installing 140 Cm (56") sweep ceiling fan with blades, canopy, standard length of down rod including connection with 14.0076" flexible wire complete as required. (without regulator) Millat/Pak/ Younas/ GFC / Royal.	1	Nos.			Each
	32	Providing & fixing flush type, Piano Fan Dimmer for all sweep fans , fitted on existing/given sheet or board including connection as required.	1	Nos.			Each
	33	Providing & installing 30 Cm (12") sweep, metallic body Exhaust fan complete with blades, motor, etc fitted in existing hole including connection with 14.0076" flexible wire complete as required Millat/Pak/GFC/ Younas/Royal.	2	Nos.			Each
	34	Providing & fixing 6 Amps plastic ceiling rose on PVC Round block/Round Cover fitted on surface including connection as required.	2	Nos.			Each
	35	Supply & fixing 20mm (3/4") dia uPVC conduit with all especial such as bends, sockets, Junction etc fitted on surface as required.	20	RM			P/RM
	36	Supply & fixing 25mm (1") dia uPVC conduit with all especial such as bends, sockets, Junction etc fitted on surface as required.	20	RM			P/RM

							
37	Providing & fixing of 16x60 mm uPVC duct fitted on surface as required.	20	RM			P/RM	
38	Providing & fixing of 40x60 mm uPVC duct fitted on surface as required.	20	RM			P/RM	
39	Providing, installation, testing & commissioning of recessed / surface mounted LED 18-20 Watt ceiling light/downlight including driver having warm/natural white /cool white colour, 80-90 lm/watts efficiency 0.9 or above power factor, 20000-25000 hours life cycle, including connections complete in all respect as approved by the Engineer Incharge.	12	Nos.			Each	
40	Providing & fixing 15 Amps Polycarbonate flame retardant 3-Pin switch socket unit with fancy gang plate fixed on die fabricated, powder coated metal board recessed in wall or column including connection as required.	5	Nos.			Each	
41	Providing & fixing 10/15 Amps Polycarbonate flame retardant 2-Pin schuko socket unit (GR-Earth pin) with fancy gang plate fixed on die fabricated, powder coated metal board recessed in wall or column including connection as required.	24	Nos.			Each	
42	Providing & fixing 110 to 150 Amps, 4 pole, three phase bus bar strip fitted in given Distribution board complete with bus bar insulator, screws, bolts etc as required.	1	Nos.			Each	
43	Providing and fixing Earthing set with 2'x2'x1/4" copper plate buried in the ground at a depth of 12 feet or less if water comes out from the ground level (with salt and charcoal, or Earthing chemical Powder) etc making the pit 12 feet deep by excavation of all type of soil (except soft or hard rock) i/c fixing of 8 SWG copper wire in 1/2 " G.I conduit complete in all respect as required.	2	Job			P/Job	
44	Providing and fixing 1" diameter 3ft long lighting copper rod with five spikes and balls on its head as required.	2	Job			P/Job	
45	Providing and fixing 1-1/2" x 1/3" Thick copper strip with suitable saddle at 12" intervals complete as required.	50	Meter			P/M	
46	Wiring for light, fan or call bell point with 1.5 mm ² single core, PVC insulated wire copper conductor wire in 20 mm (3/4") dia uPVC conduit recessed in the wall or column, roof etc. including 1mm ² single core PVC insulated wire as ECC as required.	10	Points			Per Point	
							

47	Extension/Additional wiring for light, fan or call bell point controlled with same switch with 1.5mm ² PVC insulated wire in 20 mm (3/4") dia PVC conduit recessed in the wall or column, including 1mm ² PVC insulated wire as ECC as required.	10	Points			Per Point	
48	Providing & fixing 6 to 32 Amps, SP MCCB fixed on metal board recessed in the wall duly covered with fiber sheet, l/c inter-connection as required.	12	Nos			Each	
49	Providing & fixing 20 to 100 Amps, (Adjustable - High Breaking Capacity) 4 Pole circuit breaker fixed on existing board, l/c inter-connection as required.	2	Nos			Each	
50	Providing & fixing cubical type metal sheet vermin protected Distribution board as per drawing with locking arrangement duly powder coated l/c all fastening devices and electrical wire /leads for internal connection complete as required. (Different sizes, outdoor type)	8	Sft			P/Sft	
51	Providing & fixing pilot lamp set fitted on existing board l/c connection as required.	1	Set			Each	
52	Making termination of 16 mm ² to 25 mm ² , 3 or 4 core armoured/ un-armoured copper conductor, PVC X PVC L.T cable including providing & fixing proper lugs etc, as required.	6	Jobs			P/Job	
53	Providing, installation, Testing & Commissioning of LED Flood Lights of 100 watts (IP66) including driver, having warm / neutral white / cool white colour, 110-120 lm/watt efficiency, 0.9 or above power factor, 50000 hours life cycle, including connection, complete in all respect as approved by Engineer incharge.	4	Nos.			Each	
54	Providing & fixing Polycarbonate flame retardant Data socket 1 gang 8 contact Cat-6 with fancy gang plate fixed on die fabricated, PVC board recessed in wall including connection as required. (schneider / Philips / Pakistan Cables)	12	Nos.			Each	

 55	<p>Supply, Installation, Testing & Commissioning of 200W LED Canopy Light (Retrofit Type) for installation in UVSS shed / covered vehicle inspection area, complete in all respects, including mounting accessories, wiring, terminations. The luminaire shall have a rated power of 200 W \pm5%, high-efficiency SMD LED chips with 6500K cool daylight CCT, minimum luminous efficacy of \geq150 lm/W, suitable for providing high-intensity, uniform, and shadow-free illumination compatible with UVSS, ANPR, and driver-face camera systems. The fixture shall operate on 120–270VAC, 50 Hz, with power factor \geq0.95, THD \leq15%, and CRI \geq80, and shall be equipped with a high-quality isolated constant-current LED driver having built-in protections (short-circuit, over-voltage, over-temperature) and minimum 8 kV surge protection. The housing shall be heavy-duty die-cast aluminum with corrosion-resistant powder-coated finish and enhanced heat-sink design, fitted with UV-stabilized high-transmittance polycarbonate (PC) lens, having minimum IP65 ingress protection and IK08 or higher impact resistance, suitable for harsh environments. The luminaire shall support surface-mounted or recessed retrofit installation under metal, operate reliably within -20 °C to $+50$ °C, have a minimum rated LED life of \geq 50,000 hours, complete to the satisfaction of the Engineer-in-Charge.</p>	10	Nos.			Each	
56	<p>Supplying and installing 50W IP68 LED light (red/green/warm white/blue/purple) with 130–150 lm/W, 35,000–50,000 hrs life, CRI $>$80, PF $>$0.9, IK08, SPD $>$8kV, for 110–265VAC including 1 cft concrete foundation (1:2:4), two cable conduits for entry/exit of cables, and protective cage (1"x1" 8 SWG angle iron with 2"x2" 8 SWG mesh, size 1'x1'x1'), as per instructions of Engineer In-Charge.</p>	20	Jobs			Each	
Total							



Divisional Engineer ES E&M
North/IIAP Islamabad



PAKISTAN AIRPORTS AUTHORITY
E.S CIVIL DIVISION LANDSIDE
IIAP ISLAMABAD

CAAF-022-ESCW-1.0

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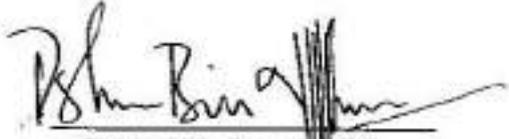
Name of Work	PROVISION OF SHED AT MAIN ENTRANCE GATE OF IIAP ISLAMABAD					
Location:	IIAP, Islamabad			Province:	Capital Territory	
Division:	Landside, IIAP			Sub-Division:	Dev. Works	
Sub.Head:	B- I (Main UVSS Shed)					
Item No.	Item Of Work / Description	Quantity	Rates			Amount (Rs.)
			In Figure	In Words	Unit	
1	Geotechnical investigation including excavation of test pits up to 1.5 m depth from N.S.L for including collection of soil samples, in-situ testing, and preparation of contract drawings and final report, complete in all respects as per Engineer-in-Charge.	1.00 Job			P.Job	
2	Cutting of existing road upto required depth in straight position with mechanical means i.e road cutting machine etc i/c cleaning complete as per direction of the engineer incharge.	1018.00 Rft			P.Rft	
3	Dismantling bitumen carpet of any description from existing road surface including its removal and disposal within three chains (91 m) lead as desired.	2157.00 Sft			100 Sft	
4	Dismantling of stone metalling from existing road from where bitumen carpet has already been removed and stacking the useful material within one chain (30.5 m) lead including disposal of surplus stuff within 3 chains (91 m) lead as desired.	3778.00 Cft			100 cft	

Item No.	Item Of Work / Description	Quantity	Rates			Amount (Rs.)
			In Figure	In Words	Unit	
5	Excavation for foundation trenches and drains in all kinds of soil (except gravelly and murum soil, wet silt, clay or mud conglomeration of gravel and boulders, soft, sandy or disintegrated sandy and hard rock) and back filling the excavated material in foundation, plinth or under floor including breaking clods, watering, consolidation by ramming in layers not exceeding 9 inches (229 mm) in depth to full compaction, dressing and disposal of surplus excavated stuff as directed, lead upto one chain (30.5 R.m) and lift upto 5 feet (1.52 m).	2771.00 Cft			100 cft	
6	Providing and laying soling stones 6 inches to 9 inches (152 mm to 229 mm) size under floors including packing with spawls and chips and consolidating etc. complete.	900.00 cft			100 cft	
7	Providing and laying 1:1-1/2:3 (1 cement 1-1/2 sand and 3 bajri) cement concrete using crushed graded boulders 3/4 inch (19 mm) and down gauge in foundation including levelling, compacting and curing etc. complete.	137.00 Cft			100 cft	
8	Providing and laying 1:4:8 (1 cement 4 sand and 8 coarse aggregate) cement concrete using crushed graded boulderes (mechine broken) and down gauge in foundation including levelling, compacting and curing etc.complete.	648.00 cft			100 cft	

Item No.	Item Of Work / Description	Quantity	Rates			Amount (Rs.)
			In Figure	In Words	Unit	
9	Providing and laying reinforced cement concrete using crushed graded bajri 3/4 inch (19 mm) and down gauge having a minimum works cube crushing strength of 3000 lbs. per sq inch (20.69 N/mm ²) at 28 days with a mix not leaner than 1:2:4 in column footing of required shape including form work and its removal, compacting and curing etc. complete but excluding the cost of reinforcement, in foundation basement and plinth					
	(i) RCC column footing of required size.	1207.00 cft			100 cft	
	(ii) RCC in column of square or rectangular shape in foundation and plinth.	461.00 cft			100 cft	
10	Providing and laying hard grade ribbed deformed (minimum yield point 60,000 psi) reinforcement bars with & including the cost of straightening, cutting, bending, binding, wastage, and such overlaps as are not shown in the drawings, placing in position on cement concrete 1:2:4 precast or m.s. chairs, tying with binding wire, cost of chairs and wires etc. in all kinds of RCC work in foundation, basement, plinth and ground floor of building including septic tanks and under ground tanks and in projections for future extension.	6089.00 Kg			P.kg	
11	Providing /Fixing Non shrink grout (114) in between RCC columns cap tip and MS base plate complete as per direction of the engineer incharge.	83.00 Sft			P.Sft	
12	Reflectorized aluminium pavement stud (raised profile type -double fixed with epoxy adhesive complete as per direction of engineer incharge.	324.00 Nos			Each	

Item No.	Item Of Work / Description	Quantity	Rates			Amount (Rs.)
			In Figure	In Words	Unit	
13	Providing/fixing structural steel comprising of M.S Schedule 40 Pipes in main members, M.S base/joining/stiffner plates, J-bolts including cost of epoxy painting complete in all respect as shown on the drawings/specifications and directions of the Engineer Incharge.	49500.00 Kg			P.Kg	
14	Providing and fixing of alucobond USA aluminium composite panels (cladding)4mm thick with 0.3/0.3mm skin thickness finished PVDF coat class B2 non FR.framing will be aluminium tube 2" x 1" with relevant fitting etc.complete the in all respect as directed by the engineer incharge.	10690.00 sft			P.Sft	
15	Providing and Fixing 26 Guage prepainted Ms sheet of approved colour and emboldened channel shape in external length fixing complete with hanger clips wires ,aluminum channels including the cost of cartage etc complete as per direction of engineer incharge.	6191.00 sft			P.Sft	
16	Providing and fixing plain polyvinyle chloride (PVC) water stops 12" (305 mm) wide in vertical or horizontal expansion joints including cutting and jointing etc. complete in all floors.	73.00 Rft			P.Rft	
					Total	

Contractor's Signature


Divisional Engineer (Civil)
Landside, IIAP Islamabad



PAKISTAN AIRPORTS AUTHORITY
E.S CIVIL DIVISION LANDSIDE
IIAP ISLAMABAD

CAAF-021-ESCW-1.0

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Name of Work:	PROVISION OF SHED AT MAIN ENTRANCE GATE OF IIAP ISLAMABAD.					
Location:	IIAP, Islamabad	Province:		Capital Territory		
Division:	Landside, IIAP	Sub-Division:		Development Works		
Sub head:	B-II (Control Room, Electric Room & Allied Works)					
S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
1	Leveling and dressing the ground by cutting and filling earth upto 6 inches (152 mm) in depth including consolidating and watering, complete as required.	526.85 Sft			100 Sft	
2	Excavation for foundation trenches and drains in all kinds of soil (except gravelly and murum soil, wet silt, clay or mud conglomeration of gravel and boulders, soft, sandy or disintegrated sandy and hard rock) and back filling the excavated material in foundation, plinth or under floor including breaking clods, watering, consolidation by ramming in layers not exceeding 9 inches (229 mm) in depth to full compaction, dressing and disposal of surplus excavated stuff as directed, lead upto one chain (30.5 R.m).	1,256.00 Cft			100 Cft	
3	Providing and carrying out termite proffing in foundations, under floors and wood work surface with a solution using of confront TC with water and spraying the solution of the area to be treated as completed as per direction of Engineer Incharge.	849.66 Sft			P.Sft	
4	Providing and laying soling stones 6 inches to 9 inches (152 mm to 229 mm) size under floors including packing with spawls and chips and consolidating etc. complete.	248.00 cft			100 cft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
5	Providing and laying 1:4:8 (1 cement 4 sand and 8 coarse aggregate) cement concrete using crushed graded boulders (machine broken) 1 inches (51 mm) and down gauge in foundation including levelling, compacting and curing etc. complete.	216.73 Cft			100 Cft	
6	Providing and laying in situ 1:3:6 (1 cement 3 sand and 6 coarse aggregate) cement concrete using crushed graded boulders 3/4 inch (19 mm) and down gauge in foundation, basement and plinth including form work, compacting, curing and removal of form work etc. complete, foundation and basement up to 5 feet (1.52 m) depth and plinth up to 4 feet (1.2 m) height from ground level.	162.00 Cft			100 Cft	
7	Providing and laying gola 3" x 3" (76 mm x 76 mm) concrete 1:2:4 using graded screened bari at junction of roof slab and walls and finished with cement plaster 1:4 including curing etc. complete.	47.00 Rft			100 Rft	
8	Making drip course 1/2" x 3/8" (13 mm x 9.5 mm) size under R.C.C. or C.C. coping and chajja etc. complete in all floors including cost of extra cement mortar 1:3 and curing etc., complete.	140.09 Rft			100 Rft	
9	Providing and fixing 4" (100 mm) dia polyvinyl chloride (PVC) bend of any degree for rain water down pipe with clamps, bolts and nuts in cement concrete 1:2:4 etc. complete.	4.00 Nos			Each	
10	Providing and fixing 4" (100 mm) dia polyvinyl chloride rain water (PVC) down pipe with mild steel clamps, bolts and nuts fixed in cement concrete 1:2:4 etc. complete.	23.00 Rft			Rft	
11	P/L RCC using crushed graded boulders 3/4" & down gauge with lawrencepur sand having min.works cube crushing strength of 3750 PSI at 28 days with a mix not leaner than 1:1-1/2:3 l/c form work & its removal compacting & curing etc. complete but excluding the cost of steel reinforcement..					

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
i	In column Footing of required size.	216.00 Cft			100 Cft	
ii	In Neck column Angular or Cross Shape in foundation basement and plinth.	11.00 Cft			100 Cft	
iii	In plinth beams of required shape and design in foundation basement and plinth.	119.98 Cft			100 Cft	
iv	In columns of Angular or Cross Shape in G/floor superstructure.	70.00 Cft			100 Cft	
iv	In straight beams, cantilever beams Lintel Sills of required shape/section in basement and ground floor.	129.00 Cft			100 Cft	
vi	In ordinary slab More then 6" thick in basement, plinth and ground floor.	195.00 Cft			100 Cft	
vii	in Slab horizontal Sunshade and chajja G/F	183.78 Cft			100 Cft	
vii	in Rcc Parapet G/F	68.84 Cft			100 Cft	
12	Providing and laying hard grade ribbed deformed (minimum yield point 60,000 psi) reinforcement bars with & including the cost of straightening, cutting, bending, binding, wastage, and such overlaps as are not shown in the drawings, placing in position on cement concrete 1:2:4 precast or m.s. chairs, tying with binding wire, cost of chairs and wires etc. in all kinds of RCC work in foundation, basement, plinth and ground floor of building including septic tanks and under ground tanks and in projections for future extension ..	3,655.00 Kg			P.Kg	
13	Providing and coated with two coats of hot bitumen of 10/20 grade @0. 40 Lbs. per sft of all structure surface against which earth to be held basement and ground floor.	611.00 Sft			P.Sft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
14	Providing and laying 1/2" (13mm) thick marble patties (panel strips) up to 1-1/2" (38 mm) depth in floor and dado of any description in all floor.	82.00 Rft			P.Rft	
15	Providing and laying in situ 1:2:4 (1 cement 2 sand and 4 coarse aggregate) cement concrete using crushed graded boulder 3/4 inch (19 mm) and down gauge in foundation, basement and plinth including form work, compacting, curing and removal of form work etc. complete, foundation and basement up to 5 feet depth (1.52 m) and plinth up to 4 feet (1.2 m) height from ground level	322.00 Cft			100 Cft	
16	Providing and laying 1:2:4 cement concrete solid block masonry more than 6 inches (152 mm) thick using graded screened bajri 3/4 inch (19 mm) and down gauge set in cement sand mortar 1:4 including scaffolding, raking out joints and curing etc. complete in ground floor superstructure.	378.00 Cft			100 Cft	
17	Providing and laying 1:2:4 cement concrete solid block, masonry 4 to 6 inches (102 mm to 152 mm) thick using graded screened bajri 3/4 inch (19 mm) and down gauge set in cement sand mortar 1:4 including scaffolding, raking out joints and curing etc. complete in ground floor superstructure.	26.05 Cft			100 Cft	
18	P/F 22 gauge expanded metal (XPM) Wire netting / jali between the Masonry and RCC Structure joints to protect from the cracks complete in all respects i/c the cost of nail, washers etc. complete as per direction of Engineer-in-Charge.	411.09 Sft			P.Sft	
19	1/2" (13 mm) thick cement plaster 1:4 on walls and columns etc. in basement, plinth, mezzanine and ground floor including making edges, corners, and curing etc., complete.	1,004.26 Sft			100 Sft	
20	3/4" (13 mm) thick cement plaster 1:4 on walls and columns etc. in basement, plinth, mezzanine and ground floor including making edges, corners, and curing etc., complete.	2,031.98 Sft			100 Sft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
21	Extra if deep cut grooves of approved sizes and design are made on plastered surface of any description in any floor.	943.72 Sft			100 Sft	
22	Providing and fixing fully glazed Silver anodized aluminium Fixed windows Partition as per British standard manufactured by Lucky, Alcop, Krudson, Pakistan Cables and A.C.P. , (fixing through their approved fabricators) Deluxe model box section 101.76mm x 44.50mm and 2mm thick including the cost of aluminium fittings, with all accessories cutting hole etc. and making good damages to walls etc. complete as required in any floor as per direction of engineer-in-charge, but excluding the cost of glass pans.	106.00 Sft			P.Sft	
23	Providing and fixing double glazed Silver anodized aluminium Sliding windows as per British standard manufactured by Lucky, Alcop, Krudson, Pakistan Cables and A.C.P. (fixing through their approved fabricators), Executive model section double or single glazed 101mm x 37mm and 2mm thick including the cost of aluminium netting ,fitting, with all accessories cutting hole etc. and making good damages to walls etc. complete as required in any floor as per direction of engineer-in-charge, but excluding the cost of glass pans.	2.00 Sft			P.Sft	
24	Providing and fixing fully glazed Silver anodized aluminium Swing door with frame as per British standard manufactured by Lucky,Alcop, Krudson, Pakistan cable and A.C.P (fixing through their approved fabrocaters), Deluxe model section, 101.6mm x 44.5mm and 1.6mm thick including the aluminium fittings, with all accessories cutting hole etc. and making good damages to walls etc. complete as required in any floor as per direction of engineer-in-charge, but excluding the cost of glass pans.	23.00 Sft			P.Sft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
25	Providing and fixing plain glass panes 5mm thick to M.S. Box pipe / Aluminium doors, windows and ventilators etc including the cost of labour but excluding the cost of M.S. square pipe beading, rubber packing and screw in any floor at any height.	131.00 Sft			P.Sft	
26	Providing and fixing with brass screws or specially supplied screws hydraulic door closer Rayobi of approved design No.72, japan make, cutting wood etc., to required shape and size as per direction of engineer-in-charge.	1.00 Nos.			Each	
27	Providing and fixing M.S. moulded steel door frames manufactured from mild steel sheet of 18 gauge (1.41 mm) conforming to B.S.S. 1245, provision of 3 Nos. M.S. plate, section 1-1/2" x 1/4" (38 mm x 6 mm) (2 Nos. 6 inch long welded with frame at not less than 10 points and 1 Nos. 12 inch long welded with frame at not less than 20 points), with holes and threads for fixing steel hinges, fitted with one locking box of same sheet (point welded inside the frame), 6 Nos. 6 inches long flat iron fixing lugs of 1-1/4" x 3/16" section, treated with special red oxide primer coat all around including cutting holes and filling the cavity with cement concrete 1:2:4 etc. in any floor at any height complete as directed by the Engineer-in-Charge					
	(i) of 5.73" x 2-1/2' having a single/double rebate size 1-1/2" x 1/2".	17.34 Rft			P.Rft	
28	Providing and fixing 1-3/4 inch (44 mm) thick best quality deodar wood shutters fully panelled with same wood, approved iron hinges and tower bolts, etc., as required.	34.00 Sft			P.Sft	
29	Providing and fixing on frames etc., with sunken iron screws best quality deodar wood moulding beading, architrave etc., of approved design up-to one square inch (6.45 Sqm) in cross section as required.	17.00 Rft			P.Rft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
30	Providing and fixing with C.P. brass screws main door handle type yale lock (Italy make) of approved design, cutting wood etc., to required size, with two operating keys, as per direction of the engineer-in-Charge.	2.00 Nos.			Each	
31	Providing & laying of Aluminium foil 4mm thick Ezogrip of approved quality i/c the cost of clearing roof, cartage, wastage etc completed as per direction of Engineer incharge in any height in any floor.	368.00 Sft			Sft	
32	Providing and laying 1:9 cement concrete using screened graded bajri 3/4 inch (19 mm) and down gauge in terracing 3 inches (76 mm) average thickness to required slope in panels including form work, consolidation, finishing, curing etc. and painting the surface with plastic bitumen No. 4 at the rate of 15 lbs per hundred square feet (0.73 Kg per s.m) blinded with sand at the rate of 2 cubic feet per hundred square feet (0.06 Kg per s.m) complete" on ground floor roof.	324.00 Sft			100 Sft	
33	Providing and laying 1:2:4 cement concrete Khurras 2" (51 mm) thick 2 ft x 2 ft. (610 mm x 610 mm) size on roof including finishing with cement plaster 1:4, curing etc. complete.	2.00 Nos			Each	
34	Painting three coats with weather shield paint deluxe (ICI) make of approved shade on plaster surface (External) and including the cost of cleaning the surface, sand papering etc. complete at any height in any floor.	1,651.00 Sft			100 Sft	
35	Painting with (ICI) Dulux plastic emulsion paint VIP of approved shade two coats over and including the cost of one priming coat complete over plastered surface at any height in any floor.	1,048.00 Sft			100 Sft	
36	Painting iron work with synthetic enamel paint of approved make and shade two coats over and including the cost of one priming coat complete at any height in any floor.	17.50 Sft			100 Sft	

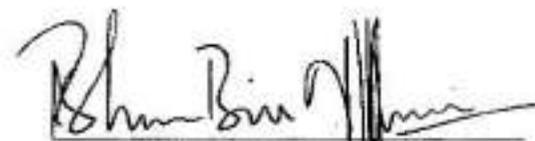
S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
37	Painting wood work with synthetic enamel paint of approved make and shade two coats over and including the cost of one priming coat complete at any height in any floor.	51.36 Sft			100 Sft	
38	Providing and laying light colour, glazed/non skid vitrified porcelean tiles (Polished) exceeding 1600 Sqcm and upto 3600 each, (Pak made) on walls and floors, in any floor, laid with dry bond (stile bond) over a base of 1" thick cement mortar (1:3) including jointing to tiles with joint filler of approved quality as per direction of the Engineer incharge.	360.34 Sft			100 Sft	
39	Providing and fixing damp ceiling aluminium China make 2' X 2' tiles/strip ceiling including all accessories i.e plump, rod etc complete as required in any floor.	286.78 Sft			P.Sft	
40	Providing and laying floor of 6mm (approx: 1/4") thick white glazed tiles 12" x12" (304mm x 304mm) of master make (Pakistani) first grade in ground floor laid over 1" (25mm) thick cement mortar 1:2 (1 cement and 2 sand) including jointing and washing the tiles with white cement slurry and curing etc, complete.	39.00 Sft			100 Sft	
41	Providing and fixing 1/4 inches or 6.4 mm (approx.) thick approved Pakistani make white glazed tiles upto 1.5 Square feet size in dado and skirting in ground floor, over 1/2 inch (13 mm) thick base of cement mortar 1:3 setting of tiles in slurry of grey cement over mortar base including filling the joints and washing the tile with white cement slurry curing and cleaning etc. complete .	123.30 Sft			100 Sft	
42	Providing and laying floor of 1 inch (25 mm) thick Granite marble tiles of Pakistani origin, fine dressed on the surface without winding in ground floor over 1 inch (25 mm) cement mortar 1:4 (one cement, four sand) setting the marble tiles with grey cement slurry over cement mortar, jointing and washing the tiles with white cement slurry including curing, rubbing and polishing etc, complete including the cost of mortar.					

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
	(A) more than 5 Sq.ft. upto 7 Sq.ft for stair/steps(in treads, risers and midstair landings) G/F.	11.00 Sft			100 Sft	
	(B) From 1Sq.ft. upto 3 Sq.ft for stair/steps(in treads, risers and midstair landings) G/F.	15.15 Sft			100 Sft	
43	Extra for making nosing of treads as per design and instructions of the Engineer-in-Charge .	22.00 Rft			P.Rft	
44	Providing and laying road kerb of precast cement concrete 1:2:4 (24" long 6" wide and 12" deep (610 mm long 152 mm wide and 305 mm deep) using screened graded bajri, from work and its removal compacting and curing laid in cement mortar 1:4 and cement plaster 1:4 neatly finished including cost of excavation and back filling of excavated stuff and its disposal within one chain lead as desired.	491.00 Rft			100 Rft	
45	Providing and laying in floor C.C. 1:2:4: tuff paver 2-1/2" thick of approved design and colour pattern laid on sand cushion filling of joint with sand and warring etc. complete as per direction of Engineer Incharge. (the cost of sand cushion is included) Average Strength 5000 Psi.	400.00 Sft			P.Sft	
46	Providing M. S. tees, angles and flats including fixing in position etc. complete in ground floor.	320.00 Kg			P.Kg	
47	Dismantling lime or cement concrete in foundation or under floor basement, plinth and ground floor and disposing of surplus material as directed within three chains (91.5 m).	27.50 Cft			100 Cft	
48	Excavation or cutting in all kinds of soil (except gravelly, murum, wet silt, clay or mud and rock) to a required grade, camber and side slopes including dressing top and disposal of excavated stuff within a lift of 5 ft. and lead upto 9.60 Km.	5,534.10 Cft			100 Cft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
49	Preparation of sub-grade over bottom of excavation with required dressing to required grade, camber and side slopes including cutting to required depth and breaking clods watering and consolidation with suitable mechanical means to attain minimum density of 95% modified A.A.S.H.O. maximum dry density for top 6" (152mm) layers including disposal of surplus earth within 3 chains (92 m) lead complete .	4730 Sft			100 Sft	
50	Supplying and laying machine crushed 3" to 3/4" (76 mm to 19 mm) stone ballast of approved grade and quality in sub-base or base courses in required grade and camber and compacting to the required density by approved mechanical means (Vibratory Roller, Road Packer and Smooth Wheel Roller etc.) including watering with all lead and lift complete (actual compacted depth shall be considered for payment) .	2365 Cft			100 Cft	
51	Supplying and laying machine crushed 2" to 1/2" (51 mm to 13 mm) stone ballast of approved grade and quality in sub-base or base courses in required grade and camber and compacting to the required density by approved mechanical means (Vibratory Roller, Road Packer and Smooth Wheel Roller etc.) including watering with all lead and lift complete (actual compacted depth shall be considered for payment).	2365 Cft			100 Cft	
52	Providing and laying hot-mix bituminous concrete runway pavement laid with mechanical paver and mixed in central mixing plant in required thickness and density, rolled hot with different types of rollers complete as per specifications and job-mix formula and design: in two layers upto 3" thickness including priming coat @20 Lbs per %Sft complete..	52.17 Tonne			P Tonne	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
53	Pavement marking in non-reflective CR PAINT for lines of 15cm width, with road marking machine complete as per direction of Engineer incharge.	330.00 Rft			P.Rft	
54	Refectoised plastic pavement stud (raised profile type-single), fixed with epoxy adhesive complete as per direction of the Engineer incharge.	492.00 Each			Each	
					Total	

Contractor's Signature


Divisional Engineer (S Civil)
Landside, IAP Islamabad



PAKISTAN AIRPORTS AUTHORITY
E.S CIVIL DIVISION LANDSIDE
IIAP ISLAMABAD
B.O.Q

CAAF-021-ESCW-1.0

Name of Work:	PROVISION OF SHED AT MAIN ENTRANCE GATE OF IIAP ISLAMABAD.		
Location:	IIAP, Islamabad	Province:	Capital Territory
Division:	Landside, IIAP	Sub-Division:	Development Works
Sub-Head:	B-III (Water Supply & Sanitary Installations)		

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
1	Providing and fixing best quality squatting type white glazed earthenware W.C Pan, Pakistani (of not less than 18 inches clear opening as measured between flushing rims) complete with and including the cost of best quality low level plastic flushing cistem of standard size with internal fittings complete, P.V.C. flushing pipe suitable for squatting type with extra bends and length with fittings, C.I. trap 4 inches (100mm) dia and making requisite number of holes in walls, plinth & floor for pipe connection and making good in cement concrete 1:2:4.	1.00 Nos.			Each	
2	Providing and fixing 22 inches x 16 inches (560 x 406 mm) lavatory basin in white glazed earthenware (Pakistani) complete with and including the cost of Brass oxidized bolts kit built into walls 1/2 inches (15 mm) dia. Chrome plated mixer, 1-1/4 inches (32 mm) rubber plug and chrome plated brass chain 1-1/4 inches (32 mm) dia brass waste of approved pattern 1-1/4 inches (32 mm) dia chromium plated battal trap with unions and making requisite, number of holes in walls, plinth and floor for pipe connections and making good in cement concrete 1:2:4.	1.00 Nos.			Each	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
3	Providing manhole type 'B' size 3 feet x 2-1/2 feet or 914 mm x 762 mm (inside dimensions) x 4 feet (1219 mm deep as per approved design and specifications complete for 4 inches to 12 inches (100 mm to 305 mm) dia. Pipe 4 feet to 7 feet-5 inches (1.22 m to 2.26m) depth with 18 inches (457 mm) dia. (inside) cast iron cover and frame (weights 1 Cwt. 3 Qrs.) or 88.9 kg, fixed in R.C.C.1:2:4 slab 6 inches (152 mm) thick, 9 inches (229 mm) thick burnt brick masonry walls set in 1:4 C.M., 6 inches (152 mm) thick 1:3:6 C.C. in foundation, 1:2:4 C.C. in benching and 1/2 inch (13 mm) thick cement plaster in 1:3 C.M., to all inside wall surfaces, channels and benching etc. and to top including providing and fixing cast iron foot rest at every foot of depth and making requisite number of main and branch channels but excluding the cost of excavation, back filling, disposal of excavated stuff, manhole cover and frame.	2.00 Nos.			Each	
4	Providing R.C.C. pipes and collars of class 'B' and fixing in trench including cutting, fitting and jointing with maxphalt composition and cement mortar (1:1) and back filling the excavated material in trench including testing with water to a pressure head of 50 feet (15.24m) and cartage within 10 miles (16.09 km), for 12 inches (100 mm)dia. pipe.	50.00 Rft			P.Rft	
5	Making Connection with the existing manhole including the cost of cutting holes in walls, making them good in cement concrete 1:2:4 and making the required channel etc. complete.	2.00 Nos			Each	
6	Excavation in all kinds of soil, murum, hard, average or soft including lift up to 5 feet (1.52 m) and lead up to one chain (30.48 m).	228.00 CR			100 CR	
7	Providing and fixing un plasticized polyvinyl chloride pipe (U.P.V.C) 'D' class and specials etc. including cutting and fitting complete with and including the cost of cutting trench upto 1-1/2 feet deep refilling, watering, ramming, and disposal of surplus earth within one chain and after cleaning the pipe and cartage within 10 miles (16.09 km.) (working pressure 12 kg/cm ²)					

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
a	Do Do. 4 inches (100mm) dia pipe.	40.00 Rft			P.Rft	
b	Do Do. 3 inches (80 mm) dia pipe.	10.00 Rft			P.Rft	
c	Do Do. 2 Inches (50 mm) dia pipe.	20.00 Rft			P.Rft	
d	Do Do. 6 inches (150 mm) dia pipe.	80.00 Rft			P.Rft	
8	Providing and Fixing PPRC pipe PN-20 with specials and clamps etc, including cutting and fitting complete with and including the cost of breaking through walls and roof making good etc, after cleaning the pipe and cartage within 10 miles.					
a	Do. Do. 32mm dia pipe External Side.	35.00 Rft			P.Rft	
b	Do. Do. 50mm External Side.	20.00 Rft			P.Rft	
c	Do. Do. 40mm External Side.	19.00 Rft			P.Rft	
d	Do. Do. 25mm External Side.	15.00 Rft			P.Rft	
9	Providing and fixing a full way gun metal valves with wheels threaded or flanged ends with rubber washers, (standard pattern).					
a	2"(50mm) dia.	2.00 Nos			Each	
b	1-1/4" dia.(32mm).	1.00 No.			Each	
c	1" dia(25mm).	2.00 Nos			Each	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
10	Providing and fixing gun-metal non-return valves with male and female ends as required. 2" inches (50 mm) dia.	1.00 No.			Each	
11	Providing and fixing water tank made of food grade polyethylene material 500 gallon (Supper tuff) i/c cost of specials and cartage upto site as per direction of Engineer in charge.	1.00 No.			Each	
12	Providing and fixing bath room accessories of set of 6 pieces consist of one shelf, one towel rod with bracket, one towel ring, one soap dish, one tooth Brush holder with glass, one tissue paper holder one double hook etc complete of approved quality as per direction of Engineer in-charge.	1.00 No.			Each	
13	Providing and fixing standing wall shower of CP brass 3 knobs of approved quality mixer unit and moveable shower head complete.	1.00 No.			Each	
14	Providing and fixing 2" dia. best quality float valve complete as per direction of Engineer Incharge.	1.00 No.			Each	
15	Providing and fixing uPVC Multi floor trape of sizes with gratings including cutting and makeing the requisite number of holes in walls plinth and floors and making good in 1:2:4, C.C.	1.00 No.			Each	
16	Providing and fixing chromium plated Muslim bib-cock with Muslim Shower of approved quality.	1.00 No.			Each	
17	Providing and fixing 1/2 inches dia (15mm) CP stop cock / Tee Stop cock.	3.00 Nos.			Each	
18	Providing and fixing floor waste 6"x6" (Stainless Steel) Jali etc complete.	1.00 No.			Each	
19	Providing and fixing 24 inches x 18 inches (610 mm x 457 mm) looking mirror of Imported glass 5 mm thick fixing with CP clamps and screws.	1.00 No.			Each	

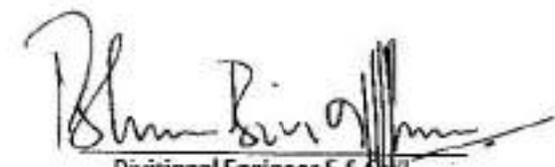
S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
20	Providing and fixing 6" x 6" (150 mm x 150 mm) with 4 inches (100 mm) outlet cement concrete C.I. gully trap wt: 42 lbs. (19 kg.) complete with 4 inches thick (100 mm) 1:2:4 cement concrete for bed and kerb, 1/2 inch (13 mm) thick cement plaster (1:3) to the kerb, C.I. grating 6 inches x 6 inches (150 mm x 150 mm) and C.I. cover and frame 12 inches x 12 inches (305 mm x 305 mm) (inside) etc., complete.	1.00 No.			Each	
21	Excavation for raft foundations, underground tanks and septic tanks (rectangular or square) in all kinds of soil (except gravelly and murum soil wet silt, clay or mud, conglomeration of gravel and boulders, soft, sandy or disintegrated and hard rock) and back filling the excavated material all round the trenches including breaking clods, watering, consolidation by ramming in layers not exceeding 9 inches (229 mm) in depth to full compaction, dressing and disposal of surplus excavated stuff as directed, lead up to one chain (30.5 R.m) and lift upto 5 feet (1.52 m).					
	a) Upto 5' Depth (Septic Tank)	315.00 Cft			100 Cft	
	b) 5' to 8' Depth (Septic Tank)	189.00 Cft			100 Cft	
	c) Upto 5' Depth in circular soak pits	267.30 Cft			100 Cft	
	d) 5' to 8' Depth in circular soak pits	160.38 Cft			100 Cft	
	e) 8' to 11' Depth in circular soak pits	160.38 Cft			100 Cft	
	f) 11' to 14' Depth in circular soak pits	160.38 Cft			100 Cft	
	g) 14' to 17' Depth in circular soak pits	160.38 Cft			100 Cft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
	h) 17' to 20' Depth in circular soak pits	160.38 Cft			100 Cft	
22	Providing and laying in situ 1:4:8 (1 cement 4 sand and 8 coarse aggregate) cement concrete using screened graded bajri 3/4 inch (19 mm) and down gauge in foundation, basement and plinth including form work, compacting, curing and removal of form work etc. complete, foundation and basement up to 5 feet (1.52 R.m) depth and plinth up to 4 feet (1.2 R-m) height from ground level.	23.41 Cft			100 Cft	
23	Providing and laying reinforced cement concrete using screened graded bajri 3/4 inch (19 mm) and down gauge having a minimum works cube crushing strength of 2250 lbs. per sq. inch (15.52 N/mm ²) at 28 days with a mix not leaner than 1:2:4 in foundation or bottom slab of rectangular underground tank including form works and its removal, levelling, compacting and curing etc. complete but excluding the cost of reinforcement.	4.25 Cft			100 Cft	
24	Providing and laying reinforced cement concrete using screened graded bajri 3/4 inch (19 mm) and down gauge having a minimum works cube crushing strength of 2250 lbs. per sq. inch (15.52 N/mm ²) at 28 days with a mix not leaner than 1:2:4 in walls of rectangular underground water tank or septic tank including form works and its removal, compacting and curing etc. complete, but excluding the cost of reinforcement.	180.38 Cft			100 Cft	
25	Providing and laying first class solid burnt brick masonry in cement mortar 1:3 wells (steining) 9 inches (229 mm) to 13-1/2 inch (343 mm) thick including scaffolding curing etc. complete depth upto 10 feet (3.05 m)	320.20 Cft			100 Cft	
26	1/2" (13 mm) thick cement plaster 1:4 on walls and columns etc. in basement, plinth, mezzanine and ground floor including making edges, corners, and curing etc., complete.	156.00 Sft			100 Sft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
27	Providing and laying reinforced cement concrete using screened graded bajri 3/4 inch (19 mm) and down gauge having a minimum works cube crushing strength of 2250 lbs. per sq. inch (15.52 N/mm ²) at 28 days with a mix not leaner than 1:2:4 in top slab of rectangular underground water tank or septic tank its removal, compacting and curing ate. complete but excluding the cost of reinforcement.	81.09 Cft			100 Cft	
28	Providing and laying hard grade ribbed deformed (minimum yield point 60,000 psi) reinforcement bars with & including the cost of straightening, cutting, bending, binding, wastage, and such overlaps as are not shown in the drawings, placing in position on cement concrete 1:2:4 precast or m.s. chairs, tying with binding wire, cost of chairs and wires etc. in all kinds of RCC work in foundation, basement, plinth and ground floor of building including septic tanks and under ground tanks and in projections for future extension.	1084.73 Kg			P.Kg	
29	Filling brick bats available at site in foundation, plinth or under floor, etc. including spreading, filling voids with smaller bats and consolidation by ramming in layers not exceeding 9 inches (229 mm) in depth to full compaction complete within a lead of one chain (30.5 R.m) and lift of 5 feet (1.52 m).	155.49 Cft			100 Cft	
30	Providing & fixing C.I Cover & Frame 24" dia (610 mm) weight 2 cwt 2 Qtr (127.00 Kg.)	3.00 Nos			Each	
31	Excavation in all kind of soils in trenches and channels including dressing to required section and back filling excavated stuff including watering, ramming etc. in layers as per direction of Engineer-in-Charge and disposal of surplus earth complete: lift upto 5 ft. (1.52 m) and lead upto 100ft. (30.5 m).	15900.00 Cft			100 Cft	
32	Excavation in all kinds of soil, murum, hard, average or soft including lift up to 5 feet (1.52m) and lead upto one chain (30.48 m).	10600.00 Cft			100 Cft	
33	Providing and fixing 50mm e/d polyethylene pipe (HDPE) (PN-16) with specials including cutting and fitting complete and cartage within 10 miles.	2650.00 Rft			P.Rft	

S.No	Item of Work	Qty	RATES			Amount
			In Figure	In Words	Unit	
34	Providing chamber 2-1/2 feet x 1-1/2 feet or 765 mm x 460 mm (inside dimension) x 4-1/2 feet (1372 mm) deep as per approved design for sluice valve 3 inches to 12 inches (80 mm to 305 mm) dia. with 18 inches (460 mm) dia. (inside) cast iron cover and frame (wt. =1.3 Qtr. or 88.9 kg) fixed in R.C.C. 1:2:4 slab 4 inches (100 mm) thick (with 5 lbs. steel per Cft. or 80.09 kg/cm) 9 inches (229 mm) thick burnt brick masonry walls set in 1:6 C.M., 6 inches (152 mm) thick C.C. 1:3:6 in foundation, 1 inch (25 mm) thick C.C. 1:2:4 flooring 1/2 inch (13 mm) thick cement plaster 1:3 to all inside wall surfaces and to top, including providing and fixing C.I. foot rest at every one foot beyond 2-1/2 feet (765 mm) depth, curing, excavation, back filling and disposal of surplus earth etc. complete...	10.00 Each			Each	
35	Supplying and stacking with all lead and lift: coarse sand or fine aggregate of approved quality and grading including filling in trenches with or without blinding with coarse sand or fine aggregate in different layers as per design and direction of the Engineer-in-Charge including watering, ramming etc complete.	10600.00 CR			100 Cft	
					Total	

Contractor's Signature


Divisional Engineer E.S. Civil
Landside, IIAP Islamabad



TECHNICAL SPECIFICATIONS

BOQ ITEM NO. 01: UVSS SYSTEM WITH APNR AND DRIVER FACE CAMERA

1.1 GENERAL DESCRIPTION

The UVSS shall provide real-time undercarriage imaging and ANPR functionality for 24/7 operation at high-security premises such as airports, defense installations, government complexes, and critical infrastructure facilities.

The UVSS shall comprise ruggedized scanning hardware, pole-mounted ANPR camera, Driver Face Camera, intelligent image processing software, dynamic lighting modules, monitoring interface, and integration with access control and surveillance systems.

The system shall be capable of automatic detection and alert generation for any deviation or anomaly in undercarriage geometry, vehicle profile, or number-plate data, with optional AI-based analysis modules for pattern recognition and threat classification.

1.2 UVSS SYSTEM

1.2.1 UVSS Camera Technology

- Imaging Type: Area Scan Technology ensuring full undercarriage capture in a single frame without stitching distortion.
- Camera Resolution: Minimum 4K resolution high-definition camera capable of capturing ultra-clear images of vehicle chassis and components.
- Frame Rate: Minimum 30 frames per second @ 4K to prevent motion blur for moving vehicles.
- View Angle: Minimum 180° field of view (wheel-to-wheel coverage).
- Vehicle Speed Support: System shall support vehicle speeds ranging from 0 km/h to 60 km/h without image distortion or blur.
- Low-Light Capability: Camera shall perform effectively under low illumination (minimum 0.01 Lux).
- Connectivity: System shall use Fiber Optic Cable (FOC) or Ethernet Cable for UVSS camera connectivity to ensure interference-free, high-speed data transmission and immunity from electromagnetic interference, lightning, heat, and long-distance signal loss.
- Video Output: Real-time image streaming up to 4K resolution.
- Vehicle Stoppage Tolerance: The UVSS shall maintain image stability and data accuracy even when a vehicle remains stationary over the scanner for up to 10 seconds

1.2.2 Lighting System

- Lighting Type: High-efficiency LED-based illumination system.
- LED Power: Minimum 100W total power using industrial-grade LED chips or as recommended by OEM for clear and crisp imaging in low light conditions.
- Lighting Characteristics: Dynamic, uniform lighting ensuring shadow-free image capture across the entire vehicle width.
- Color Temperature: 5000–6000 K (daylight white) for optimal image contrast.
- Ingress Protection: IP68-rated waterproof and dustproof light modules for outdoor installation.
- Operating Efficiency: Energy-efficient LED design with low power consumption and long life.





1.2.3 General Construction

- Enclosure Material: Heavy-duty Stainless Steel (Grade SS304) for corrosion resistance and long-term outdoor durability.
- Load Capacity: Capable of withstanding minimum vehicle axle load of 20 tons.
- Temperature Range: Operational temperature -20°C to $+60^{\circ}\text{C}$.
- Top Surface: Anti-skid design to prevent vehicle slippage and ensure safety.
- Ingress Protection: IP68 or higher for all housings, enclosures, and junction boxes.
- Mounting Type: Surface mount or pit mount as per site requirement. Pit structure shall include proper drainage and conduit provisions.
- The system shall include two (02) inductive loops per lane: one loop for triggering UVSS camera and illumination upon vehicle entry, and one loop for automatic deactivation of camera and illumination after vehicle exit.

1.2.4 Required Certifications:

- ISO 9001
- CE

1.3 ANPR & DRIVER FACE CAMERAS

The UVSS shall be equipped with a dedicated Automatic Number Plate Recognition (ANPR) camera system to capture clear, high-resolution images of vehicle number plates in synchronization with undercarriage scanning, along with a dedicated Driver Face Camera for capturing the driver's facial image.

The system shall automatically extract the vehicle registration number using OCR technology and associate it with the corresponding undercarriage image, driver face image, date, and time in the UVSS database.

1.3.1 Mounting Configuration

- Mount Type: Separate pole-mounted configuration, with both the ANPR camera and the Driver Face Camera mounted on a single dedicated pole.
- Mounting Height: Adjustable 1 – 1.5 m from road surface.
- Pole Construction: Hot-dip galvanized steel, minimum 3" diameter \times 3 mm wall thickness. With base plate, anchor bolts, and concrete foundation ($\geq 300 \times 300 \times 600$ mm).
- Epoxy-coated for weather protection.
- Concealed power and data conduit with IP66 junction box.

1.3.2 ANPR and Drivers Face Cameras Technical Specifications

Parameter	Specification
Imaging Sensor	Progressive Scan CMOS, $\geq 1/2.8''$
Resolution	≥ 4 MP (2688 \times 1520)
Frame Rate	≥ 30 fps
Lens	Motorized or varifocal (8–32 mm or equivalent)





Illumination	Integrated IR LEDs (infrared) for night operation
Effective IR Range	≥ 20 m
Day/Night Function	Auto IR-cut filter (ICR)
Shutter Speed	Adjustable for vehicles up to 60 km/h
Capture Range	3 – 10 m from camera
View Angle	20° – 30° horizontal (optimized for plate view)
Ingress Protection	IP67, vandal-resistant (IK10)
Operating Temperature	-20 °C – +60 °C
Power Supply	12 VDC or PoE (IEEE 802.3af/at)
Network Interface	RJ-45, 10/100/1000 Mbps Ethernet
Protocols Supported	TCP/IP
Synchronization	Triggered simultaneously with UVSS capture

1.4 SCANNING AND IMAGE PROCESSING PERFORMANCE

- Image Generation: Real-time image generation with high-quality automatic stitching of captured frames.
- The system shall be capable of capturing clear undercarriage images of vehicles moving at speeds ranging from 0 km/h to 60 km/h without motion blur, and shall also function properly when a vehicle is stationary or momentarily stopped over the scanner.
- Image Latency: Processing delay not exceeding 3 seconds.
- Foreign Object Detection (FOD): Intelligent analysis for detection of foreign objects, unusual shapes, or modifications on undercarriage.
- AI-based Detection (optional): Provision for machine-learning assisted anomaly detection for improved security analysis.
- Optional AI-based undercarriage-signature comparison shall automatically match the live vehicle image with its previous record based solely on underbody characteristics, independent of plate or tag ID, to identify hidden modifications.

1.5 SOFTWARE FEATURES

- Automatic Number Plate Recognition (ANPR): Built-in ANPR module for simultaneous vehicle identification and record linking through real-time OCR-based recognition.
- Automatic Image Stitching: Seamless undercarriage image formation without operator intervention.
- Operator Dashboard: Graphical user interface for live monitoring, playback, and alarm notification.
- Vehicle History Management: Storage and retrieval of past vehicle records for comparison and audit trail.
- Search Functionality: Search by date, time, registration number, plate number, lane ID, or operator ID.
- Comparison Function: Side-by-side vehicle image comparison to identify changes or anomalies.





- Data Association & Correlation: Association of each vehicle record with the corresponding undercarriage image, number plate, driver's face image, timestamp, and lane ID.
- Watch-List Verification: The software shall automatically cross-verify captured license plates and/or RFID tag IDs (where installed) against preconfigured watchlists and alert operators of any mismatch or unauthorized vehicle.
- Blacklist / Whitelist Management: Management of blacklisted and whitelisted vehicles with automatic alert capability.
- Alerts: The system shall provide both visual (on-screen) and audible alerts upon detection of suspicious changes, anomalies, or unauthorized vehicle entries.
- Language Support: Operator GUI shall be user-selectable between English and Urdu interfaces.
- Integration Capability: Integration via API / ONVIF / SDK, where enabled, subject to approval of Airport IT / Security Authority.
- Optional AI Features: Machine-learning-based anomaly detection, vehicle-type classification, and pattern learning shall be supported through upgradable AI software modules.
- Recognition Accuracy: Number plate recognition accuracy shall be $\geq 95\%$ under normal day and night conditions, supporting English alphanumeric formats.

1.6 DATA STORAGE, NETWORKING & INTEGRATION REQUIREMENTS

- The system shall provide local storage sufficient for 180 days or 2TB, whichever is higher at 4K resolution for undercarriage images, ANPR records, and driver face images. Storage architecture and configuration shall be OEM-defined; however, storage media shall comprise enterprise-grade equipment.
- For centralized storage and long-term archival, refer to CMS specifications under Section 2.0.
- The storage medium shall support automated overwrite after the retention period while maintaining index and metadata for rapid retrieval.
- The UVSS control unit, ANPR module, Driver Face Camera system, and local storage/NVR shall be interconnected through a Gigabit Ethernet (Cat 6 / Cat 6A) local network switch for high-speed data transmission.
- The system shall be equipped with an optical fiber uplink port (single-mode or multi-mode SFP module) to allow direct connectivity to the main building data center or central command network for future expansion and centralized integration.
- For centralized monitoring and management architecture, refer to Section 2.0 (CMS).
- All network components shall support TCP/IP communication. ONVIF or SDK interfaces, if provided, shall remain disabled by default and may only be enabled upon written approval of the Airport IT / Security Authority.
- The system shall include Gigabit managed network switches with VLAN and QoS capability to segregate UVSS, ANPR, and Driver Face Camera traffic from general IT traffic and to ensure stable and uninterrupted streaming performance.
- Network Security: The system shall implement basic firewall protection and user authentication features to prevent unauthorized access.
- Primary system communication shall be based on TCP/IP.
- The system architecture shall have the capability to allow connection of multiple UVSS units from different gates or locations, along with their associated ANPR and Driver Face Camera systems, to a central data center for unified monitoring, recording, and analytics.
- For centralized multi-UVSS management, refer to Section 2.0 (CMS).
- The NVR, networking equipment, and associated processing units shall be powered through the same online UPS system specified under (BOQ ITEM NO. 17 – Online UPS





- System for CMS Server and UVSS section below), ensuring autonomy during power outages.
- All network and storage enclosures shall be housed in ventilated, lockable 19-inch rack cabinets with dust filters and shall operate reliably within a temperature range of 0 °C to 50 °C.
 - For CMS server and rack cabinet specifications, refer to Section 3.0 (CMS Server Hardware & Rack Infrastructure).
 - The operator workstation shall be equipped with a minimum Intel® Core™ i-7 processor (12th Generation or above), minimum 16 GB RAM, and minimum 2 TB storage capacity, complete with a 27-inch display monitor. The operator workstation shall be from a reputed OEM such as Dell / HP / Fujitsu or equivalent.
 - The operator workstation shall provide access to live, recorded, and archived under-vehicle images, ANPR logs, driver face images, and comparison results.
 - The software shall support date/time, plate number, event-based, or operator-based search from local NVR storage and remote servers after centralized integration.
 - For centralized search and archival, refer to Section 2.0 (CMS).
 - User levels shall be definable for operator, administrator, and maintenance personnel, with separate access rights.
 - Operator Workstation Redundancy: All operator terminals shall be network-configurable to take over control from any other workstation in case of failure, ensuring uninterrupted monitoring.
 - Data Correlation: Each vehicle record shall automatically link undercarriage image(s), number plate data, driver face image, RFID tag ID (if installed), timestamp, and lane ID under a single searchable entry.

BOQ ITEM NO. 02: CENTRALIZED UVSS MANAGEMENT SERVER (CMS) APPLICATION

2.1 TECHNICAL SPECIFICATIONS

A Centralized UVSS Management Server (CMS) application shall be provided for unified monitoring, management, and archival of multiple UVSS systems.

The CMS shall support centralized integration of up to five (05) UVSS units, allowing consolidated real-time monitoring and centralized access to live and archived data.

The CMS shall include:

- A server-based CMS application, installed on dedicated OEM-recommended hardware, for centralized UVSS management.
- Five (05) client software licenses/packages for operator workstations to enable simultaneous multi-user access.
- Real-time monitoring of live under-vehicle scans from all connected UVSS units.
- High-resolution image storage and archival, with automatic association of undercarriage images, ANPR data, driver face images, timestamps, and lane identification.
- Multi-user access control, supporting administrator, operator, and maintenance user roles with configurable permissions.
- Event logging and alert management, including system events, alarms, security alerts, and operator activity logs.





- Database backup and recovery management, supporting scheduled backups and system restoration in case of data loss or system failure.
- Centralized configuration, health monitoring, and operational status reporting for all connected UVSS units. The CMS architecture shall support redundancy to avoid single point of failure.
- Perpetual License (indefinite period) of CMS application

Complete installation, configuration, system integration, testing, and commissioning of the CMS shall be carried out by the Contractor, ensuring seamless interoperability with all UVSS units and operator workstations.

BOQ ITEM NO. 03: CMS SERVER HARDWARE & RACK INFRASTRUCTURE

3.1 TECHNICAL SPECIFICATIONS

The Centralized UVSS Management Server (CMS) shall be hosted on dedicated enterprise-grade server hardware, installed in a standard 19-inch rack cabinet suitable for data-center or control-room environments.

A. Server Hardware Specifications

- Server Chassis: Enterprise-grade rack server, 1U form factor, complete with sliding rails, or equivalent.
- Processor (CPU): One (01) Intel® Xeon® Silver processor (base SKU).
- Memory (RAM): 32 GB DDR4 ECC Registered DIMM (2 × 16 GB).
- Storage: Four (04) × 4 TB enterprise-grade SAS/SATA hard disk drives, hot-plug capable.
- RAID Controller: Hardware RAID controller with a minimum 2 GB cache memory, or equivalent.
- RAID level shall be OEM-recommended for performance and redundancy.
- Drive Bays & Caddies: Four (04) × 3.5" SAS/SATA hot-plug drive trays.
- Power Supply: Dual redundant power supply units, 1100 W each.
- Server Management: Integrated enterprise-grade remote server management license equivalent to iDRAC9 Enterprise.
- Accessories: Complete with rails, power cords, and manufacturer documentation.

B. Server Rack Cabinet Specifications

- Rack Type: 42U floor-standing 19-inch server rack cabinet.
- Dimensions:
 - Width: 600 mm
 - Depth: 1000 mm
- Construction: Heavy-duty steel construction suitable for continuous operation.
- Doors: Perforated front and rear doors for ventilation.
- Side Panels: Lockable side panels.
- Cooling: Roof-mounted cooling fans.
- Power Distribution: Rack-mount Power Distribution Units (PDUs).
- Cable Management: Complete cable management accessories.
- Grounding: Complete grounding kit with mounting hardware.





The CMS server and associated rack infrastructure shall be fully installed, configured, and integrated with the UVSS network and power systems as part of the complete CMS deployment.

BOQ ITEM NO. 04: AUTOMATIC BOOM BARRIER UNIT

4.1 TECHNICAL SPECIFICATIONS

- The automatic boom barrier shall be a light-weight, heavy-duty system suitable for continuous outdoor installation.
- The system shall be equipped with a 24 V brushless DC motor for 24/7 operations and shall have a minimum mechanical life of 5 million MCBF.
- The barrier shall support fast operation, with a typical opening and closing speed of approximately (0.6-0.8 seconds adjustable) and a maximum operation time of 1.5 seconds or less.
- The system shall be designed for 100% duty cycle to support high-traffic usage.
- The barrier shall accommodate a straight boom arm up to 3.0 meters in length.
- An integrated programmable control panel shall be provided, supporting safety devices and access-control interfaces.
- Remote control operation shall be supported with an effective operating range of up to 30 meters.
- The enclosure shall be weather-resistant with a minimum IP54 protection rating.
- The boom barrier shall operate reliably within an ambient temperature range of -30°C to $+75^{\circ}\text{C}$.
- The boom arm shall be a straight, lightweight aluminum arm suitable for high-speed operation.
- The boom arm shall have a high-visibility finish, suitable for outdoor environments and continuous use.
- A vehicle detection safety radar sensor shall be provided for anti-crushing protection.
- The sensor shall be capable of detecting moving and stationary vehicles to prevent accidental barrier closure.
- The detection range shall be adjustable, and the sensor shall be suitable for outdoor installation.
- The safety radar sensor shall be fully compatible with the boom barrier control logic.
- The vehicle presence detection system shall comprise of a VR10 Radar System is a vehicle presence and motion detection sensor that uses Doppler microwave radar technology to detect moving and stationary vehicles within a defined detection zone, without requiring any cutting or embedding of loops in the road surface.
- The detector shall have high immunity to electrical interference and shall operate reliably in outdoor conditions.
- The system shall include complete interface capability for barrier safety, control logic, and automation functions.
- All necessary electrical and control accessories shall be provided, including relays, connectors, interface modules, power supply arrangements, grounding, and surge protection devices required for complete system operation.
- Civil works shall include a concrete foundation suitable for boom barrier installation.
- Loop cutting, laying, sealing, and surface restoration works shall be carried out as required (if inductive loop is provided).





- Complete installation of the boom barrier, safety radar, and vehicle detection system shall be carried out.
- System integration, calibration, functional testing, and commissioning shall be completed.

BOQ ITEM NO. 05: FIBER OPTICS CABLE

1.2 GENERAL DESCRIPTION

Fiber optic cable will be laid in HDPE piping for interlinking the UVSS system with Airport IT network installed at Telco Room. 01 and Telco Room 02. Steel manholes with route makers, 2x2 inches will also be provided at every 200 running meters for future maintenance purposes.

TECHNICAL SPECIFICATIONS

Single Mode (G.652D standard compliant), Steel Armored

BOQ ITEM NO. 06: IT Server Rack

GENERAL DESCRIPTION

UVSS Equipment Room for accommodating network POE switches, ODF, Network cable manager required for integrating UVSS onsite system to Airport IT network

TECHNICAL SPECIFICATIONS:

Compatible with other BOQ items e.g. Network switch, ODF , cable manager etc. , Frame : Steel , Side-Panels : Removable/lockable, Top & Bottom Panels: With cable entry knockouts, Front Door: Perforated / mesh steel (ventilated), Top Fan Tray:2-4 fans, 19" Rack Rails: Adjustable depth(front/rear)

BOQ ITEM NO. 07: POE Network Switch With Qty. 04 SFPs

1.3 GENERAL DESCRIPTION

UVSS Equipment Room, for integrating UVSS onsite system to Airport IT network

TECHNICAL SPECIFICATIONS:

24 Port GE, 2 Port 10GE Optical SFP, 802.3af/at PoE standards, V lan support, Layer 3 features, Manageable, Static routing, Dynamic routing OSPF, SNMP v2/v3 , Stackable

BOQ ITEM NO. 8: ODF switch

1.4 GENERAL DESCRIPTION

For connecting optical fiber from UVSS to Telco rooms





TECHNICAL SPECIFICATIONS:

Rack Mount, Coupler: SC-Duplex (Single-Mode), Material: ABS/Steel, Color: Black Preferable, Gland Holes: 02, Splice

BOQ ITEM NO. 9: 3 meter LC-SC pair

1.5 GENERAL DESCRIPTION

UVSS Equipment Room

Specifications:

Single mode

BOQ ITEM NO. 10: 10 meter LC-SC pair

1.6 GENERAL DESCRIPTION

UVSS Equipment Room

Specifications:

Single mode

BOQ ITEM NO. 17: ONLINE UPS SYSTEM FOR CMS SERVER AND UVSS

17.1 General Specifications

True Online Uninterruptible Power Supply (UPS) systems shall be provided to ensure uninterrupted and stable power supply to the Centralized UVSS Management Server (CMS) and the UVSS system.

17.2 UPS Quantity & Application

- One (01) UPS dedicated for CMS server, storage, and rack-mounted IT equipment
- One (01) UPS dedicated for UVSS system, controllers, and associated network equipment

17.3 UPS Technical Specifications

- Rated Capacity: 3 kVA
- UPS Type: True Online UPS with Double Conversion Technology
- Output Waveform: Pure Sine Wave
- Automatic Voltage Regulation (AVR): Built-in
- Display: LCD status display for real-time indication of input/output voltage, load level, battery status, and alarms
- Communication Interface: USB / communication interface for monitoring and diagnostics
- Battery Configuration: Complete with internal batteries
- Application Suitability: Suitable for server rack equipment, networking devices, and security systems
- Minimum backup autonomy: ≥ 30 minutes at rated load.
- Makes: Eaton, APC or Equivalent





The UPS systems shall be suitable for continuous operation and shall ensure stable power supply during mains failure, voltage fluctuations, and electrical disturbances. Complete installation, testing, and commissioning of both UPS units shall be carried out as part of the overall system deployment.

BOQ ITEM NO. 18: HYDRAULIC ROAD BLOCKER (K12 RATED)

18.1 General, Dimensions & Performance

The Hydraulic Road Blocker shall be a heavy-duty, surface-mounted anti-ram security barrier designed for high-security locations such as airports, defense installations, and other critical infrastructure. The system shall be suitable for continuous 24/7 outdoor operation under all weather conditions.

The road blocker shall have a minimum blocking height of 1000 mm and an approximate blocking width of 2808 mm. The overall base frame size shall be approximately (blocking width + 150 mm) × 3048 mm × 1800 mm (L × W × H). The visible surface protrusion above finished road level shall be approximately 210–250 mm. The top surface shall be anti-skid and suitable for heavy vehicular traffic.

The system shall be minimum K12 rated or equivalent, capable of stopping a vehicle of approximately 6.8 tons at 80 km/h, with an axle load capacity of minimum 20 tons. Normal raising and lowering time shall not be more than 6.0 seconds. Operating temperature range shall be –20 °C to +60 °C.

Note: All dimensions are indicative and may vary slightly to suit site conditions, layout constraints, and final approved installation drawings.

18.2 Hydraulic, Electrical & Control System

The road blocker shall be operated by an industrial-grade hydraulic system comprising a heavy-duty double-piston hydraulic cylinder (minimum 80 mm diameter), equipped with safety valves to protect against hose failure and leakage. Normal working hydraulic pressure shall be 70–80 bar, with maximum allowable pressure up to 120 bar. The hydraulic system shall use ISO Viscosity Grade 68 (AW-68) oil and include a minimum 60-liter oil tank complete with filtration, magnetic metal collector, oil level indicator, and oil temperature indicator. Reinforced double-wire braided hydraulic hoses shall be provided.

Electric drive motor, imported, heavy grade shall be used powered by either three phase 400v or single phase power supply. Control voltage shall be 24 V DC. Control shall be through a PLC-based control panel housed in a dedicated, lockable, weather-protected drive cabinet of minimum IP66 protection, containing the motor, hydraulic pump, solenoid valves, and control electronics.

A manual control pendant with Raise / Lower / Stop functions and emergency stop capability shall be provided, housed in an IP-rated enclosure with minimum 10 m control cable. Emergency operation shall be possible through manual hand pump raising and controlled lowering via valve arrangement, ensuring operability during power failure.





18.3 Installation Interface, Civil Works & OEM Responsibility

Civil works for installation of the hydraulic road blocker are NOT included under BOQ Item No. 18. This includes, but is not limited to, excavation, RCC foundations, reinforcement, concreting, drainage, and surface restoration.

However, it shall be the sole responsibility of the OEM / system supplier to provide complete and detailed construction drawings required for civil execution, including:

- Foundation and pit layout with dimensions
- Reinforcement (rebar) detailing and concrete specifications
- Anchor, embedment, and interface details
- Hydraulic piping, electrical conduits, and drainage provisions

These drawings shall be submitted for approval prior to execution of civil works to ensure correct installation, structural integrity, and long-term reliable performance of the hydraulic road blocker system.

GENERAL INSTRUCTIONS

All quoted items must be of approved makes as listed under Appendix-F.

Power & Electrical Requirements

- Power Input: 220-240 VAC single phase or 400 VAC three phase.
- Protection: Surge and lightning protection (Class II or equivalent); Overheat protection with automatic shutdown and recovery; Proper grounding and electrical safety compliance (IEC/EN standards).

Installation and Cabling

- The Contractor shall be responsible for the provision, installation, testing, and commissioning of all interconnecting cables, including power cables, fiber optic cables (FOC), Gigabit Ethernet cables or fiber links required for data transmission between the scanning unit, processing unit, operator workstation, control room, and any other miscellaneous equipment forming part of the complete system.
- The UVSS OEM shall provide a proper gravity drainage design as per site of installation to prevent water accumulation in pit-mounted units, ensuring safe and reliable operation under all weather conditions.
- All system conduits, fiber ducts, and power cable routes shall include spare pathways/ducts to facilitate future integration of additional systems such as weigh-in-motion sensors, biometric access control systems, or supplementary surveillance nodes.
- Except where otherwise stated, all associated civil works required for safe and complete installation of the UVSS, Automatic Boom Barrier, and ANPR camera pole shall be included, including but not limited to inductive loop cutting, laying, sealing, and surface restoration works (where loop detectors are provided), construction of RCC foundations, installation of boom barrier, safety radar, vehicle detection systems, and all related works complete in all respects.
- Installation, testing, commissioning, system integration, calibration, and functional testing of all equipment and subsystems covered under this package shall be carried out by the





Contractor, and the system shall be handed over in fully operational condition, complete in all respects.

Safety, Quality & Environmental Protection

- Ingress Protection: IP68 for pit-mounted UVSS components and minimum IP67 for pole-mounted outdoor equipment (e.g., ANPR camera)
- Electromagnetic Compatibility: Fully compliant with EMC/EMI standards.
- Environmental Resistance: Withstand heavy rain, high temperature, dust, and vehicle exhaust exposure.
- Operator Safety: All electrical components earthed as per IEC/PEC standards.

Warranty & After-sales Support

- Warranty Period: The bidder shall provide equipment repair/replacement warranty for 05 (five) years in case of any defect. The warranty of complete installations to be divided in two phases. During phase one, after issuance of completion certificate, the bidder will be responsible for repair/replacement of defective/unserviceable parts during maintenance period i.e. initial two years. In second phase for next 03 (three) years, the OEM will be liable for repair/replacement of defective/unserviceable parts with new parts free of cost through local authorized agent within 14 days of reported defect. The bidder will be responsible for enforcing this warranty arrangement with OEM and letter to this effect to be provided from OEM before expiry of phase-1 warranty period.
- Spare Parts Availability: OEM to ensure availability of essential spares for at least 10 years.
- Support Type: Local on-site support within 48 hours and remote diagnostic assistance available during working hours.
- The OEM shall ensure and provide firmware and AI model update availability for a minimum of 10 years after commissioning to support evolving security algorithms and vehicle databases.

Fiber Optic Support

- Communication Medium: Fiber Optic Connectivity between scanning unit and processing station.
- Data Rate: Capable of transferring 4K images and video data without latency.

Documentation

The supplier shall provide complete documentation at the time of commissioning including:

- Technical datasheets and OEM catalogues.
- Installation drawings and wiring schematics.
- Operation & maintenance manual (hard + soft copy).
- Factory test reports and warranty certificates.
- All network drawings, connectivity schematics, and storage configuration details.

System Acceptance

The final acceptance shall be based on:

- Successful site installation and commissioning.

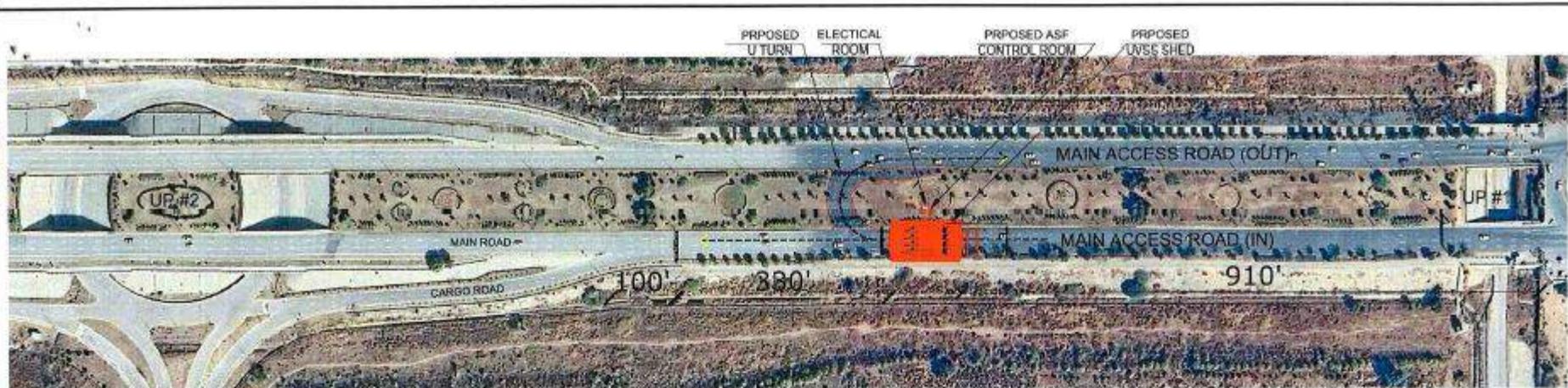




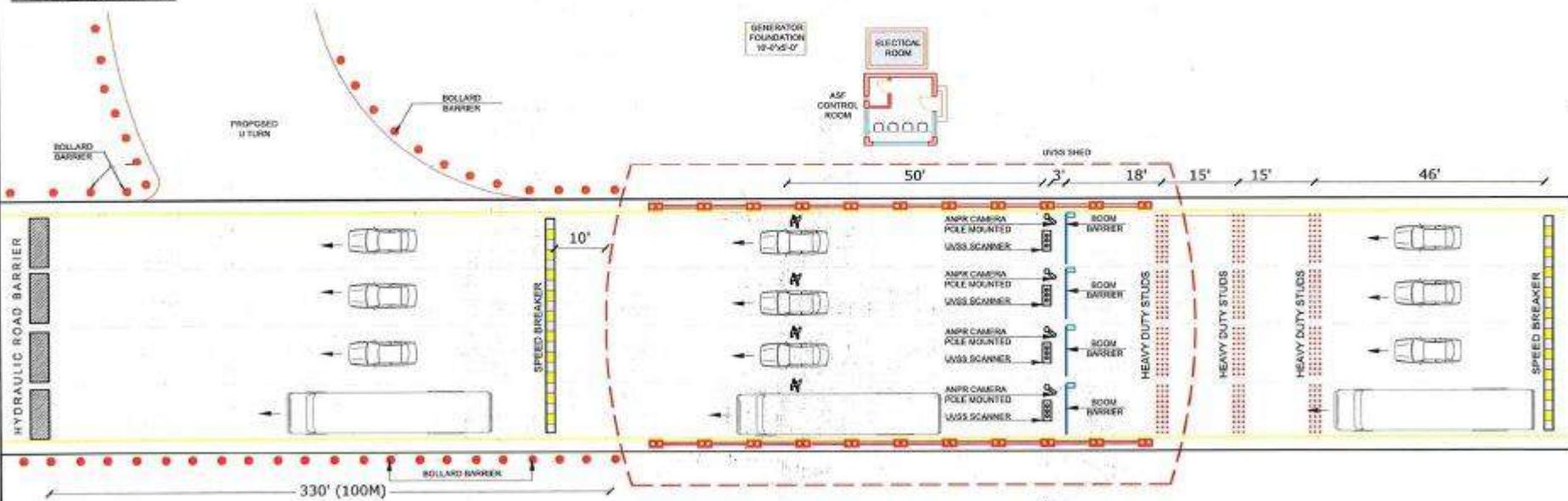
- Demonstration of image clarity, ANPR accuracy, and real-time performance.
- Functional verification of access control integration and FOD detection.
- One-time on-site operational and maintenance training shall be provided by the OEM or OEM-authorized representative, covering system operation, troubleshooting, routine maintenance, and software usage.



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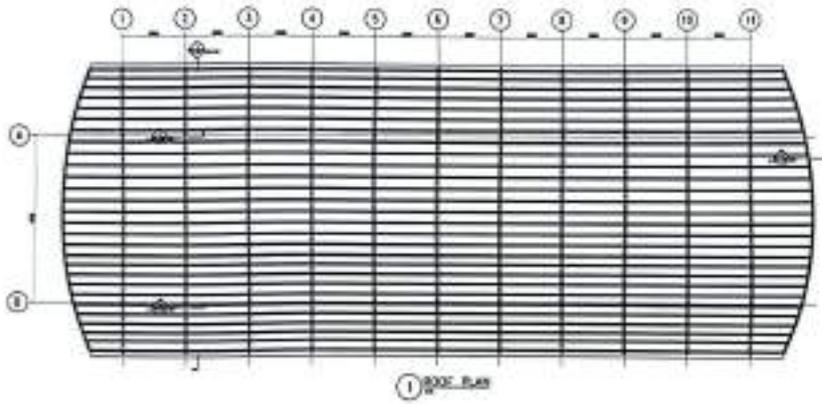
LOCATION PLAN



LAYOUT PLAN

 PAKISTAN AIRPORT AUTHORITY WORKS CIRCLE NORTH IIAP ISLAMABAD	PROJECT:	PROPOSED UVSS SHED IN ROAD-1 INSIDE MAIN ENTRY GATE AT IIAP	DRAWN BY:	ZAHID	DESIGNED BY:	
	TITLE:	LOCATION & LAYOUT PLAN	DATE:	19-12-2025	SCALE:	N.T.S
			DRAWING NO.:		SIZE:	

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① ROOF PLAN

CONTRACTOR SHALL PROVIDE DETAILS SHOP DRAWING FOR ENGINEER'S APPROVAL

BIDDING DRAWING



IIAP
ISLAMABAD INTERNATIONAL
AIRPORT PROJECT

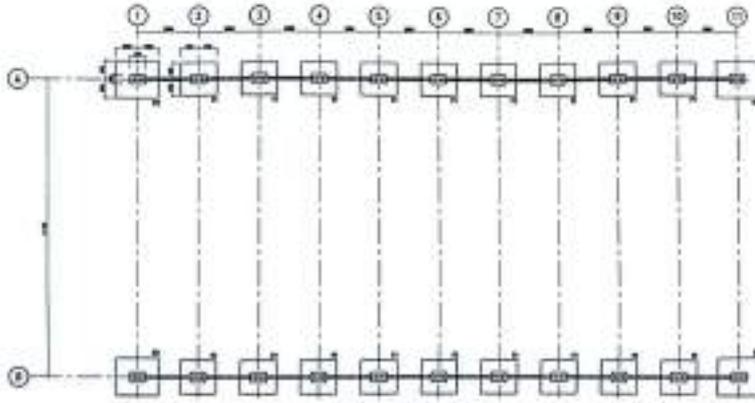
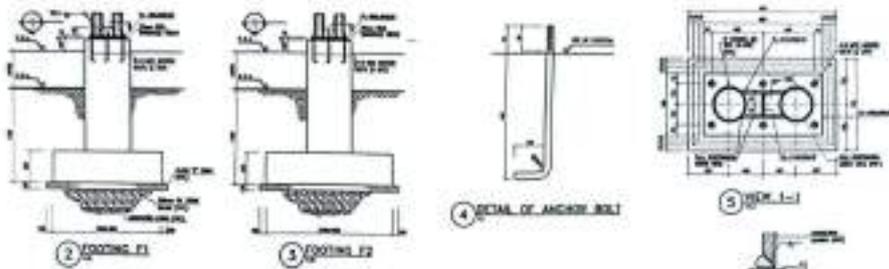


PAKISTAN CIVIL AVIATION
AUTHORITY

adpi inc.

NOTED FOR USE
FINAL DESIGN STRUCTURE
REF BIDD #1 LOCATOR NO. 02
ROOF PLAN

SECTION	DATE	BY	CHKD	APPD
3	ASPI	S	RP	001
A				



1 FOUNDATION LAYOUT PLAN

ISSUED DRAWING



NO.	REVISION	DATE	BY	CHECKED

IIAP
ISLAMABAD INTERNATIONAL
AIRPORT PROJECT

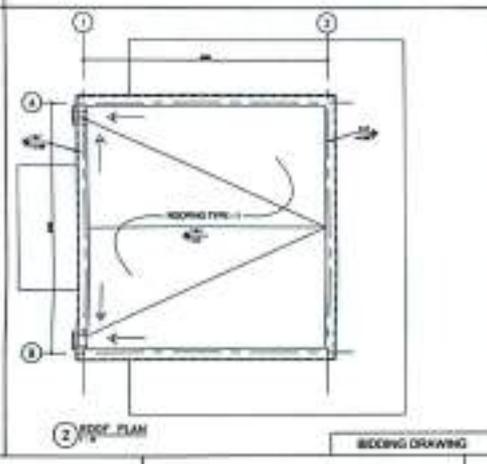
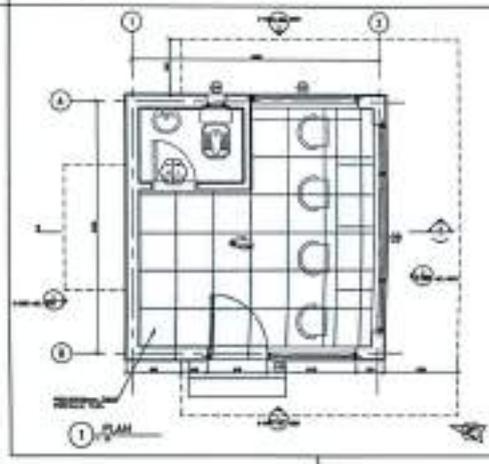
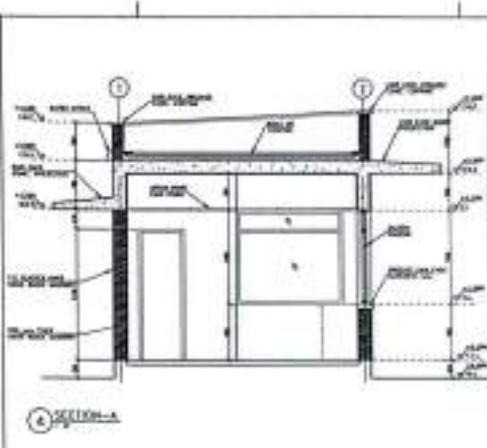
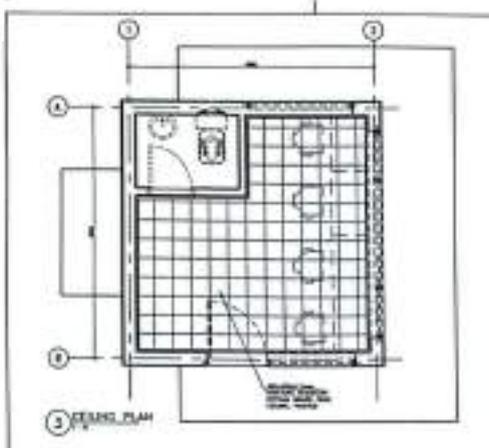


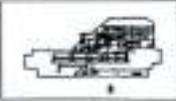
adpi inc. 100

ALSO WORK FOR US
FOR DESIGN STRUCTURE

IIAP SHEET LOCATION NO. 01
FOUNDATION PLAN AND DETAILS

DATE	3.8.2017	SCALE	1:1
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REVISIONS

NO.	DESCRIPTION	DATE

PROJECT TITLE

IIAP
ISLAMABAD INTERNATIONAL AIRPORT PROJECT

CAA
PAKISTAN CIVIL AVIATION AUTHORITY

adpi

DESIGNED BY
PAK DESIGN ARCHITECTURAL

CONTROL ROOM AT LOCATION NO. 01
FLAME 4 SECTION

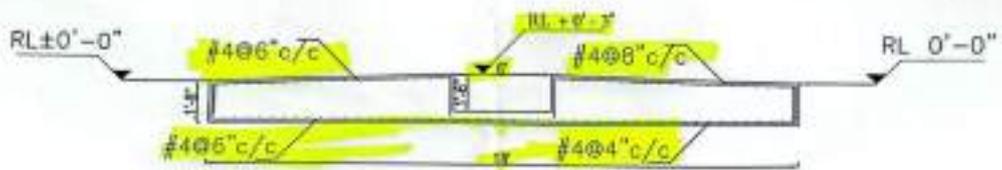
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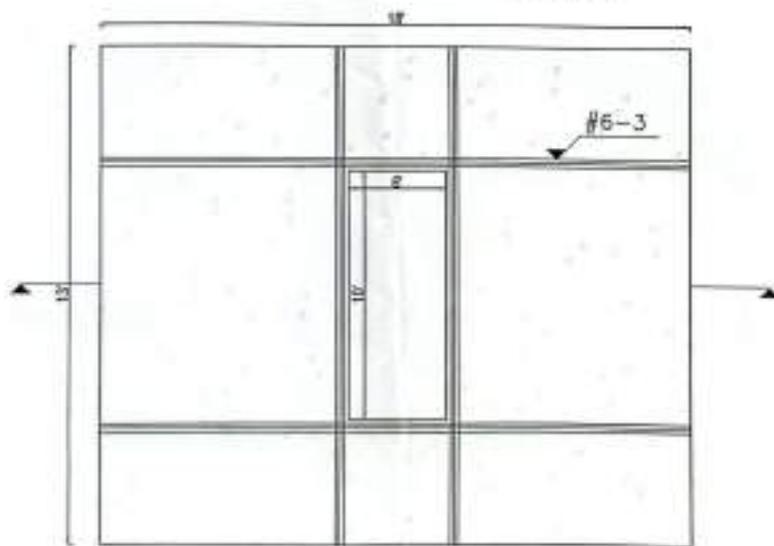
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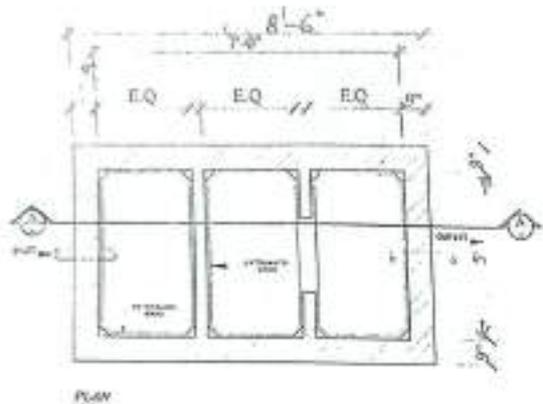
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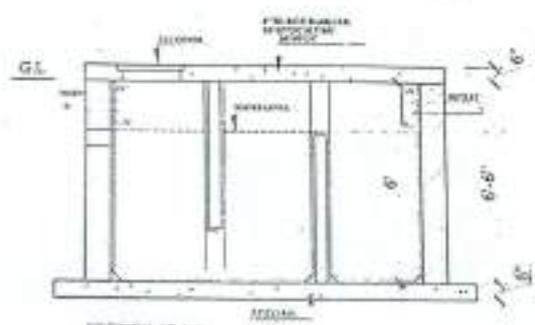
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Plan Road Blocker

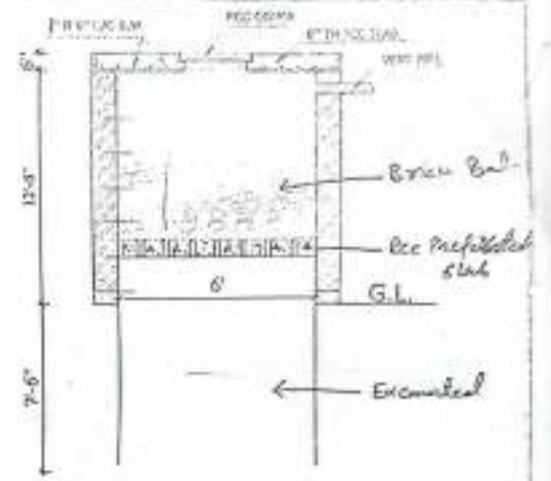


PLAN



SECTION A-A

DETAIL OF SEPTIC TANK
(7' x 5' x 6'-6")



SECTION B-B



DETAIL OF SOAKAGE PIT



LETTER OF OFFER FOR EXECUTION OF WORKS

I / We hereby submit our offer (bid) for the execution of the work specified in the above written memorandum within the time specified in each memorandum at the rates specified therein, and in accordance with the specifications, designs, drawings and instructions and with such materials as are provided for by and in all other respects in accordance with such conditions so far as applicable.

- 2. I / We understand that all the Schedules and Annexes attached hereto form part of this Bid.
- 4. I / We agree to abide by this bid for the period of one-hundred twenty (180) days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- 3. Should this bid be accepted, I / We hereby agree to abide by and fulfil all the terms and provisions of the said conditions of contract annexed hereto so far as applicable or on default thereof to forfeit and pay to the Pakistan Airports Authority (PAA) the sum of money mentioned in the said conditions.
- 5. Unless and until a formal Agreement is prepared and executed, this bid, together with your written acceptance thereof, shall constitute a binding contract between us.
- 6. I / We undertake, if our bid is accepted, to execute the Performance Security referred to in Conditions of Contract for the due performance of the Contract.
- 7. I / We understand that you are not bound to accept the lowest evaluated or any bid you may receive.
- 8. I / We do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other person or persons submitted a bid for the Works.
- 9. As security for due performance of the undertakings and obligations of this Bid, we submit herewith a *Bid Security* in the amount of _____ drawn in your favour or made payable to you and valid for a period of twenty-eight (28) days beyond the period of validity of bid.

Dated the _____ day of _____ 20 _____

Witness
Address

[Signature of Contractor]

The above bid is hereby accepted by me on behalf of PAA.

Dated the _____ day of _____ 20 _____

[Signature of Officer by whom accepted]





(On appropriate valued non-judicial stamp papers)

FORM OF AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____ 20____ between **PAKISTAN AIRPORTS AUTHORITY**, established under the Pakistan Airports Authority Act, 2023, having its Head Office at Terminal-I, JIAP, Karachi, through its duly authorized officer (hereinafter called the "PAA") of the one part;

AND

M/s. _____ registered with Pakistan Engineering Council as a licensed Constructor / Operator, having its office at _____ "through its duly authorized person namely _____ (designation) (hereinafter called the "Contractor") (which term shall include its successors-in-interest, authorized representatives and executors) of the other part.

WHEREAS the PAA is desirous that certain Works, viz _____ should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnesseth as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereinafter referred to.
2. The following documents after incorporating addenda, if any, shall be deemed to form and be read and construed as part of this Agreement, viz:
 - (a) The Letter of Acceptance;
 - (b) The completed Letter of Offer for Execution of Works;
 - (c) The General Conditions of Contract;
 - (d) The Special Conditions of Contract (if attached).
 - (d) The Bill of Quantities;
 - (e) The Specifications; and
 - (f) The Drawings
3. In consideration of the payments to be made by the PAA to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the PAA to execute and complete the Works and remedy defects therein in conformity and in all respects within the provisions of the Contract.
4. The PAA hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS WHEREOF the parties hereto have caused this Contract Agreement to be executed on the day, month, and year first before written in accordance with their respective laws.

(For and on behalf of Contractor)
CNIC No. _____

(For and on behalf of PAA)

Signed, Sealed and Delivered in the presence of:

Witness (1):

Witness (2):

(Name, CNIC No. and Address)

(Name, CNIC No. and Address)





GENERAL CONDITIONS OF CONTRACT

1 Definitions

In the Contract (as hereinafter defined) the following words and expressions shall have the meanings assigned to them except where the context otherwise requires:

- 1.1 **“PAA”** means Pakistan Airports Authority and includes its duly authorized agents, successors and assigns.
- 1.2 **“Competent authority”** means an officer of PAA under whose competence the acceptance of bid lies.
- 1.3 **“Contractor”** means the person or persons, firm or Company whose Bid (as hereinafter defined) has been accepted by PAA and includes the Contractor’s personal representatives, successors and permitted assigns, but does not include any sub-contractor.
- 1.4 **“Divisional Engineer”** means an Engineer duly authorized by the PAA for execution of work.
- 1.5 **“Representative of Divisional Engineer”** means any duly authorized officer or officers appointed by the PAA to perform the duties set forth.
- 1.6 The expression **“Works”** means all the works specified or set forth and required in and by the said specifications, drawings and schedule hereto or to be hereafter specified or required in such explanatory instructions and drawings and also in such additional Instructions and drawings as such from time to time, during the progress of the work hereby contracted for, be supplied by PAA.
- 1.7 **“Contract”** means the Conditions of Contract specifications, Drawings, priced schedule of Quantities, Bid and the Contract Agreement.
- 1.8 **“Contract Price”** means the amount / sum stated in the letter of Acceptance, subject to such additions thereto or deductions there from as may be made under the provisions hereinafter contained.
- 1.9 **“Construction Plant”** means all appliances, equipment or things of whatsoever nature required in or about the execution, completion or maintenance of the Works or Temporary works.
- 1.10 **“Temporary Works”** means all temporary works of every kind required in or about the execution completion or maintenance of the work.
- 1.11 **“Drawings”** means the drawings referred to in the Specifications and any modifications of such drawings approved in writing by the PAA and such other drawings as may from time to time be furnished or approved in writing by the Divisional Engineer.
- 1.12 **“Site”** means the lands and other places on, under, in, through which the works are to be executed or carried out and any other lands or places provided by the PAA for purposes of the Contract.
- 1.13 **“Approved”** means approved in writing including subsequent written confirmation of previous verbal approval and **“Approval”** means approved in writing including as aforesaid.





- 1.14 **“Bid”** means a tender, bid, or proposed remuneration, price, or cost submitted by a natural person, firm, corporation, or other legal entity in response to an invitation to bid, expressing the intent to undertake a specifically defined scope of works in conformity with the prescribed specifications, designs, drawings, instructions, and materials as stipulated under the Contract, and in compliance with all other applicable terms and conditions, including any and all annexures, schedules, or supplementary documents attached to or referenced in the offer.
- 2 Extent of Contract** The Contract comprises the construction, completion and maintenance of the Works and except in so far as the Contract otherwise provides, the provision of all labour, materials, construction plant, temporary works and everything whether of temporary or permanent nature required in and for such construction, completion and maintenance so far as the necessity for providing the same as specified in or reasonably to be inferred from the Contract.
- 3 Documents Mutually Explanatory** The several documents forming the Contract are to be taken as mutually explanatory of one another and in case of ambiguities or discrepancies, the same shall be explained by the Divisional Engineer whose explanation in this respect shall be final.
- 4 Sufficiency of Bid** The Contractor shall be deemed to have satisfied himself before bidding as to the correctness, completeness and sufficiency of his Bid for the works and of the rates and prices stated in the priced schedule of Quantities which rates and prices shall except in so far as otherwise provided in the Contract cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the Works.
- 5 Inspection of Site** The Contractor shall inspect and examine the Site and its surroundings and shall satisfy himself before submitting the bid, as to the nature of ground and sub soil, the form and nature of the Site, the quantities and nature of the work and materials necessary for the completion of the works and the means of access of the Site, the accommodation he may require and in general shall himself obtain all necessary information as to risk, contingencies and other circumstances which may influence or affect his Bid.
- 6 Possession of Site** The Divisional Engineer, with the written order to commence the works will give to the Contractor possession of the Site as may be required to enable the Contractor to commence and proceed with the construction of the works in accordance with the program referred to in clause 10 hereof and otherwise in accordance with such reasonable proposals of the Contractor as he shall by notices in writing to the Divisional Engineer make and will from time to time as the works proceed give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the construction of





- Works with due diligence in accordance with the said programme or proposals (as the case may be).
- 7 Drawings** Three copies of each of the approved Drawings shall be furnished by PAA to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him.
- 8 Drawings to be kept on Site** One copy of each of the Drawings furnished to the Contractor as aforesaid shall be kept by the Contractor on the Site and the same shall at all times be available for inspection and use by the Divisional Engineer the representative of the Divisional Engineer.
- 9 Further Drawing and Instructions** The Divisional Engineer shall have full power and authority to supply to the Contractor from time to time during the progress of the works such further Drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works and the Contractor shall carry out and be bound by the same.
- 10 Programme to be furnished** As soon as practicable after the acceptance of his Bid, the Contractor shall submit to the Divisional Engineer for his approval a programme showing the order of procedure and method in which he proposes to carry out the Work and shall furnish for his information, particulars in writing of the Contractor's arrangements for carrying out of the works and the constructional plant and temporary works which the Contractor intends to supply, use or construct, as the case may be. The submission to and approval by the Divisional Engineer or the Representative of the Divisional Engineer of such programme or the furnishing of such particulars shall not relieve Contractor of any of his duties or responsibilities under the Contract.
- 11 Commencement** The Contractor shall commence the Works on Site after the receipt by him of an order in writing to commence work from the Divisional Engineer and shall proceed for the same with due diligence (time being the essence of the Contract on the part of the Contractor).
- 12 Contractor's Superintendence** The Contractor shall give or provide all necessary superintendence during the execution of the Works and as long thereafter as the Divisional Engineer may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. The Contractor or his competent, qualified and authorized agent or representative approved by the Divisional Engineer in writing (which approval may at any time be withdrawn) is to be constantly on the Works and shall give his whole time to the superintendence of the same if such approval shall be withdrawn by the Divisional Engineer, the Contractor shall without any delay, after receiving written notice of such withdrawal, remove the Agent from the site and shall not thereafter the employ him again on the Site in any capacity and shall replace him by another agent approved by the Officer, Such authorized agent or representative shall receive, on behalf of the Contractor directions and instructions from the Divisional Engineer or the representative of the Divisional Engineer. The Contractor shall also





employ full time Engineer / Sub-Engineer, duly qualified in Civil / Electrical / Mechanical Engineering and having professional experience of at least three years for the purpose of execution of the proposed works and giving full time engineering / technical superintendence during all phases of execution and for receiving technical directions and instructions from the Divisional Engineer.

13 Contractor's Employees

The Contractor shall provide and employ on the Site in connection with the execution and maintenance of the Works:

13.1 Only such technical personnel as are skilled and experience in their respective fields and such sub-agents, foremen and leading hands as are competent to give proper supervision to the work they are required to supervise.

13.2 Such skilled and semi-skilled and unskilled labour as is necessary for the proper and timely execution and maintenance of the Works.

14 Removal of Contractor's Employees

The Divisional Engineer shall have the power to object in writing to and require the Contractor to remove forthwith from the Work any person employed by the Contractor in or about the execution or maintenance of the works who in the opinion of the Divisional Engineer is misconducting himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered reasonably by the Divisional Engineer to be undesirable. Any person so removed from the works shall be replaced without delay by a competent substitute approved by the Divisional Engineer. The Contractor shall not demand the reasons from the Divisional Engineer for requiring the removal of any one of his employees.

15 Supply of Plant Materials and Labour

Except where otherwise expressly specified, the Contractor shall at his own expense supply and provide all the Constructional plants, work materials, both for temporary and for permanent works, labour (including the supervision thereof) transport to or from the site and in and about the works and other things of every kind required for the construction, completion and maintenance of the works.

16 Works to be executed in accordance with specifications drawings etc.

The Contractor shall execute the whole and every part of the work in the most substantial and workman-like manner and both as regards materials and otherwise in every respect in strict accordance with the specifications. The Works executed by the Contractor shall also conform exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work issued by the Divisional Engineer.

17 Action where no specification

In the case of any class of work for which there is no such specifications, such work shall be carried out in accordance with the written instructions, and requirements of the Divisional Engineer.

18 Quality of Material,

All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the instructions of the Divisional Engineer and shall be subjected from time to time to such tests as the





Workmanship and Tests

Divisional Engineer may direct at the place of manufacture or fabrication on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used and shall supply samples of materials before incorporation in the works for testing as may be selected and required by the Divisional Engineer. All samples shall be supplied by the Contractor at his own cost. The cost of making all tests specified in the Contract shall be borne by the Contractor.

19 Delegation of Power to Divisional Engineer's Representatives.

The Divisional Engineer may from time to time in writing delegate to the representatives of the Divisional Engineer any of the powers and authorities vested in the Divisional Engineer. Any written instruction or approval given by the representative of the Divisional Engineer to the Contractor within the term of such delegation (but not otherwise) shall bind the Contractor and the PAA, as though it has been given by the Divisional Engineer provided as follow:

- 19.1 Failure of the representative of the Divisional Engineer to disapprove any work or materials shall not prejudice the power of the Divisional Engineer thereafter to disapprove such work or materials and to order the pulling down, removal or breaking up thereof.
- 19.2 If the Contractor shall be dissatisfied by reason of any decision of the representative of the Divisional Engineer he shall be entitled to refer the matter to the Divisional Engineer who shall thereupon confirm, reverse or vary or modify such decision, and whose decision shall be final.
- 19.3 The Agreement shall be rescinded by the PAA and the final measurements shall be recorded by the Divisional Engineer or his any authorized representative shall record the final measurement and Contractor will not claim for any item not recorded by the Divisional Engineer or his representative.

20 Access to Site

The Divisional Engineer and any person authorized by him shall at all times have access to the Works and to the Site and to all Workshops and places where work is being done or where materials, manufactured articles or machinery are being obtained for the Works and the Contractor shall afford every assistance in or obtaining the right to such access.

21 Way leave etc.

The Contractor shall bear all expenses and charges for special or temporary way leaves required by him in connection with access to the Site. The Contractor shall also provide with the written approval of Divisional Engineer at his own cost any reasonable additional accommodation at Site required by him for the purposes of the Works.

22 Rate of Progress and permission to work during Night.

The whole of the materials, plant and labour to be provided by the Contractor and the mode, manner and speed of execution and maintenance of the works are to be of a kind and conducted in a manner approved by the Divisional Engineer. Should the rate of progress of the Works or any





part thereof be at any time in the opinion of the Divisional Engineer too slow to ensure the completion, the Divisional Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as may be necessary and the Divisional Engineer may approve to expedite progress so as to complete the Works by the prescribed time or extended time for completion. If the work is not being carried on by day and by night and the Contractor shall request permission to work by night as well as by day, then, if the Divisional Engineer shall grant such permission, the Contractor shall not be entitled to any additional payments. The contractor shall indemnify the PAA from and against all claims, liabilities, demands, proceedings, costs and expenses whatsoever in regard or in relation to such permission. All work at night shall be carried out without unreasonable noise and disturbance.

23 Time for Completion

Subject to any requirement in the Specification of any portion of the Works before completion of the whole of the works, the whole work shall be completed within the stipulated time.

24 Extension of time for completion

Should the amount of extra or additional work of any kind or other special circumstances of any kind whatsoever (acts of God and events beyond the control of PAA etc.) which may occur be such as fairly to entitle the Contractor to an extension of time for the completion of the work, the Divisional Engineer shall determine and grant such an extension of time. Provided that the Divisional Engineer is not bound to take into account any extra additional work or other special circumstances unless the Contractor has within fourteen (14) days after such work has been commenced or such circumstances have arisen, delivered to the representative of the Divisional Engineer full and detailed particulars of any claim for extension of time to which he may consider himself entitled in order that such claim may be investigated at the time.

25 Termination of Contract for slow progress

If in the opinion of the Divisional Engineer the progress of the Works is slow that it cannot be completed within the prescribed period or within the extended period granted to the Contractor, the Divisional Engineer shall give a notice in writing to the Contractor calling upon him to speed up the work by employing more labour and by increasing the rate of supply of material, equipment and plant to an extent to be mentioned in the notice. In case the Contractor fails to comply with the requirements of the notice within ten days from its issue, the Divisional Engineer shall have the power to have the works completed through any other agency at the risk and cost of the Contractor. In any such event, the work executed by the Contractor shall be measured up and all plant, machinery, equipment and material at Site will be taken over by the Divisional Engineer after preparing and inventory thereof, such stores to be used for the completion of the work will be at the cost of the Contractor. All payments due to the Contractor shall be withheld till the completion of the work and any loss suffered by the PAA or expenditure incurred in getting the works executed, shall be recovered from the Contractor.





26 Action and Compensation payable in case of works below specification

If it shall appear to the Divisional Engineer or his representative, that any work has been executed with unsound, imperfect or unskilled workmanship or with materials of any inferior description or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the Contractor shall on demand in writing from the Divisional Engineer specifying the work, materials or articles complained of notwithstanding that the same may have been inadvertently passed, certified and paid for, forth-with rectify, or remove and reconstruct the work so specified and provide other proper and suitable materials or articles at his own cost; and in the event of his failing to do so with in a period to be specified by the Divisional Engineer in his demand aforesaid, then the Contractor shall be liable to pay compensation at the rate of one percent on the total cost of work for every day not exceeding ten days apart from the cost of rectification, while his failure to do so, shall continue and in the case of any such failure the Divisional Engineer may rectify or remove, and re-execute the work which may include additional work necessary to strengthen or set right the unsound work carried out by the Contractor or remove and replace with others, the materials or articles complained of as the case may be at the risk and cost of the Contractor in all respect.

27 Security Deposits

The Contractor shall permit the PAA at the time of making any payment to him for work done under the contract to deduct such sum as will amount to be five per cent (5%) of all money so payable; such deductions to be held by PAA by way of security deposit. The sum five per cent (5%) of the amount of the bills including the earnest money held by the PAA by way of security deposit shall be paid back to the Contractor after the satisfactory expiration of Period of Maintenance as defined in the clause 49 hereof.

28 Forfeiture of Security deposit

28.1 In any case in which under any clause, or clauses of this agreement the Contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit (whether paid in one sum or deduction by instalments) the PAA shall have the power in its own discretion to adopt any of the following courses, best suited to the interest of the PAA.

- a) To rescind the Contract (of which recession notice in writing by the Divisional Engineer to the Contractor shall be conclusive evidence) and in which case the security deposit of the Contractor as available with the PAA shall stand forfeited and be absolutely at the disposal of PAA.
- b) To employ labour paid by PAA and to supply materials to carry out the work or any part of the work debiting the Contractor with the cost of the labour and the price of the materials (of the amount of which cost and price a certificate of the Divisional Engineer shall be final and conclusive against the Contractor) and crediting him with the new value of the work done, in all respect in the same manner and at the same rates as if it had been





carried out by the Contractor under the terms of his Contract, the certificates of the Divisional Engineer as to the value of work done shall be final and conclusive against the Contractor.

- c) To measure up the work of the Contractor and to take such part thereof as shall be unexecuted out of his hand, and to give it to another contractor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original Contractor, if the whole work had been executed by him (of the amount of which exceed, the certificate in writing to the Divisional Engineer shall be final and conclusive) shall be borne and paid by the original Contractor and may be deducted from any money due to him by the PAA under the contract or otherwise or from his security deposit, or the proceeds of sale thereof or a sufficient part thereof.

28.2 In the event of any of the above courses being adopted by the PAA, the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials, or entered into any engagements or made any advance on account of or with a view to the execution of the work or the performance of the Contract. And, in case the Contract is rescinded under the aforesaid provisions, the Contractor shall not be entitled to recover or be paid any sum for any work therefore actually performed under this contract. Unless and until the Divisional Engineer will have certified in writing the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified. Again, the Contractor will not in any manner hinder or prevent the owner or Divisional Engineer or any of the workmen and other employed by him from proceeding to complete the said buildings and works as aforesaid.

29 Liquidated damages for delay

If the Contractor fails to complete the works within the stipulated time for completion prescribed under the Contract, or any extended time allowed for completion in accordance with the Contract, then the Contractor shall pay to the PAA a sum equal to ten (10) per cent or less of the Contract Price as liquidated damages (and not as a penalty) for the delay beyond the time prescribed in the Contract or the extended time for completion, as the case may be. The said sum shall be payable by the sole fact of the delay without the need for any previous notice or any legal proceedings, or proof of damage, which shall in all cases be considered as ascertained. The PAA may, without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any monies in its hands due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.

30 Notice to be given before work is covered up

The Contractor shall give not less than five clear days' notice in writing to the Divisional Engineer or his representative before covering up or otherwise placing beyond the reach of measurement of any work, in order





that the same may be measured, and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement without the consent in writing of the Divisional Engineer or his representative, and if any work shall be covered up or placed beyond the reach of measurement without such notice have been given or consent obtained the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work on the materials, with which the same was executed.

31 Suspension of work

The Contractor shall on the written order of the Divisional Engineer suspend the progress of the works or any part thereof for such time or times and in such manner as the Divisional Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Divisional Engineer. The extra cost (if any) incurred by the Contractor in giving effect to the Divisional Engineer's instructions under this clause shall be borne by the Contractor, if such suspension is:

- a) as per the provision of the contract, or
- b) Necessary for the proper execution of the work or by reason of weather conditions affecting the safety or quality or the Works or by some default on the part of the Contractor, or
- c) Necessary for the safety of the works or any part thereof.

32 Care of works

From the commencement to the completion of the Works, the Contractor shall take full responsibility for the care thereof and of all temporary works, and in the event that any damage, loss or injury should happen to the Works or to any part thereof or to any temporary works from any cause whatsoever (save and except the "expected risk(s)" as defined in clause 33 hereof), the Contractor shall at his own cost repair and make good the same so that at completion, the works shall be in good order and condition and in conformity in every respect with the requirements of the contract and the Divisional Engineer's instructions. The Contractor shall also be liable for any damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 50 hereof. The Contractor shall be fully responsible for the review of the Engineering design and details of the works and shall inform the PAA of any mistakes or incorrectness in such design and details which would affect the works.

33 Expected Risk

The "Expected Risk" are hostilities (where war be declared or not) invasion, act of foreign enemies, rebellion revolution insurrection or military or usurped power civil war or (otherwise than among the Contractor's own employees) riot, commotion or disorder or use by occupation by the PAA of any portion of the Works in respect of which a certificate of completion has been issued or any such operation of the forces of nature as reasonable foresight and ability on the part of the Contractor could not foresee or reasonably provide against (all of which are herein collectively referred as "the expected risk").





- 34 Damage to persons and property.** The Contractor shall (except if and so far as the Contract provides otherwise) indemnify and keep indemnified the PAA and its Employees from and against all suits, claims, demands, proceedings, and liability of any nature or kind, including costs and expenses, for injuries or damages to any person or any property whatsoever which may arise out of or in consequence of acts or omissions of the Contractor or its agents, employees, servants or subcontractors in the execution of the Contract.
- 35 Accident or injury to Workmen** The PAA shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other persons in the employment of the Contractor or any sub-contractor. The Contractor shall indemnify and keep indemnified the PAA against all such damages, compensation and against all claims, demands, proceedings, cost charges and expenses whatsoever in respect thereof or in relation thereto.
- 36 Insurance** The Contractor shall obtain and keep in force policies in respect of Erection All Risks, Contractor's All Risks and Workmen's Compensation act, which shall apply specifically and solely to the Contractor and shall fulfil all Contractor's obligations for Insurance in connection with this Contract from an Insurance Company in Pakistan having at latest AA rating from PACRA / JCR-VIS.
- 37 Compliance with Statutes, Regulations etc.** The Contractor shall conform in all respects with any such Statutes, Ordinances, Laws, Regulations, Bye-laws or requirements of any such local or other authority / authorities which may be applicable to the Works or to any Temporary Works and shall keep the PAA indemnified against all penalties and liability of every kind for breach of any such Statutes, Ordinances, Laws, Regulations, Bye-laws or requirements.
- 38 Fossils etc.** All fossils, coins, article of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the Works shall as between the PAA and the Contractor be deemed to be the absolute property of the PAA and the Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the PAA of such discovery.
- 39 Variation** The Divisional Engineer may introduce any variations to the form, quality or quantity of the work or any part thereof which he considers necessary and for that purpose or if for any other reasons it shall, in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any of the following:
- a) increase or decrease the quantity of any work included in the Contract;
 - b) omit any such work;
 - c) change the character or quality or kind of any such work;





- d) change the levels, lines position and dimension of any part of the Works; and
- e) execute additional work of any kind necessary for the completion of the works.

and no such variation shall in any way vitiate or invalidate the Contract nor it will entitle the Contractor of any claims for compensation whatsoever, but the value (if any) of all such variations shall be taken into account in ascertaining the amount of the Contract Price.

40 Order for variation to be in writing

No such variation shall be made by the Contractor without an order in writing from the Divisional Engineer. Provided that, subject to the provisions of the Contract, no order in writing shall be required for any increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this Clause but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities. If for any reason, Divisional Engineer considers it desirable to give any such order verbally, the Contractor shall comply with such order but shall get it confirmed in writing from the Divisional Engineer within four days of the issue of such verbal order.

41 Valuation of Variation

41.1 The Divisional Engineer shall determine the amount (if any) to be added to or deducted from Contract Price in respect of any variation, addition, or omission made by his order. The valuation of any variation, addition or omission shall be calculated on the basis of the unit prices contained in the Bill of Quantities if in the opinion of the Divisional Engineer the same shall be applicable; if not then on the market rates.

41.2 No deviation from specifications stipulated in the Contract or additional items of work shall be carried out by the Contractor unless the rates of the substituted, extra, altered or additional item have been approved in writing by the competent authority failing which the PAA will not be bound to entertain any claim on this account.

42 Quantities

The quantities set out in the Bill of Quantities are the estimated quantities of the work but they are not to be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfilment of his obligation under the Contract.

43 Work to be Measured

The Divisional Engineer shall except as otherwise stated ascertain and determine by measurement the value of work done in accordance with the Contract. The Divisional Engineer shall, when he requires any part or parts of the Works to be measured, give notice to the Contractor or the Contractor's authorized agent or representative who shall forthwith attend or send a qualified agent to assist the Divisional Engineer or his representative in making such measurement and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or fail to send such agent, then the measurement made by the Divisional Engineer or approved by him shall be taken to be the correct





measurement of the work. The purpose of measuring is to ascertain the volume of work executed by the Contractor and therefore determine the amount of the monthly payments.

44 Method of Measurement

The works shall be measured, notwithstanding any general or local custom except where otherwise specifically described or prescribed in the Contract.

45 Clearance of Site on Completion

On the completion of the Works, the Contractor at his own cost shall clear away and remove from the Site all Constructional plant, surplus materials, rubbish and Temporary Works of every kind and leave the whole of the Site and works clean and in a workman-like condition to the satisfaction of the Divisional Engineer, rubbish should be disposed of in the manner as directed by the Divisional Engineer or his representative.

46 Certificates for Completion of Works

46.1 When the whole of the Works have been substantially completed and have satisfactorily passed any test on completion as prescribed by the Contract, the Contractor may give a notice to that effect to the Divisional Engineer accompanied by an undertaking to finish any outstanding work during the Period of Maintenance. Such notice and undertaking shall be in writing and shall be deemed to be a request by the Contractor, for the Divisional Engineer to issue a Certificate of Substantial Completion in respect of the Works. The Divisional Engineer shall, within twenty-one (21) days of the date of delivery of such notice either issue to the Contractor a Certificate of Substantial Completion stating the date on which, in his opinion, the Works were substantially completed in accordance with the Contract or give instructions in writing to the Contractor specifying all the work which, in his opinion, are required to be done by the Contractor before the issuance of such Certificate. The Divisional Engineer shall also notify the Contractor of any defects in the Works affecting substantial completion that may appear after such instructions and before completion of the work specified therein. The Contractor shall be entitled to receive such Certificate of Substantial Completion within twenty-one (21) days of completion, to the satisfaction of the Divisional Engineer, of the work so specified and making good any defect so notified. Upon issuance of the Certificate of Substantial Completion of the Works, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work during the Period of Maintenance.

46.2 Upon satisfactory completion of the work outstanding on the Works, the Divisional Engineer shall within twenty-eight (28) days of the expiration of the Period of Maintenance issue a Certificate of Final Completion to the Contractor. The Contract shall be deemed to be completed upon issuance of such Certificate, provided that the provisions of the Contract which remain unperformed shall remain in force for as long as is necessary to dispose of any outstanding matters or issues between the Parties.





- 47 Period of Maintenance** The “Period of Maintenance” shall be of 02 (two) years duration unless otherwise specified in the Special Conditions of the Contract, calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the Divisional Engineer in accordance with the Clause 46 hereof or, in respect of any Section or part of the Works for which a separate Certificate of Substantial Completion has been issued, from the date of completion of that Section or part as stated in the relevant Certificate. The expression “the Works” shall, in respect of the “Period of Maintenance”, be construed accordingly.
- 48 Completion of Outstanding Works and Remedying Defects etc.** During the Period of Maintenance, the Contractor shall finish the work, if any, outstanding at the date of the Certificate of Substantial Completion, and shall execute all such work of repair, amendment, reconstruction, rectification and making good defects, imperfections, shrinkages or other faults as may be required of the Contractor in writing by the Divisional Engineer during the Period of Maintenance and within fourteen (14) days after its expiration, as a result of an inspection made by or on behalf of the Divisional Engineer prior to expiration of the Period of Maintenance. To the intent that the works shall as soon as practicable after the expiry of the Period of Maintenance be delivered to the PAA in as good and perfect condition (fair wear and accepted tear) to the satisfaction of the Divisional Engineer as that in which they were at the commencement of the Period of Maintenance. All such outstanding work shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Divisional Engineer, be due to the use of material or workmanship not in accordance with the Contract, or to neglect or failure on the part of the Contractor to comply with any obligation expressed or implied, on the Contractor’s part under the Contract. In case the Contractor fails to comply with the requirements of the notice within ten days from its issue, the Divisional Engineer shall have the power to have the works completed through any other agency at the risk and cost of the Contractor.
- 49 Refund of Security Deposits** The Security Deposit shall not be refunded prior to 02 (two) years after the completion of the whole work, unless and until a certificate is issued by the Divisional Engineer for successful and satisfactory passing of the Period of Maintenance with no other liability on the Contractor.
- 50 Contractor’s Liability for Damage done** If the Contractor or his workmen or servants shall break, deface, injure or destroy any part of a building, in which they may be working or any building, road, road kerbs, runway, taxiway, apron, culverts, ducts, fence enclosure, water pipes, cables, drains, electric or telephone or wire poles, trees, grass or grassland or cultivated ground contiguous to the premises on which the work or any part of it is being executed, or if any damage shall happen to the work, while in progress from any cause whatsoever, or any imperfections become apparent in it within three (03) months after a certificate, final or otherwise of its completion shall have been given by





the Divisional Engineer as aforesaid, the Contractor shall make the same good at his own expense, or in default, the Divisional Engineer may cause the same to be made good by other workmen, and deduct the expense (of which the certificate of the Divisional Engineer shall be final) from any sums that may then, or at any time thereafter may become, due to the Contractor, or from his security deposit or the proceeds of the sale thereof, or a sufficient portion thereof.

51 Assignment & Sub-Letting

The Contractor shall not assign or sublet the Contract or any part thereof or any benefit or interest thereon or there under without the prior written consent of PAA. In case of failure, the Divisional Engineer shall by giving Notice in writing rescind the Contract and have the Works executed at the risk and cost of the Contractor.

52 Stores to be supplied by PAA

If the specification or estimate of the work provides for the use of any special description of materials to be supplied by PAA or if it is required that the Contractor shall use certain stores to be provided by the PAA (such materials and stores, and the prices to be charged therefore as hereinafter mentioned being so far as practicable for the convenience of the Contractor, but not so as in any way to control the meaning or effect of this Contract, specified in the schedule of memorandum hereto annexed). The Contractor shall be supplied with such materials and stores as required from time to time to be used by him for the purpose of the Contract only, and the value of the full quantity of materials and stores so supplied at the rates specified in the said schedule or memorandum may be set off or deducted from any sums then due, or thereafter to become due to the Contractor under the contract or otherwise or against or from the security deposit, or the proceeds of sale thereof. All materials supplied to the Contractor shall remain the absolute property of PAA and shall not on any account be removed from the Site of the work and shall at all times be open to inspection by Divisional Engineer. Any such material unused and in perfectly good condition at the time of the completion or termination of the Contract shall be returned to PAA; but the contractor shall not be entitled to return any such materials unless with such consent, and shall have no claim for compensation on account of any such materials so supplied to him, as aforesaid being unused by him, or for any wastage in or damage to any such materials.

53 Bills to be submitted monthly

A bill shall be submitted by the Contractor each month on or before the date fixed by the Divisional Engineer for all works executed in the previous month and the Divisional Engineer shall take or cause to be taken the requisite measurement for purposes of having the same verified, and the claim, as far as admissible, adjusted, if possible, before the expiry of ten days from the presentation of the bill. If the Contractor does not submit the bill within the time fixed as aforesaid, the Divisional Engineer may prepare a bill which shall be binding on the Contractor in all respects.

54 Completion drawings

The completion report of the work along with drawings on prescribed proforma shall be submitted by the Contractor in five copies along with the final bill. In case of failure to submit the completion report and completion drawings by the Contractor on the basis of which the work has





been finally completed, the final bill shall be withheld till their submission. The completion report and drawings should be complete in all respects.

Works relating to maintenance do not come under the preview of this clause.

55 Final Bills

The final bill shall be submitted by the Contractor within one month from the date of completion of the Works otherwise the Divisional Engineer's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on all parties, and will not be called in to question by anyone.

56 Urgent repair

If by reason of any accident or failure or other event occurring to or in connection with the Works or any part thereof during the execution of the Works or during the Period of Maintenance any remedial or other work on repair shall in the opinion of the Divisional Engineer or his representative be urgently necessary and the Contractor is unable or unwilling at once to do such work or repair, the Divisional Engineer may by his own or other workmen do such work or repair as the Divisional Engineer or his representative may consider necessary. If the work or repair so done by the Divisional Engineer is work which in the opinion of PAA the Contractor was liable to do at its own expense, under the Contract, then all costs and charges properly incurred by the PAA, in so doing shall on demand be paid by the Contractor to the PAA or may be deducted by PAA from any monies due or which may become due to the Contractor. Provided always that the Divisional Engineer shall as soon as after the occurrence of any such emergency as may be reasonably practicable notify the Contractor thereof in writing.

**57 Bribes,
Commission etc.**

Any bribe, commission gift or advantage given promised or offered by or on behalf of the Contractor or his partner, agent, or servant in relation to obtaining or to the execution of this or any other Contract with PAA, or given, promised, or offered by, or on behalf of, the Contractor, or his partner, agent, or servant, to any officer or person in the service or employment of PAA, who shall be in any way connected with the obtaining or the execution of this or any other Contract, shall in addition to any criminal liability, which he may incur subjects the Contractor to cancellation of this Contract, and also to payment of any loss resulting from any such cancellation. Any question or dispute to the commission of any offence under this Clause shall be settled by the PAA, in such manner as it deems fit and sufficient and its decision shall be final and conclusive.

**58 Law governing the
contract**

This Contract shall be governed by and construed in accordance with the laws of the Islamic Republic of Pakistan, and the obligations, rights and remedies of the parties hereunder shall be determined in accordance with such laws. Resort to litigation by either of the parties in respect of any disputes should be had only before a court of appropriate and competent jurisdiction.



**59 Increase or Decrease of Cost.**

59.1 The Contractor is deemed to have quoted rates given in the Contract (Bill of Quantities) based on the prices of certain specified materials prevalent in the month during which the last day of the submission of Bid fell.

59.2 No price adjustment shall be allowed under this clause except in respect of the materials specified in Appendix-A to Bidding Document which have actually been incorporated in the Permanent Works during the corresponding period of increase or decrease.

59.3 Adjustment shall be allowed for the specified materials according to the method prescribed in the Appendix-A to Bidding Document.

59.4 All claims for additional payments under this Clause shall be lodged by the Contractor with the Divisional Engineer within such reasonable time from the date of occurrence of the event which, according to the Contractor, entitles him to such additional payments by PAA, but in no case after the expiry of twenty-eight (28) days thereof, such claims shall invariably be supported with all relevant necessary details and particulars required for proper verification thereof and the Divisional Engineer shall be entitled to require the Contractor to provide such further details / information as may be required for due and effective verification of such claims.

59.5 The Divisional Engineer shall verify and certify for payment, if any, claims lodged by the Contractor under this Clause within a period not exceeding twenty-eight (28) days from the date on which the same are submitted by the Contractor as aforesaid.

59.6 In case the PAA is entitled to recover from the Contractor any sum or sums under this Clause arising from any decrease in the said prices for materials, the provisions of this Clause shall apply mutatis mutandis to such recoveries by the PAA.

59.7 If the Contractor fails to complete the works within the time for completion, adjustment of prices therefore until the date of completion of the works shall be made using either the indices or prices, whichever are more favourable to the PAA, provided that if extension of time is granted the above provision shall apply only to adjustments made up to the expiry of such extension of time.

59.8 No escalation shall be allowed to the Contractor in respect of the period extended for the completion of the work due to his own fault.

**60 Water Supply/
Power Supply etc.**

The Contractor should make his own arrangement for water and power supply required for execution of work and nothing will be paid for the same, by the PAA. Provided that in case water supply is allowed by the PAA to the Contractor from water mains passing through areas where the work is required to be carried out, the Contractor shall pay the cost of water to the department at one-half (1/2) per cent of the total cost of work for drinking purpose and one (01) per cent of the total cost of the items of work involving use of water (that is for constructional purposes). The Contractor shall bear full charges for laying its water lines of all length and size / dimensions from the mains to the site of his underground tanks as he may require and construct for storage purposes at its own cost.





- 61 Abandonment of work by PAA.** PAA shall have the power to abandon any work whether in progress or otherwise and in such an event, the Contractor shall have no claim for any compensation of any kind whatsoever from PAA except the actual cost of the work executed at the Site under the Contract for which the contract requires payment to be made.
- 62 Materials obtained from excavation & dismantling.** All materials (e.g. stone and other materials) obtained in the work of dismantling, excavation etc., will be considered PAA property and may be issued to Contractor (if they require the same for their own use) at rates approved by the Divisional Engineer. If these materials are not required by them, they will be disposed of as found fit by the PAA.
- 63 Danger Signs to be provided by Contractor** Lights for illumination, danger signs for warning, and information / cautionary signs in approved colours and sizes shall be provided by the Contractor wherever required at his own cost on the barriers as directed by the Divisional Engineer.





SPECIAL CONDITIONS OF CONTRACT

6 Possession of Site

(Substitute the clause 6 with following text)

- 6.1 The Divisional Engineer shall, together with the written order to commence the Works, grant the Contractor possession of such portions of the Site as are necessary to enable the Contractor to commence and carry out the Works in accordance with the programme referred to in Clause 10, subject to any sequencing or phasing requirements prescribed in the Contract.
- 6.2 Thereafter, and from time to time as the Works progress, the Divisional Engineer shall grant possession of further portions of the Site, as required for execution of the Works with due dispatch, provided such possession aligns with the Contractor's reasonable proposals as approved by the Divisional Engineer.
- 6.3 The Contractor shall submit any such proposals for staging of site possession in writing to the Divisional Engineer for review and approval, and no right to possession shall arise unless and until expressly granted by the Divisional Engineer.
- 6.4 PAA shall not be liable for any delay or claim arising from staged or partial possession of the Site, provided such staging is consistent with the Contract or approved programme.

10 Programme to be furnished

(For works with a contract price exceeding the financial limit prescribed for PEC Constructor Registration Category C-3, as revised from time to time, Clause 10 shall be substituted with the following text)

- 10.1 The Contractor shall, within fifteen (15) days of receiving the Letter of Acceptance, submit a detailed Programme of Works to the Divisional Engineer for approval. The Programme shall include all activities, including mobilization, and clearly identify critical path items using a computerized Critical Path Method (CPM) format. The Programme shall be updated monthly, incorporating a chart of forecasted principal activities, an updated cash flow schedule for payments, and any revisions necessary to reflect actual progress. It shall serve as the baseline for assessing progress and determining Liquidated Damages under Clause 29. Monthly progress reports shall include an up-to-date analysis of actual versus planned progress, identification of current or emerging critical items, and the Contractor's proposed measures for mitigation.

18 Quality of Material, Workmanship and Tests

- 18.2 Expenditure on account of laboratory testing to ascertain suitability of materials and all other required tests etc. shall be borne by the Contractor.

24 Programme to be furnished

(For works with a contract price exceeding the financial limit prescribed for PEC Constructor Registration Category C-3, as revised from time to time, Clause 24 shall be substituted with the following text)

- 24.1 In the event of:
 - (a) the amount or nature of extra or additional work,
 - (b) exceptionally adverse climatic conditions,
 - (c) any delay, impediment or prevention by the PAA, or
 - (d) other special circumstances which may occur, other than through a default of or breach of contract by the Contractor for which he is responsible, being such as fairly to entitle





the Contractor to an extension of the Time for Completion of the Works, or any Section or part thereof, the Divisional Engineer shall, after due consultation with the Contractor, determine the amount of such extension and shall notify the Contractor accordingly. Provided that the Divisional Engineer is not bound to take into account any extra additional work or other special circumstances unless the Contractor has within fourteen (14) days after such work has been commenced or such circumstances have arisen, delivered to the representative of the Divisional Engineer full and detailed particulars of any claim for extension of time to which he may consider himself entitled in order that such claim may be investigated at the time.

25 Termination of Contract for slow progress

25.1 In the event of termination by the Divisional Engineer, the Contractor shall have the right to file an appeal before the Director General PAA, within seven (07) days from the receipt of such termination notice. The decision of the Director General PAA shall be final and binding.

29 Liquidated damages for delay

29.2 The amount of Liquidated Damages for each day of delay in completion of the whole of the Works, or if applicable for any Section thereof, shall be imposed at the rate of 0.05% of Contract Price as stated in Letter of Acceptance for each day of delay in completion of the Works. Provided that the amount of Liquidated Damages for delay shall not exceed ten (10) per cent of the Contract Price as stated in Letter of Acceptance in all cases.

29.3 In cases where liquidated damages have been imposed or have been proposed to be imposed, the amount to be retained in lieu of Security Deposit during the Maintenance Period shall be based on the cost of works executed, and not the reduced amount to be paid to the Contractor after imposition of liquidated damages.

29.4 Where a work has been delayed beyond the stipulated date of completion, the Contractor shall be required to extend the securities and insurances as per the revised dates at his own cost.

31 Suspension of Works

31.2 Partial / complete suspension in work is likely to take place during emergency operations and VIP movements etc. labour, equipment, and material, etc. shall be removed from the site of work during such suspension periods to a distance for essential security requirements. No compensation whatsoever on this account shall be claimed by the Contractor for those losses likely to occur. All such unforeseen disruptions during working hours may result in idleness of manpower and equipment and waste of material, etc. for which no compensation shall be paid to the Contractor.

31.3 No compensation is payable for interruption in the work due to any reason beyond the control of PAA.

32 Care of Works

32.2 The Construction materials should be stacked at a suitable place as per the direction of the Divisional Engineer or his representative.

32.3 The work shall be so arranged as not to cause any disturbance to the passengers / functionaries and other agencies working at the airport.

41 Valuation of Works

41.3 For works items described in the priced bill of quantities (BoQ), the valuation of works shall be made as per the evaluated rates provided in the corrected priced BoQ, and

41.4 For work items not described in the priced bill of quantities (BoQ) but available in the Pak PWD Schedule of Rates (SoR), the valuation of works shall be made on pro rata basis, and

41.5 For work items neither described in the priced bill of quantities (BoQ) nor available in the





Pak PWD Schedule of Rates (SoR), the valuation of works shall be made on the basis of actual cost (market rates) plus a lump sum of twenty-five per cent (25%) as overheads and profit.

47 Period of Maintenance

47.2 The “Period of Maintenance” shall be of 02 (two) years duration unless otherwise specified in the Special Conditions of the Contract, calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the Divisional Engineer in accordance with the Clause 46 hereof or, in respect of any Section or part of the Works for which a separate Certificate of Substantial Completion has been issued, from the date of completion of that Section or part as stated in the relevant Certificate. The expression “the Works” shall, in respect of the “Period of Maintenance”, be construed accordingly.

49. Refund of Security Deposits

The Security Deposit shall not be refunded prior to 02 (two) years after the completion of the whole work, unless and until a certificate is issued by the Divisional Engineer for successful and satisfactory passing of the Period of Maintenance with no other liability on the Contractor.

59. Increase or Decrease of Cost

59.9 The Price Adjustment shall be applicable only for the Contracts having stipulated completion period greater than eighteen months and contract price exceeding financial limit of PEC Constructor’s Registration Category C-3 as amended from time to time. Contracts having stipulated completion period less than or equal to eighteen months and value equal to or less than the abovesaid limit will be considered as fixed price contracts.

64 Payments to Contractor

64.1 PAA shall release payment to the Contractor within fifty-six (56) calendar days from the date of certification of the Contractor’s bill by the Divisional Engineer. Should payment be delayed beyond this period, a simple interest at the rate of zero-point zero five percent (0.05%) per annum shall accrue on the unpaid amount, calculated from the day immediately following the due date until the date of actual payment.

65 Settlement of Disputes

65.1 Any difference or dispute arising between the PAA and the Contractor regarding the interpretation, execution, or performance of any provision of this Contract shall be referred exclusively to the Director General PAA, whose decision shall be final, conclusive, and binding on both parties. The Contractor shall not initiate or pursue any legal proceedings or remedies in relation to such matters. This shall be without prejudice to the rights of the parties under the applicable laws.

66 Authenticity of Financial Instruments

66.1 Any financial instrument, submitted by the Contractor as Bid Security, and Performance Guarantee, if found fake or dishonoured by the issuing bank / financial institution at any pre- / post-contractual stage shall, in addition to any criminal liability, call for blacklisting of the Contractor.

67 Obligations of the Contractor

- 67.1 The Contractor, during the execution of works, shall be responsible for following the instructions and directions of the Divisional Engineer or his representative only.
- 67.2 The Contractor shall be responsible to provide and use quality construction material as per the specifications, and to the satisfaction of the Divisional Engineer.
- 67.3 The Contractor shall strictly adhere to all design requirements and technical specifications established by the Design Engineer and approved by PAA. The charges of which shall be borne by the Contractor, but the additional quantity of any materials used in executing the Works shall be paid as per Contractor’s quoted rate.





- 67.4 The Contractor shall clean the existing rusty steel by approved means at his own cost and no compensation whatsoever shall be given to the Contractor.
- 67.5 The Contractor will be fully responsible to arrange security clearance of his workmen employed on the job in accordance with the rules requirements enforced at the time of execution and shall not be entitled for any compensation whatsoever on account of wastage of time and labour due to any reason.
- 67.6 The Contractor shall enclose the work / site area as per direction of the Divisional Engineer or his representative at his own cost. He will also ensure safety of workers as well as passenger(s) and airport staff during and after the work hours.
- 67.7 The Contractor shall submit a list of fittings, fixtures, equipment etc. to be dismantled as approved by Engineer In charge accordingly.
- 67.8 Generally, the works will be carried in accordance with Electrical Act 1910 read with Electricity Rules 1937 and any amendments thereto, Pak PWD Specifications for Electrical Works & latest editions of I.E.E rules of Building Equipment.
- 67.9 All wires & Cables to be used for executions of work will be copper conductors.
- 67.10 Damages done by the contractor during execution of work will be made good by the Contractor as per Engineering specifications and to the complete satisfaction of the Engineer In charge.
- 67.11 The contractor will perform all types of tests as directed by E&M Engineer In charge after / before executions of his work & will submit test reports in this regard if required.
- 67.12 Cost of samples of materials will not be claimed & test charges for all required tests as instructed by the E&M Engineer from Govt. or other authorities will be borne by the contractor without any extra claim of this effect.
- 67.13 The Contractor shall submit warranty / guarantees & literature of all Electric, Mechanical, Electronic, IT and allied equipment and software etc. as desired by Engineer In charge.
- 67.14 The approved makes of materials, accessories & equipment are provided in Appendix-F. works shall be executed subject to approval of samples from Engineer In charge.
- 67.15 Any equipment / items during execution / testing / commissioning & during maintenance period if burnt out / malfunctioning or broken will be replaced by the contractor without any extra cost.
- 67.16 The contractor shall at his own cost, have the structural tender drawings reviewed and vetted by a PEC registered Structural Engineer or Firm, and shall submit a structural review and stability certificate to the Engineer In-Charge for approval prior to commencement of any structural works.
- 67.17 Contractor shall not execute any work (particularly hot work) prior to information / approval of concerned PAA supervisor / Engineer In-Charge.
- 67.18 The bidder shall provide equipment repair/replacement warranty for 05 (five) years in case of any defect. The warranty of complete installations to be divided in two phases. During phase one, after issuance of completion certificate, the bidder will be responsible for repair/replacement of defective/unserviceable parts during maintenance period i.e. initial two years. In second phase for next 03 (three) years, the OEM will be liable for repair/replacement of defective/unserviceable parts with new parts free of cost through local authorized agent within 14 days of reported defect. The bidder will be responsible for enforcing this warranty arrangement with OEM and letter to this effect to be provided from OEM before expiry of phase-1 warranty period.



**SCHEDULE OF BASIC PRICES OF SPECIFIED MATERIALS****A) Basic Price Materials (To be filled by the Bidder)**

We confirm herewith that the following prices were prevalent in the month during which the last day of the submission of bidder fell and have been taken as a basis for quoting the prices given in our Bidder.

Adjustment of increase / decrease in price shall only be admissible for the materials listed herein under:

S.No.	Materials	Unit	Basic Price Ex-Factory/Works	Remarks
1	2	3	4	5
1.	Cement i) Ordinary Portland Cement ii) Sulphate Resisting Cement	Bag (50 Kg)		The basis of the rate is the Monthly Statistical Bulletin issued by the Pakistan Bureau of Statistics. -- do --
2.	Steel i) Reinforcement Bars ii) M.S. Sections	Kg		-- do -- -- do --
3.	Bitumen i) Grade 60/70 ii) Grade 80/100 iii) Cutback Bitumen a) Medium Curing b) Rapid Curing	Tonne (1000Kg)		The basis of the rate is the Monthly Statistical Bulletin issued by the Pakistan Bureau of Statistics. If not available then basis would be National Refinery, Attock Refinery or from an approved equivalent source. -- do -- -- do -- -- do -- -- do --

Note:

(1) If the price paid by the Contractor for any of the Specified Materials shall differ from the basic thereof and shall cause an increase or decrease of cost to the extent of five (5) per cent or more to the Contractor in carrying out the Contract, the increase or decrease of such cost shall be adjusted in the Contract Price accordingly. The actual payments shall be made on the basis of quantities actually measured and certified for payment. Any fluctuation in the prices of materials other than the Specified Materials shall not be subject to adjustment of the Contract Price.

(2) The Bidders shall submit satisfactory documentary evidence in support of the rates and prices filled up in this Appendix.

We agree that price variation in the above listed basic prices during the currency of the Contract will be adjusted only to the extent as stipulated under the Conditions of Contract.

Authorized Signatures _____

Name _____

Seal _____

Date _____





MATERIALS TO BE PROVIDED BY PAA

Schedule showing (approximately) materials to be supplied by the PAA under Clause 52 of the General Conditions of the Contract or for work contracted to be executed and the rates at which they are to be charged for

Particulars	Rate at which the material shall be charged to the Contractor		Place of Delivery
	Unit	Rs.	

N.A

Note: The person or firm submitting the Bid should see that the rates in the above schedule are filled up by the Divisional Engineer on the issue of the form prior to the submission of the Bid.





PERFORMANCE BOND GUARANTEE

Guarantee No:
Date of Issue:
Amount of Guarantee:
Date of expiry:

By this Bond We (hereinafter called "THE SURETY"), (1) do hereby bind ourselves and our successors and assign jointly and severally by these presents to pay to the PAKISTAN AIRPORTS AUTHORITY, KARACHI (hereinafter referred to as the PAA which term shall include his successors in office and assigns) unconditionally on demand and without further question, the sum of Rs..... (Rupees.....), sealed with our respective seal and dated this

WHEREAS, M/s. (hereinafter referred to as "THE CONTRACTOR") by an agreement made between the PAA of the one part and the Contractor of the part have entered into a Contract hereinafter called "Said Contract" for the Construction, completion and maintenance of as therein mentioned in conformity with the provisions of the said contract and the sum mentioned in the above written Bond represent the amount of Performance Bond to be furnished by the Contractor for due fulfilment of obligations under the said Contract.

NOW THE CONDITION OF the above written Bond is such that if the Contractor shall duly perform & observe all the terms, provisions, conditions & stipulations of the said contract on the Contractor's part to be performed & observed according to the true purpose, intent & meaning hereof as determined by the PAA who shall be the sole judge in the matter, or if on default by the Contractor for which the PAA shall be sole judge the Sureties/Surety shall pay the amount of this Bond to PAA without reference to the Contract, then this obligation shall be null and void but otherwise shall be and remain in full force and effect but no alteration in terms of the said Contract made by agreement, between the PAA and the Contractor or in the text or nature of the works to be constructed, completed and maintained thereunder and no allowance of time by PAA under the said Contract nor any forbearance or forgiveness in or in respect of any matter or thing concerning the said Contract on the part of the PAA shall in any way release the Sureties/Surety from any liability under the above written Bond.

AND WE agree that this Bond shall be irrevocable and the Guarantee hereby given shall be valid up to ... and that a Certificate signed by the Director Engineering Services / Additional Director, stating that the Bond has become due will be sufficient proof of its forfeiture and we shall pay the amount so demanded without, any further proof of any kind and that the payment shall be made by us forthwith on the receipt of the Certificate of the Director Engineering Services / Additional Director as aforesaid.

Notwithstanding anything contained hereinabove, the Bank's liability under this Guarantee shall in no event exceed the sum of Rs (Rupees.....), and this guarantee shall remain valid up to where after the Bank shall be completely discharged and released from all its liabilities hereunder unless a claim is received before the aforesaid expiry date.

Signed, sealed and delivered by the said in the presences of:

For and on behalf of
M/s

For and on behalf of

CONTRACTOR

SURETY

WITNESSES:

- 1. Signature.
- Name.
- CNIC:
- Address.

- 2. Signature.
- Name.
- CNIC:
- Address.





MOBILIZATION ADVANCE GUARANTEE

(Bank Guarantee)

Guarantee No. _____

Date _____

WHEREAS the Pakistan Airports Authority (hereinafter called PAA) has entered into a Contract for _____ (Particulars of Contract), with Constructor "M/s _____" (hereinafter called the "Contractor").

AND WHEREAS, PAA has agreed to advance to the Contractor, at the Contractor's request an amount of Rupees _____ (Rs. _____), which amount shall be advanced to the Contractor as per provisions of this Contract.

AND WHEREAS, PAA has asked the Contractor to furnish Guarantee to secure the advance payment for the performance of his obligations under the said Contract.

AND WHEREAS, _____ (Scheduled Bank) (hereinafter called the "Guarantor") at the request of the Contractor and in consideration of the PAA agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above-mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to PAA for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the PAA shall be the sole and final judge, on the part of the Contractor, shall be given by the PAA to the Guarantor, and on such first written demand, payment shall be made by the Guarantor forthwith of all sums then due under this Guarantee as determined by the PAA without any reference to the Contractor and without any objection.

This Guarantee shall remain in force until the advance is fully adjusted against payments from the interim Payment Bills of the Contractor or until (Date) _____ whichever is earlier.

The Guarantor's liability under, this Guarantee shall not in any case exceed the sum of Rupees _____ (Rs. _____).

This Guarantee which is unconditional and irrevocable, shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from interim Payment Bills of the Contractor provided that the Guarantor agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted as payments from interim Payment Bills of the Contractor.

GUARANTOR

For _____

(Bank Limited)

1. Signature _____
2. Name _____
3. Title _____





LIST OF BANKS

Following is the list of approved schedule banks (financial institutions) acceptable to PAA for obtaining Bank Guarantee(s):

Public Sector

- 1) National Bank of Pakistan
- 2) Sindh Bank Limited
- 3) The Bank of Punjab

Private Sector

- 4) Allied Bank Limited
- 5) Askari Bank Limited
- 6) Bank Al Habib Ltd.
- 7) Faysal Bank Ltd.
- 8) Habib Bank Ltd.
- 9) Habib Metropolitan Bank Ltd.
- 10) JS Bank Ltd.
- 11) MCB Bank Ltd
- 12) Samba Bank Ltd.
- 13) Soneri Bank Ltd.
- 14) Standard Chartered Bank Ltd.
- 15) United Bank Ltd.
- 16) Industrial and Commercial Bank of China Ltd.

Islamic Banks

- 17) Al Baraka Bank (Pakistan) Limited
- 18) Bank Islami Pakistan Limited
- 19) Dubai Islamic Bank (Pakistan) Limited
- 20) Meezan Bank Limited





LIST OF APPROVED MANUFACTURERS / SOURCES

This list of recommended manufactures / suppliers of different materials / equipment with brand names have been provided in order to establish a standard level of performance. The Contractor is supposed to provide and fix the materials / equipment of acceptable quality from the list or equivalent as approved by the Engineer. Whereas the preference of brand and model will be decided by the Engineer. Material from approved list shall stand rejected, if it fails in any of the specified tests or quality standards.

Sr. No.	Description	Manufacturer/Supplier/Source
Civil Works		
1	Cement (OPC, SR)	Lucky, Pioneer, Maple Leaf, Fauji, Askari, Power, Cherat, DG Khan, Dewan
2	Cement (White)	Kohat, Maple Leaf, Zealpak
3	Construction Chemicals & Sealants	Sika, Fosroc, BASF, Ultra, Fastchem, Vertex, MAPEI, KALON, Mitchell
4	Anchoring / Fixing Systems	Strong hold, Strong force, Hilti, Fischer
5	Sand	Bholari or from any other approved source as per Mix Design.
7	Aggregate	From approved source.
8	Steel Reinforcement	Amreli, FF Steel, AFKO, Ittehad, Ittefaq, Fazal, PECO, Razzaque, Metropolitan, Mughal, Pak Steel, Model Steel, Nizami Brothers, Moiz Steel, Poiner, Tayyaba Steel or approved equivalent.
9	Bitumen (Cold)	National Refinery, Attock Petroleum, PARCO
10	Bricks/Blocks	Local (Brand / source to be approved by the Engineer)
11	Ceramic Tiles	Shabbir, Master, Time Ceramic, National, or equivalent imported
12	Vinyl Tiles	Decora, Marflex, A.T.S. Synthetic
13	Wooden Flooring	Sarina, Firstfloor or equivalent
14	Textured Decorative Wall Coating	Rockwall, Wall Tec, Rock Shield, Sand Tec, Graffito, Jotun
15	Aluminium Doors / Windows	ALCOP, Pakistan Cables, Chawla, Prime, Ittehad Aluminium, Thermec, Eng: Co, Alhali Aluminum Co (Pvt) Ltd, Krudson, Lucky or equivalent
16	Aluminium Composite Panel	ALCOP, Chawla, Pakistan Safety Glass (Alucobond), AKB (EuroBond – Exterior. & DuBond – Interior)
17	Paint	ICI (Dulux, Paintex), Berger Robbialac, Brighto, Master, Kansai (Japan), Nippon, Jotun, Diamond, Buxly, Pakistan Phthalates Limited (Kalon Chemicals Company) or equivalent.
18	Powder Coating	Jotun or approved equivalent
19	Concrete Pavers	Tuff Tiles, Izhar, Envicrete, National Pavers, Banu Mukhtar, Magnacrete or equivalent
20	Insulation	Diamond (Jumbolon), Pakistan Insulations, Safe line, Insugreen





Sr. No.	Description	Manufacturer/Supplier/Source
21	Membranes for Roof and Basement walls	Polytec (Henkel Polybit), Hygrip, Roof Grip, A.T.S. Synthetic, Petro Seal, Bitumat (Saudi Arabia), Pakistan Phthalates Limited (Kalon Chemicals Company), Sika Raingard
22	uPVC Doors / Windows	Framez, Uniwin, Nasar Steel, U-Tech, Green Door, V-Make, Chawla
23	Steel Doors and windows	SECCO or any other approved equivalent
24	Termite Proofing	Agenda (Termidor), Biflex, Fiprokil, Mirage, Termicure, Ability
25	Terrazzo Tiles	As approved by Engineer
27	Pre-Engineered Steel Buildings	Zamil, Mammut, Mabani, Kirby, Banu Mukhtar, Izhar, SACHAL
28	Gypsum False Ceiling	Elephant, Lodhia (Arish), DFB, United
29	Glass	Pakistan Safety Glass, Ghani, Al-Fattah, Khawaja, Nowshera Prince or equivalent.
30	Door hardware	Kolf, Sitara Hardware, Jb.Saeed, IM Hardware (Yale), Alpha, Khas, Babar, or approved equivalent.
32	SS Railing	Dah Shi (Taiwan) or equivalent
33	Medium Density Fibreboard	Al-Noor, ZRK, Nuboard or equivalent.
34	High Density Fibreboard	Patex, Sonitex or equivalent
35	Plywood	Patex, Marineplex or equivalent.
PUBLIC HEALTH WORKS		
1	Sanitary Ware (WC Indian, WC European, Basin / Vanity, Urinal, Flushing Cistern)	Porta, Marachi, Master, ICL, Finecera, Karam, Cera and 3 Star or equivalent.
2	Bottle trap	Porta, Master, Faisal, Sonex, Asia and Super Asia or equivalent.
3	Bath / Kit. Fittings	Porta, Master, Faisal, Sonex or equivalent.
4	PPR-C Pipes & Fitting	Dadex, Beta, Master, Plasco, Turk Plast, Popular Pipe, Accufit, Minhas, Dura Built, IIL, Builtec, Euro Gulf, YAH Plastic Industry, Pelikan Pipe Industry (Civic)
5	uPVC Pipes & Fittings	Dadex, Shavyl, Galco, Beta, Turk Plast, Jamal, Fast Flow, Plasco, Popular Pipe, Master, Accufit, Dura Built, Builtec, Euro Gulf, YAH Plastic Industry, Newtech, Pelikan Pipe Industry (Civic), Prime Star Industries or approved equivalent.
6	RCC Pipe	Shalimar, Pakistan Pipes, National Pipe Industry
7	G.I. Pipes	International Industries Ltd. (IIL), Master Pipe, Jamal, Victory, Steelelex or equivalent
8	C.I. Pipes	C.I. Engineering / Corp: Teepu, Alpine, NPC and CME or equivalent.
9	Gate / Sluice Valves	KITZ (Star Corporation), Teepu, Anwer, Asia, Rehman Group, Sirajia Trading co.





Sr. No.	Description	Manufacturer/Supplier/Source
10	G.I. Fittings	KITZ (Star Corporation), Health Engineering (HE)
11	C.I. Fittings & Valves	Teepu, Alpine, Sirajia Trading co.
12	C.I. Manhole Cover	CME, Teepu, Alpine, Turk Plast
17	MS Seamless Pipe	Huffaz Industries, Jamal, KITZ, Sirajia Trading co., Master Pipes, Victory
18	PVC Water Stop	Fosroc, Sika, Decora, Marflex
19	HDPE pipe and Fittings	Dadex, Jamal, Plasco, Turk Plast, Beta, Popular Pipe, Accufit, IIL, DURA BUILT, Bultec, Fast Flow, YAH Plastic Industry, Newtech, Pelikan Pipe Industry (Pelikan), Prime Star Industries
21	Water Tank	Master, Super Tuff, Dura, Accufit, Prime Master
22	Kitchen Sink	Porta, Atlas, Asia or approved equivalent
ELECTRICAL & MECHANICAL WORKS		
1	Wires and Cables	Pakistan Cables, Fast, AGE, Newage
2	Air Switch Breaker, Load brake switches, MCCB and MCB etc.	Terasaki Japan, Siemens, ABB, MG, Hager, Schneider Electric
3	Switches and Sockets	Schneider, Philips, Pakistan Cables
4	Down Light/ Batten Lights	Sunlight, Pierlite, Future Technology, Orient
5	Flood Lights	Philips/ Signify, Osram, GE, Thorn
6	Fans Ceiling/Exhaust/Bracket	Pak, Royal, SK, Super Asia,
7	UPS	Huawei, Homage, Inverex, Goodwee, Crown, Fronius, APC
8	Tubular batteries	AGS, Phoenix, Osaka, Exide, Volta
9	AC Units	Gree, Haier, Orient, Green Air, Dawlance, PEL, Kenwood
10	Air Curtains	Gree, Haier, Orient, Green Air, Dawlance, PEL, Kenwood or Equivalent
11	PVC Conduits and Pipes	Polupar, Galco, Sheval, Adamjee, GM, Dadex
12	PVC Cable Trunk	Adamjee, Jeddah or equivalent
13	Termination Kit / Straight Jointing Kit	Raychem (Germany), 3M (USA), Elastimod (Egypt)
14	LV main distribution panel	Siemens, PEL, FICO, Schneider Electric, ABB, Sunbeams, Engineers & Engineering, Libra, Hussein & Co., BLS
15.	UVSS, Boom Barrier and allied equipment, softwares etc.	Chengwei, Dahua, Hikvision or equivalent
16.	Hydraulic Road Blocker, and allied equipment, softwares etc.	Chengwei, Dahua, Hikvision or equivalent
17.	UPS	Eaton, APC or equivalent





For PAA

For Contractor

18.	Work station	Dell / HP / Fujitsu or equivalent
19.	Server Rack	Corning, Vivanco, Toten, Blackcopper or equivalent
20.	Fiber Optic Cable	Corning, LTE ,Premieir or equivalent
21.	Network Cable Manager	Corning, Dlink , Vivanco or equivalent
22.	POE & SFP Switch	H3C, Huawei , Cisco or equivalent
23.	ODF Switch	Corning, Ai-Tek , Vivanco or equivalent
24.	Cat 6 cable	Corning, Dlink , Vivanco or equivalent
25.	Cameras	Hikvision, Bosch, Dahua or equivalent



For PAA

A-9

For Contractor

TECHNICAL EVALUATION CRITERIA

The Technical Proposal shall contain the following documents:

Note: All submitted documents (copies of original certificates/documents) must be duly attested/notarized by Notary Public/oath commissioner

Sr.	Documentary Evidences	Provided = YES Not Provided = NO Not Applicable = N/A
(a)	Original Bid Security furnished.	
(b)	Certificate of incorporation / Memorandum & Article of Association or Partnership Deed / Sole Proprietorship etc.	
(c)	Joint Venture Agreement (if applicable). In case of foreign firm/company, Joint Venture with Pakistani firm and registration with SECP.	
(d)	Affidavit on non-judicial stamp paper to the effect that the firm has not been blacklisted by any Government, Semi Government and Autonomous Body.	
(e)	Active Taxpayer Status (ATL)/NTN/GST and Professional Tax Certificate.	
(f)	Valid Certification/ License by the Pakistan Engineering Council (PEC in category C-4 or above with specialization code(s) CE-1(i), CE-10, CE-11, BC-01(ii), EE-02, EE-04, ME-07(v)	
(g)	Valid Professional Tax Certificate	
(h)	Power of Attorney (if applicable)	
(i)	<p>Bidding Documents with each page to be signed and stamped (both Top & Bottom) by Authorized Representative of the Bidder, as detailed below:</p> <p>(a) Contract Documents</p> <ul style="list-style-type: none"> i) Memorandum for Running Bills & Extension of Time ii) General Instructions iii) Declaration <i>[fill and sign]</i> iv) Invitation to Bids v) Instructions to Bidders vi) Memorandum vii) Letter of Offer for Execution of Works <i>[fill details including email address]</i> viii) Form of Agreement ix) Bill of Quantities (BOQ) x) Technical Specifications xi) Special Conditions of Contract xii) General Conditions of Contract xiii) Appendices to Conditions of Contract (A to G) xiv) HSE Manual for PAA Contractors, Suppliers and Concessionaires xv) Addendum (if any) 	
(j)	Work Completion Certificates demonstrating successful installation of at least five (05) Under Vehicle Surveillance Systems in Pakistan by the bidder or the OEM (or OEM's authorized distributor) whose equipment is proposed by the bidder, in last 05 (five) years.	

Sr.	Documentary Evidences	Provided = YES Not Provided = NO Not Applicable = N/A
(k)	Audited Financial Statements for companies or Chartered Accountant certified financial statements / income tax returns for sole proprietors demonstrating a minimum average annual turnover of PKR 350 million during the last three (03) completed financial years.	
(l)	Branch-certified bank statements of the last six (06) months prior to the bid submission date, demonstrating an average bank balance of not less than PKR 30 million.	
(m)	Technical Submittal as per following: <ul style="list-style-type: none"> ▪ Technical literature in the shape of OEM brochures, catalogues, specifications for BOQ item nos. 1 to 4, 6, 17 to 21, 25, 55, These requisite documents shall be attached / provided with the technical bid, including compliance matrix indicating conformity of each item with the requirements of BOQ and technical specifications. 	

NOTE:

- i) The bidders who respond 'Yes' in all of the above requirements and provide documentary evidences in support of their 'Yes' shall be technically evaluated. The technical evaluation be carried out according to the technical evaluation criteria. Any "No" to above checklist or non-submission of supporting documents or furnishing vague, forged documents or concealment of facts or submission of false information may lead to disqualification of such bidder.
- ii) The Technical Proposal shall be evaluated for compliance with the requirements specified in the BoQ and the Technical Specifications. Bidders shall submit technical specifications, brochures, or product data sheets for the offered items indicating the conformity of each item with the corresponding requirements of BoQ and the Technical Specifications.
- iii) Client may, at its discretion, waive any minor non-conformity or any minor irregularity in bid. This shall be binding on all competitors and Client reserves the right for such waivers.
- iv) Client may at its absolute discretion, exclude or reject any bid that in the reasonable opinion of Client contains any false or misleading claims or statements. Client has no liability to any person for excluding or rejecting any such bid.
- v) All bids fulfilling requirements mentioned above shall be considered as technically responsive.



Chapter 1

INTRODUCTION

1.1 INTRODUCTION

Integrated Management System comprising International Management System standards ISO 9001: 2008 (Quality Management System), ISO 14001: 2004 (Environmental Management System), OHSAS 18001: 2007 (Occupational Health and Safety Management System), and ICAO's SMS (Safety Management System) has been implemented in Pakistan CAA. These standards require adherence from all the stakeholders to fulfill their respective obligations towards vital aspects of Safety, Quality, Occupational Health and Environment. This HSE Manual outlines the responsibilities of contractors, suppliers and concessionaires working for CAA or on the areas under CAA's jurisdiction

1.2 CAA IMS POLICY

Top Management commitment is demonstrated in IMS Policy, attached as **Appendix-A** (English version) and **Appendix-B** (Urdu version).

1.3 RESPONSIBILITY & AUTHORITY

1.3.1 RESPONSIBILITY FOR HSE COMPLIANCE:

- 1.3.1.1 CAA shall require Contractors and/or Sub-contractors / Suppliers / Concessionaires to affirm that all supervisors are responsible for ensuring that the works / activities are performed in accordance with all applicable health, safety and environmental rules, regulations and good working practices with equal diligence being paid to the fulfillment of the contractual technical specifications. CAA will require Contractors and Sub-contractors to advise such personnel of their safety responsibilities. Contractors / Suppliers / Concessionaires shall also provide CAA with their organizational setup for a particular contract / subcontract / renewal / bid invitation document, where applicable, specifying the areas of safety responsibilities of their supervisors.
- 1.3.1.2 **All DDGs** shall ensure imparting necessary directions and establish requisite monitoring & evaluation mechanism in their respective area of responsibilities to fulfill the vision and the objectives contained in this manual.
- 1.3.1.3 **The concerned Directors / Additional Directors / Airport Managers / Chief Operations Officers / Location Heads / Sectional Heads**, involved / engaged in the purchase of materials, services and contracts (including sub-contracts, if any), shall ensure effective implementation of this manual. They shall also be responsible to designate **Contract Coordinators** where applicable especially on large scale projects.
- 1.3.1.4 **Contract Coordinator** (a designated CAA Employee) shall be responsible for the on-site implementation of HSE requirements by the contractors and their officials / workers. He shall also be responsible to record on-site management activities and meetings specific to the HSE issues.
- 1.3.1.5 **Deputy Management Representatives (DMRs)** shall be responsible to oversee the implementation and effectiveness of this manual at their respective Airports / ATS Units / Locations.
- 1.3.1.6 The concerned **Directors / Additional Directors / Airport Managers / Chief Operations Officers / Location Heads / Sectional Heads**, involved / engaged in the purchase of materials, services and contracts (including sub-contracts, if any), shall ensure incorporation of specific clause(s) on Safety, Health & Environment in the contract agreements or their renewals / bid invitation documents indicating the need for compliance with the detailed guidelines as outlined in this manual.



- 1.3.1.7 All Safety, Health and Environment requirements contained in this manual shall also be made part of the bid invitation documents / contracts.
- 1.3.1.8 Any specific requirements not covered in this manual and in the existing HSE clause of the contract / lease agreement may be specified in the contract / lease documents by the respective CAA functions, in consultation with Additional Director SQMS (REG/CF), Additional Director SQMS (ANS/APS) at HQCAA and concerned DMRs at Airports / ATS Units / Locations. These may include but not limited to:
- a. Working procedures
 - b. Risk / impact assessment of the job
 - c. Requirements of transporting carrier, machinery / equipment and tools
 - d. Handling / packaging identification requirements
 - e. Information about the product composition
 - f. Compliance to the related Safety, Health & Environment procedures for performing the activity
 - g. Usage of Personal Protective Equipment (PPE)
 - h. Competence / training requirements of workers
 - i. Handling and disposal of waste, etc
 - j. The need to obtain Permit To Work (PTW), where required
 - k. Emergency procedures
 - l. Accident / incident reporting
 - m. Legal requirements
- 1.3.1.9 The **concerned Directors / Additional Directors / Airport Managers / Chief Operations Officers / Location Heads / Sectional Heads** may ask the supplier / contractor / concessionaire to carry out a **risk assessment** before awarding a contract for high-risk tasks, where applicable.

1.3.2 ONSITE MANAGEMENT OF CONTRACTORS FOR MEGA / MAJOR PROJECTS:

- 1.3.2.1 The **concerned DDGs / Directors / Additional Directors / Airport Managers / Chief Operations Officers / Location Heads / Sectional Heads** shall ask the contractor / supplier / concessionaire to designate a **Safety Officer** wherever applicable, depending upon the quantum of contract, who shall be the focal person and responsible for on-site implementation of HSE requirements on part of contractors / suppliers / concessionaires. For Contracts / Agreements of smaller quantum, the contractor / supplier / concessionaire shall be directly responsible in this regard without having the need to designate such representatives.
- 1.3.2.2 The **concerned Directors / Additional Directors / Airport Managers / Chief Operations Officers / Location Heads / Sectional Heads** shall be responsible to nominate a representative (**Contract Coordinator**) for on-site management of contractors for mega / major projects. The contract coordinator / representative shall monitor the HSE compliance by the contractor / supplier. This includes monitoring of:
- a. Controls to prevent HSE risks
 - b. Contractor equipment for appropriateness
 - c. Compliance of work procedures
 - d. Waste Disposal & Record keeping



- e. Compliance of regulatory requirements, to this HSE Manual or their own HSE Manual(s) if exceeding the requirement stipulated by the CAA and PTW by contractors / suppliers / concessionaires
- 1.3.2.3 **Regular on-site meetings with the contractor** must be convened / held to discuss the HSE compliance and related aspects of the job. Records of such meetings and on-site management activities must be maintained by the Contract Coordinator.
- 1.3.2.4 **HSE audit or on-site inspections** shall be carried out randomly by the authorized Inspectors of SQMS Directorate in coordination with the concerned Directorate / Branch at HQCAA and concerned Section at airports / locations for checking HSE compliance. IAR (Improvement Action Report) on **CAAF-002-MSXX** shall be raised / generated in case any non-conformity is observed or if any corrective or preventive action is required. All proceedings of the audit or on-site inspections shall be documented by the respective inspectors.
- 1.3.2.5 All the works, purchase / supplies and services being carried out / rendered by Contractors / Suppliers / Concessionaires shall be liable to monitoring and supervision by CAA's authorized / designated official(s) to ensure their HSE-worthiness. Surprise inspection may be carried out at any time by SQMS Officials.
- 1.3.2.6 The monitoring / supervision so required shall be made under the relevant clause(s) of the contract. The performance monitoring data of contractors with regard to compliance to HSE manual and CAAO will be collected / maintained and documented on periodical basis by the respective DDGs as well as by SQMS Directorate / SQMS teams at locations, to develop necessary corrective / preventive actions accordingly. This significant data of a particular contractor / supplier / concessionaire, will be critically observed and be given due consideration at the time of awarding / continuation / renewals etc of any contract.
- 1.3.2.7 All potential Contractors, Suppliers and Concessionaires shall be informed about the availability of HSE manual which would require compliance from them. The latest version of this Manual shall be posted on the CAA's Official Website www.caapakistan.com.pk.
- 1.3.2.8 The concerned Directorate / Branch / Airport / Location shall provide the hard copy of the latest version of HSE Manual to the Contractors / Suppliers / Concessionaires at the time of signing of the Contract Agreements / License Agreements / Lease Deeds / Purchase Orders / Supply Orders, etc.
- a. No work be executed without supervision of concerned representation of OPI Section / Branch, especially at aerodrome.
- b. The representation of OPI section / function shall ensure implementation of preventive control measures during execution of work and corrective measures in case of any abnormal / emergency situation.
- c. All food concessionaires shall preferably be certified in Food Safety Management System ISO 22000: 2017.
- 1.3.2.9 In case of existence of any Contractor's, Supplier's and Concessionaire's HSE Manual having provisions more stringent to this HSE manual, those shall be applicable as far as the currency of that particular contract is concerned.
- 1.3.2.10 All the Contractors, Suppliers and Concessionaires shall be responsible to provide and update bare minimum training / awareness on HSE to their employees and subsequent implementation. Any breach / violation thereof by any of such employee(s) shall be construed upon to be on behalf of that very Contractor, Supplier and Concessionaire. Records pertaining to HSE related training / awareness shall be maintained and provided to concerned CAA official(s) designated by the OPI and/or Representative(s) of CAA's SQMS team.





- 1.3.2.11 The training / awareness described above shall include but not limited to the following: -
- a. Site acquaintance (i.e. Aerodrome / Building layout, Building Evacuation Procedure, etc).
 - b. General aerodrome layout & hazards and handling of standard equipment.
 - c. HSE related operational hazards / environmental aspects and risks / environmental impacts associated and related control measures with the particular contract / agreement.
 - d. Basic First Aid and other corrective measures.
 - e. Application of Permit to Work / Lock Out and Tag Out.
 - f. Special MSDS, classification / composition of hazardous material for handling of hazardous material.
 - g. Incident(s) / accident(s) including environmental incidents (spills, etc) reporting.
 - h. Waste management.
 - i. Basic Fire Fighting.
 - j. Safe driving.
 - k. Response in emergency.
 - l. Personal Protective Equipment (PPE).
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Chapter 2

GENERAL INFORMATION

2.1 BASIC SAFETY & SECURITY RESTRAINTS

- 2.1.1 The following are some basic safety & security restraints. In case of violation of any of these, Contractors / Suppliers / Concessionaire shall be dealt with in accordance with **Rule 91 (Section 10) of CARs 94**:
- 2.1.1.1 Possession or use of alcoholic beverages or illegal drugs.
 - 2.1.1.2 Possession of un-authorized explosives, firearms, ammunition, and other weapons.
 - 2.1.1.3 Violation of any safety or security rules or requirements as laid down in **Part VIII, Section 10 of CARs, 94 (Rule 92-110)**.
 - 2.1.1.4 Illegal dumping, handling, or disposal of hazardous materials.
 - 2.1.1.5 Demolition or removal, without written permission, of any property belonging to CAA.
 - 2.1.1.6 Intimidating, threatening, harassing, impeding or interfering with CAA employee(s) or designated representative(s).
 - 2.1.1.7 Misuse of fire prevention and protection equipment.
 - 2.1.1.8 Unauthorized removal or destruction of a safety barricade, handrail, guardrail, warning sign, fall protection, or other warning devices intended to protect employees or property.

2.2 SAFETY PERMITS

- 2.2.1 All CAA contractors, suppliers or concessionaires shall obtain prior approval for PTW from CAA's authorized / designated official(s) and follow all the safety requirements, precautions, controls of PPEs classified as PTW related tasks as any of the operations mentioned below may present a hazard to people, property and environment.
- 2.2.1.1 Performing burning, welding, cutting, soldering, or other hot work.
 - 2.2.1.2 Working on fire protection / detection systems.
 - 2.2.1.3 Working on electrical, steam, chilled water systems or other energized systems.
 - 2.2.1.4 Installing a temporary electrical service
 - 2.2.1.5 Working with hazardous chemicals (including solvents and paints).
 - 2.2.1.6 Handling, transporting or generating hazardous wastes (including hospital biological waste, waste oil, chemicals, condensate, etc).
 - 2.2.1.7 Using a gas, diesel, or LPG (such as Propane) powered engines.
 - 2.2.1.8 Working on gas pipe lines or associated equipment.
 - 2.2.1.9 Operating a power vehicle or self-propelled work platform.
 - 2.2.1.10 Excavation / trenching.
 - 2.2.1.11 Using radioactive sources or conducting field radiography (x -ray).
 - 2.2.1.12 Working with asbestos & asbestos – containing materials.
 - 2.2.1.13 Working on security systems.
 - 2.2.1.14 Working with compressed air / gases.
 - 2.2.1.15 Working on heating, ventilation, or air conditioning equipment.



- 2.2.1.16 Working with chemicals, polishing or grinding.
- 2.2.1.17 Working at heights of more than 06 feet or on roofs.
- 2.2.1.18 Entering or working in confined spaces like fuel tanks, trenches, service shafts, sewer system, etc.
- 2.2.1.19 Lifting or hoisting with cranes or hoists.
- 2.2.1.20 Blasting operations, etc.

2.3 PERFORMANCE MONITORING

- 2.3.1 The Contractors / Suppliers / Concessionaires shall monitor HSE performance of their employees and activities.
- 2.3.2 They shall in addition monitor all those performance monitoring actions agreed between CAA and the Contractors / Suppliers / Concessionaires.

2.4 HOUSE KEEPING

- 2.4.1 All Contractors / Suppliers / Concessionaires shall maintain good housekeeping by keeping work areas neat, clean, orderly, free of excess trash, debris and shall block walkways, stairs, exits, or create a tripping hazard. Poor housekeeping at a job site may lead to an increased potential for safety hazards and an increased frequency of accidents, falls, cuts, spills, leaks, fires or electrocution.
- 2.4.2 Tools, wires, materials shall not be left or haphazardly spread out at the work place.
- 2.4.3 Open holes, trenches, or excavations into which people may fall shall be identified, covered or provided with guardrails.
- 2.4.4 In order to protect the employees and environment, safety blinding shall be provided at all works execution sites, where necessary.

2.5 REPORT OF ACCIDENT, INCIDENT, INJURY OR ILLNESS

- 2.5.1 The area representatives of contractor shall inform fire, electrical, civil inquiries officials each day before start of work.
 - 2.5.2 All work related accidents, incidents, fatalities, injuries, and illnesses must immediately be reported to the CAA authorized / designated officials.
 - 2.5.3 Every incident / accident happened during execution of contractors work shall properly be analyzed as per **CAA0-015-MSXX** and if fall in Major / Catastrophic categories be published / mentioned in IOU report by the OPI Section / Branch.
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Chapter 3

HAZARDOUS WASTE

3.1 HAZARDOUS WASTE MANAGEMENT

- 3.1.1 Hazardous waste generated by a Contractor / Supplier / Concessionaire as part of its work must be properly identified, stored and disposed in accordance with applicable laws / rules / regulations. The Contractor / Supplier / Concessionaire must coordinate with CAA representative(s) of relevant sections to provide a list of hazardous waste(s) which is / are likely to be generated during the project / activity, and to determine the location(s) for hazardous waste storage.
- 3.1.2 The Contractor / Supplier / Concessionaire must also ensure, at a minimum:
- 3.1.2.1 Proper labeling in terms of MSDS.
 - 3.1.2.2 Adequate secondary containment.
 - 3.1.2.3 Segregation of incompatible materials.
 - 3.1.2.4 Routine inspection of storage areas.
- 3.1.3 In addition, all hazardous waste containers shall be constructed of a material compatible with the waste, in sound condition, and kept securely closed to avoid spill or leakage.

3.2 WASTE DISPOSAL DOCUMENTS

The Contractors / Suppliers / Concessionaires shall be responsible for completing all waste disposal documents as per statutory / regulatory requirements, where applicable and as required by CAA. This may relate to CAA's own waste that is periodically removed for further disposal purposes, or waste created by Contractor / Supplier / Concessionaire while performing a task at CAA premises / areas under CAA's jurisdiction. OPI shall also ensure all normal wastes are also removed by the contracts.

3.3 TRAINING

Contractor / Supplier / Concessionaire must ensure that their employees are appropriately trained in hazardous waste management procedures. In the event a Contractor / Supplier / Concessionaire encounters unidentified material that is reasonably believed to be hazardous (radioactive, volatile, corrosive, flammable, explosive, magnetic, infectious, toxic), the Contractor / Supplier / Concessionaire shall immediately stop work in the affected area and report the condition to the CAA's authorized / designated official(s). At no time shall such material be disposed in chutes, drains, pipes or in any other unauthorized manner.

3.4 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS

- 3.4.1 Transportation of hazardous materials on CAA property shall be conducted in accordance with CAA specified instructions. It shall not be disposed to burn or be used in a manner that is harmful to people or environment. While transporting hazardous materials, Contractor / Supplier / Concessionaire shall ensure that no harm is done to people or environment because of poor containers, packing, covering, lashing, fixing, loading, stacking or improper vehicle or mode of transport.
- 3.4.2 All transportation of dangerous / hazardous goods and materials by air shall be conducted strictly in accordance with provisions of Part XVI, Sections 1-3 and 5-6 of the Civil Aviation Rules, 1994.

3.5 SPILL PREVENTION AND CONTROL

- 3.5.1 Based on the inventory of oil and hazardous chemicals that will be brought on-site, the Contractor / Supplier / Concessionaire shall have available equipment (e.g., secondary containment pallets, absorbent pads, absorbent booms, speed-dry etc.) that is suitable and sufficient to control a potential spill / release.



- 3.5.2 The Contractor / Supplier / Concessionaire is responsible for identifying outlets to the environment (e.g., sumps, sewers, storm / floor drains, etc.) and adequately minimizing spill potential to these areas.
- 3.5.3 The Contractor / Supplier / Concessionaire is responsible for the proper storage of all flammable and combustible chemicals that are brought and/or stored on site to complete the work. Such storage may require the use of safety containers, safety cabinets, and/or secondary containment.
- 3.5.4 The Contractor / Supplier / Concessionaire shall also ensure that any incompatible chemicals are safely segregated. The Contractor / Supplier / Concessionaire is Responsible for maintaining and securing all chemical containers and all chemical storage-areas. This requires selecting locations and methods to minimize exposure to rainfall, surface water, and the ground surface or subsurface.
- 3.5.5 The Contractors / Suppliers / Concessionaires must ensure that their employees are adequately trained in spill control procedures and are aware of the use of spill control kits.
- 3.5.6 In the event of a release or spill, the Contractor / Supplier / Concessionaire must immediately inform CAA's authorized / designated official(s).

3.6 AIR EMISSIONS

- 3.6.1 Any conditions discovered which could result in an increase in air pollutant emissions must immediately be reported to the CAA's authorized / designated official(s).
- 3.6.2 Contractors / Suppliers / Concessionaires activities should not cause unacceptable level of emissions (emissions not meeting NEQS – National Environmental Quality Standards).
- 3.6.3 Contractors / Suppliers / Concessionaires shall immediately notify the CAA's authorized / designated official(s) whenever they become aware of any unintentional or intentional release of CFCs (Chloro-Fluoro Carbons), Halons etc.

3.7 WASTE WATER DISCHARGES

- 3.7.1 Waste water must NOT include any corrosive, flammable, or toxic substances / hazardous liquid, etc.
- 3.7.2 Contractor / Supplier / Concessionaire must ensure no waste water is discharged that violates NEQS.

3.8 BIOLOGICAL / CHEMICAL / RADIOACTIVE HAZARDS

- 3.8.1 Some CAA operations may involve the use of biological, chemical, or radioactive material that can be hazardous to persons or property, if not handled or disposed safely. Contractors / Suppliers / Concessionaire will mark the areas where work with biological, chemical, or radioactive materials is being performed with proper signs.
- 3.8.2 The Contractor / Supplier / Concessionaire shall not disturb damage or otherwise handle any suspected asbestos containing material.
- 3.8.3 The Contractor / Supplier / Concessionaire shall not sweep, dust, vacuum or mop dust / debris which are the product of a suspected asbestos containing material. The Contractor / Supplier / Concessionaire shall also not pick up or throw away any suspected asbestos-containing waste or trash.
- 3.8.4 Sand blasting, grinding, drilling, brazing, scraping, polishing of floors and other dust emitting surfaces will be done by persons wearing appropriate PPEs.

3.9 HAZARDOUS MATERIALS AND HAZARD COMMUNICATION

- 3.9.1 Hazardous materials shall not be handled or used by the Contractor / Supplier / Concessionaire without providing training to the concerned employees.



- 3.9.2 No solvents, paints, or similar flammable, toxic, or irritating materials shall be used in CAA premises / areas under the jurisdiction of CAA unless specifically authorized by CAA.
 - 3.9.3 Adequate ventilation shall be maintained when paints or solvents are used.
 - 3.9.4 Flammable solvents and materials shall be used with extreme caution.
 - 3.9.5 It shall be ensured that flammable paints and solvents are isolated and stored in approved locations, if inside the building.
 - 3.9.6 The Contractor / Supplier / Concessionaire shall submit an inventory of all hazardous chemicals / liquids / materials that are brought on-site or sold to CAA. These should be accompanied by MSDS.
 - 3.9.7 The Contractor /Supplier / Concessionaire shall also ensure that all containers that are brought on site for the storage of hazardous chemicals (e.g., gas, paint, etc.) are labeled and inspected for correctness.
 - 3.9.8 The Contractor / Supplier / Concessionaire shall remove at earliest all hazardous chemicals that it brings on-site when work involving a specific hazardous chemical has been completed.
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Chapter 4

SPECIFIC SAFETY REQUIREMENTS

4.1 CONFINED SPACE ENTRY

- 4.1.1 Contractor / Supplier / Concessionaire will obtain Confined Space Entry Certificate before entering / working in confined spaces. If during the course of work, the Contractor / Supplier / Concessionaire encounters a confined space that has not been previously identified by the CAA, it must immediately bring the space to the attention of the CAA's authorized / designated official(s), and delays entry until the space is examined by the CAA's authorized / designated official
- 4.1.2 When CAA and Contractor / Supplier / Concessionaire personnel are working in or near confined spaces, the Contractor / Supplier / Concessionaire shall coordinate all operations, with likely-to-be-affected CAA personnel before entry.
- 4.1.3 Prior coordination shall also be required on entering a confined space with or without a CAA employee

4.2 LOCK-OUT / TAG-OUT (WHERE APPLICABLE)

- 4.2.1 As part of CAA's Electrical Isolation / De-Isolation permit requirement, standard locks and tags are used to control the start-up of equipment that is being serviced or maintained by its employees. At no time shall the Contractor / Supplier / Concessionaire or its employees override any locks or tags that they encounter during the performance of their work.
- 4.2.2 The Contractors / Suppliers / Concessionaires are responsible for developing, implementing and maintaining their own Lock-out / Tag-out Program.
- 4.2.3 The Contractor / Supplier / Concessionaire shall submit a copy of its Lock-out / Tag-out Program to the CAA's authorized / designated official(s) before the start of any work.

4.3 GENERAL ELECTRICAL SAFETY

- 4.3.1 Temporary electrical connection(s), where required, shall be obtained from CAA as per the prescribed procedure only.
- 4.3.2 Only qualified electricians are permitted to work on electrical systems and equipment that use or control electrical / power.
- 4.3.3 Electrical tools or equipment shall not be operated in wet areas or areas where potentially flammable dusts, vapors, gases, or liquids are present, unless specifically approved.
- 4.3.4 Should a circuit breaker or other protective device "trip," it is to be ensured that a qualified electrician checks the circuit and equipment and corrects problem before resetting the breaker. Moreover, there should always be a provision for safety isolation of the circuit where needed
- 4.3.5 Barriers and post warning signs shall be erected to ensure that the non-authorized personnel stay clear of the work area.
- 4.3.6 Hazards (lack of protective guards or covers, damaged equipment, etc.) shall be reported to the CAA's authorized / designated official(s) immediately.
- 4.3.7 Electrical boxes, switch gear, cabinets, or electrical rooms shall not be left open when not directly attended.
- 4.3.8 It shall be ensured to insulate energized parts when have been removed or doors are closed. Use of cardboard, plywood or other flammable to cover energized circuits is prohibited.
- 4.3.9 Proper grounding / earthing and arc quenching, where required, shall be ensured.



4.3.10 The size of the cable / conductor should match with the actual on-site requirement.

4.4 COMPRESSED GAS CYLINDERS

The following measures must be taken for the protection of persons and property:

- 4.4.1 All the cylinders brought in by the Contractors / Suppliers / Concessionaires shall have valid test certificates performed by a certified testing agency.
- 4.4.2 Pressure and leak testing shall invariably be carried out and documented in all jobs associated with compressed gas or liquid handling.
- 4.4.3 Valve protection caps must be in place when compressed gas cylinders are transported, moved, or stored.
- 4.4.4 Cylinder valves must be closed and valve covers must be replaced when work is complete and when cylinders are empty or moved.
- 4.4.5 Compressed gas cylinders must be secured in an upright position in a welding cart or to a solid object (using chains, straps, or a rigid retaining bar).
- 4.4.6 Compressed gas cylinders must be secured on an approved carrier while being transported.
- 4.4.7 Cylinders shall be kept at a safe distance or shielded from welding or cutting operations. Cylinders shall not be placed where they can contact an electrical circuit.
- 4.4.8 It shall be ensured to keep oxygen and flammable gas regulators in proper working order and a wrench in position on the acetylene valve when in use.
- 4.4.9 If a leak develops in a cylinder and it cannot be immediately corrected, the cylinder shall be moved to a safe location outside the building / away from the location of work.
- 4.4.10 Cylinders must not be taken into or stored in confined spaces.
- 4.4.11 Empty & filled cylinders must be kept separately.
- 4.4.12 Hoses and regulators must not be stored in unventilated or closed containers or areas.

4.5 WELDING, CUTTING AND BRAZING

The Contractors / Suppliers / Concessionaires shall ensure the following:

- 4.5.1 Obtain PTW.
- 4.5.2 Inform CAA's authorized / designated official(s) prior to the start of any welding / cutting / brazing work.
- 4.5.3 Remove combustible materials from the area before beginning work.
- 4.5.4 Install anti flashback (safety / check) valves in both the oxygen / acetylene hoses at the regulator.
- 4.5.5 Shield adjacent areas with welding partitions.
- 4.5.6 Persons involved are adequately trained in using portable fire extinguishers.
- 4.5.7 Have a second person trained in basic firefighting as standby with an approved fire extinguisher for welding and cutting operations.

4.6 CRANES AND RIGGING

- 4.6.1 Each crane or hoist brought onto CAA property must have a valid inspection testing performed by a certified testing agency.
- 4.6.2 The operator is responsible for the proper placement of the crane in relationship to the load to be handled and the landing area so as to obtain the best rated lift capacity, and the installation and maintenance of crane swing radius protection.
- 4.6.3 All operators must possess a valid crane / hoist operating / driving license as applicable.

4.7 FITNESS

- 4.7.1 Suppliers / Contractors / Concessionaires shall ensure that all their personnel working in CAA premises are medically fit to perform their assigned tasks.
- 4.7.2 If requested by CAA, Contractors / Suppliers / Concessionaires shall provide the fitness / health certificates of their employees.

4.8 DRIVING

- 4.8.1 All Contractors' / Suppliers' / Concessionaires' vehicles while in CAA premises or performing CAA duties shall adhere to speed limits (applicable in that particular zone), and also comply with all other traffic and road safety regulations of CAA.
- 4.8.2 The drivers should be in possession of valid driving license.
- 4.8.3 All Contractor / Supplier / Concessionaire vehicles should have:
 - 4.8.3.1 Standard seat belts. The seat belts should be neat and clean and in proper working condition.
 - 4.8.3.2 Standard fire extinguisher.
 - 4.8.3.3 Standard first aid box.

4.9 INDEMNITY

Suppliers / Contractors / Concessionaires shall keep harmless and indemnify Pakistan CAA against all losses, damages, injuries, death of any person, claims, actions, third party action arising out of acts and omissions by their employees/ personnel or non-compliance with the terms and conditions as stated herein and/or any applicable laws and regulation. Contractor shall take clearance with concerned offices before handing / taking over the area to be restored on the same condition(s) as was/were before start of work (as per contract agreement).

NOTE: Word CAA shall be treated as PAA (Pakistan Airports Authority) in this entire HSE Manual.