

Standard Bidding Document

Supply, Installation and Commissioning of Vessel Traffic Management
System at KPT
(Goods)

International

Single Stage-Two Envelope



April 27, 2026

*P & D Divison (Karachi Port Trust (KPT)), Project Manager
KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh
(Province).
Phone: +92-300-213-9352, Email: pmp@kpt.gov.pk*

Table of Contents

Instructions to Bidders	3
Bid Data Sheet	23
Bids Data Sheet (BDS)	24
Eligibility Criteria	28
Evaluation Criteria	29
Items/Lots	31
Related Services of Goods:	39
Items/Lot Specification	42
Price Schedule	57
General Conditions of Contract	59
Special Conditions of Contract	70
Bid Securing Declaration	76
Contract Form	78
Integrity Pact	81
Performance Guarantee Form	83
Annexure	85
Technical Requirements	86
Technical Requirements - Miscellaneous	86
Procurement Forms	87
Past Experience and Completed Contracts	1
Historical Contract Non-Performance, and Pending Litigation and Litigation History	1

Current Contracts and Their Progress	1
Financial Capacity and Net Worth Evaluation Form	1
Average Annual Turnover	1
Additional Forms and Documents	90

INVITATION TO BIDS PROCUREMENT OF GOODS

1. The **P & D Divison (Karachi Port Trust (KPT))** has reserved Funds for the procurement planned for FY **2025-26**. The **P & D Divison (Karachi Port Trust (KPT))** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**Supply, Installation and Commissioning of Vessel Traffic Management System at KPT**".
2. The **P & D Divison (Karachi Port Trust (KPT))** invites E-bids from eligible Bidders for procurement of goods described in the bidding documents on **EPADS v2.0**.
3. **Single Stage-Two Envelop** will be used by adopting **Quality and Cost Based Selection (QCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2004 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority from time to time.
4. All Bids must be accompanied by a Bid Security amounting described in Bid Security Section in Bidding Document in the form of **Pay Order, Bank Guarantee**. Where **Bid Security** is not required by the **Procuring Agency**, Bidders are required to furnish **Bid Security Declaration** as specified in Bidding Document.
5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at <https://vendors.epads.gov.pk/>.
6. Bidder(s) are required to get themselves registered on **EPADS v2.0** on or before **Thursday, June 4, 2026 02:30 PM**. E-bids will be opened using **EPADS v2.0** on the same day at **Thursday, June 4, 2026 03:00 PM**. Manual submission of Bids shall not be entertained. Those vendors who have not yet registered on the new version of **EPADS v2.0**, may register themselves on <https://vendors.epads.gov.pk/>. A tutorial to explain the registration process is available at <https://www.youtube.com/watch?v=MNW6T38v7tc>
7. In terms of Rules 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is

available on the procuring agency's website and on Authority's website at (www.ppra.org.pk).

P & D Divison (Karachi Port Trust (KPT)), Project Manager
KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South
(District), Karachi (Division), Sindh (Province).
+92-300-213-9352
pmp@kpt.gov.pk





Instructions to Bidders

A. Introduction

1.Scope of Bids

1.1 The Procuring Agency (PA), as indicated in the **Bids Data Sheet (BDS)** invites Bids **through EPADS v2.0** for the provision of Goods for as specified in the BDS and **in Section V - Evaluation Criteria, Specifications & Schedule of Requirements**. The name, identification, and number of items/deliverables are provided in the **BDS**. The successful Bidders will be expected to provide the goods within the specified period and timeline(s) as stated in the **BDS**.

2. Source of Funds

2.1 Source of funds is referred in Clause-1 of Invitation for Bids.

3. Eligible Bidders

3.1 A Bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country, or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture, consortium, or association. In the case of a joint venture, consortium, or association, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture, consortium, or association shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture, consortium, or association during the Bidding process, and in case of award of contract, during the execution of the contract.

3.2 Verifiable copy of the agreement that forms a joint venture, consortium or association shall be required to be submitted as part of the Bid.

3.3 The appointment of Lead Member in the joint venture, consortium, or association shall be confirmed by submission of a valid Power of Attorney to the Procuring Agency.

3.4 Any bid submitted by the joint venture, consortium or association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring Agency and in line with

any instructions issued by the Authority.

(The limit on the number of members of JV or Consortium or Association may be prescribed in BDS, in accordance with the guidelines issued by the PPRA).

3.5 The invitation for Bids is open to all prospective suppliers, manufacturers, or authorized agents / dealers subject to any provisions of incorporation or licensing by the respective national incorporating agency or statutory body established for that particular trade or business. Procuring agencies shall specify the registration/licensing requirements for the foreign bidders keeping in view the requirement of that business.

3.6 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest with one or more parties in this Bidding process, if they:

1. are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Agency to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the Goods to be purchased under this Invitation for Bids.
2. have controlling shareholders in common; or
3. receive or have received any direct or indirect subsidy from any of them; or
4. have the same legal representative for purposes of this Bid; or
5. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bids of another Bidder, or influence the decisions of the Procuring Agency regarding this Bidding process; or
6. Submit more than one Bid in this Bidding process.

3.7 A Bidder may be ineligible if –

1. he is declared bankrupt or, in the case of company or firm, insolvent;
2. payments in favor of the Bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

3. the Bidder is convicted, by a final judgment, of any offence involving professional conduct;

4. the Bidder is blacklisted locally or by international organizations and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of Bid securing declaration.

3.8 As and when required, bidders shall provide to the Procuring Agency evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.

3.9 Bidders shall submit Bids relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract amounting to more than ten (10) percent of the Bid price is envisaged.

4. Eligible Goods and Related Services

4.1 All goods and related services to be supplied under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such goods and services. For purpose of this Bid, ineligible countries are the countries declared ineligible by the Federal Government.

5. One Bid per Bidder

5.1 A bidder shall submit only one Bid, in the same bidding process, either individually as a Bidder or as a member in a joint venture or any similar arrangement.

5.2 The Bidder shall not engage a subcontractor for any portion of the contract if the value of such subcontracting exceeds thirty percent (30%) of the total contract amount.

6. Cost of Bidding

6.1 Any cost incurred by the bidder relating to the preparation and submission of its Bid shall be borne by the bidder, and the Procuring Agency shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. Bidding Documents

7. Contents of Bidding Document

7.1 The Goods required, Bidding procedures, and terms and conditions of the contract are prescribed in the Bidding Documents. In addition to the Invitation for Bids, the Bidding documents which should be read in conjunction with any addenda issued in accordance with **ITB 9.1** include:

Section I -Invitation to Bids

Section II Instructions to Bidders (ITB)

Section III Bid Data Sheet (BDS)

Section IV Evaluation Criteria, Specifications, Schedule of Requirements

Section V Bid Forms

Section VI General Conditions of Contract (GCC)

Section VII Special Conditions of Contract (SCC)

Section VIII Contract Forms

7.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding documents. Failure to furnish all the information required in the Bidding documents through **EPADS v2.0** will be at the Bidder's risk and may result in the rejection of his Bids.

8. Clarification of Bidding documents

8.1 A prospective Bidder requiring any clarification of the Bidding documents may notify the Procuring Agency through **EPADS v2.0**.

8.2 The Procuring Agency will within three (3) working days after receiving the request for clarification, respond to any request for clarification through **EPADS v2.0** provided that such request is received not later than three (03) days prior to the deadline for the submission of Bids as prescribed in **ITB 22**

8.3 Copies of the Procuring Agency's response will be forwarded to all identified Prospective Bidders through **EPADS v2.0**, including a description of the inquiry, but without identifying its source.

8.4 Should the Procuring Agency deem it necessary to amend the Bidding document as a result of a clarification, it shall do so following the procedure under **ITB 9**.

8.5 If indicated **in the BDS**, the Bidder's designated representative is invited at the Bidder's cost to attend a pre-Bid meeting at the place, date and time mentioned **in the BDS**. During this pre-Bid meeting, prospective Bidders may request clarification of the schedule of requirement, the Evaluation Criteria or any other aspects of the Bidding document.

8.6 Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be uploaded on **EPADS v2.0**. Any modification to the Bidding documents that may become necessary as a result of the pre-Bid meeting shall be made by the Procuring Agency exclusively through the use of an Addendum pursuant to **ITB 9**. Non-attendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

9. Amendment of Bidding documents

9.1 Before the deadline for submission of Bids, the Procuring Agency for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder or Pre-Bid meeting may modify the Bidding documents by issuing addenda through **EPADS v2.0**.

9.2 The Procuring Agency shall promptly publish the addendum through **EPADS v2.0**.

9.3 Any addendum issued including the notice of any extension of the deadline shall also be communicated through EPADS v2.0 to all the bidders who have already submitted their bids. Such bidders shall have the right to withdraw their already submitted bid and re-submit the revised bid prior to the original or extended bid submission deadline.

9.4 To give prospective Bidders reasonable time in which to take an addendum/corrigendum into account in preparing their Bids, the Procuring Agency may, at its discretion, extend the deadline for the submission of Bids through **EPADS v2.0**:

Provided that the Procuring Agency shall extend the deadline for submission of Bids, if such an addendum is issued within last three (03) days of the Bids submission deadline.

C. Preparation of Bids

10. Language of Bid

10.1 The Bid prepared by the bidder, as well as all correspondence and documents relating to the Bids exchanged by the Bidder and the Procuring Agency shall be written in the English language unless otherwise specified in the BDS. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant pages in the English language unless otherwise specified in the **BDS**, in which case, for purposes of interpretation of the Bidder, the translation shall govern.

11. Documents and samples Constituting the Bid

11.1 The Bid prepared by the Bidder shall constitute the documents required in the **BDS**.

Details of sample(s) where applicable and requested in the BDS.

1. Documentary evidence established in accordance with ITB that the Bidder is eligible and/or qualified for the subject bidding process;
2. Documentary evidence establish that the Bidder has been authorized by the manufacturer to deliver the goods into Pakistan, where required and where the supplier is not the manufacturer of those goods;
3. Documentary evidence establish that the goods and related services to be supplied by the Bidder are eligible goods and services, and conform to the Bidding Documents;
4. Bid security or Bid Securing Declaration furnished in accordance with **ITB 18**.

12. Documents Establishing Eligibility of the Goods and Conformity to Bidding documents

12.1To establish the conformity of the bidder to the Bidding document, the Bidder shall furnish as part of its Bids the documentary evidence that Goods provided conform to the technical specifications and standards.

13. Documents Establishing Eligibility and Qualification of the Bidder

13.1 The Bidder shall furnish, as part of its Bid, all those documents establishing the Bidder's eligibility to participate in the Bidding process and/or its qualification to perform the contract if its Bid is accepted.

14. Form of Bids

14.1 The Bidder shall fill the Form of Bid furnished in the Bidding documents. The Bids Form must be completed without any alterations to its format and no substitute shall be accepted.

15. Bids Prices

15.1 The Bids Prices quoted by the Bidder in the Form of Bid and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the Bidding documents.

15.2 All items in the Schedule of Requirement must be listed and priced separately in the Price Schedule(s). If a Price Schedule shows items listed but not priced and neither explicitly denied, their prices shall be construed to be included in the prices of other items.

15.3 Items not listed in the Price Schedule shall be assumed not to be included in the Bid, and provided that the Bid is still substantially responsive in their absence or due to their nominal nature, the corresponding average price of the respective item(s) of the remaining substantially responsive Bidder(s) shall be construed to be the price of those missing item(s)

15.4 The Bid price to be quoted in the Form of Bid in accordance with **ITB 14.1** shall be the total price of the Bid.

15.5 The Bidder shall indicate on the appropriate Price Schedule, the unit prices (where applicable) and total Bid price of the Goods it proposes to provide under the contract.

15.6 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price will be treated as non-responsive and shall be rejected.

16. Bids Currencies

16.1 Prices shall be quoted in Pakistani Rupees unless otherwise specified in the BDS in accordance with Rule 30(2) of the Public Procurement Rules, 2004.

17. Bids Validity Period

17.1 Bids shall remain valid for the period specified in the **BDS** after the Bid submission deadline prescribed by the Procuring Agency. A Bid valid for a shorter period shall be rejected by the Procuring Agency as non-responsive. The period of Bid validity will be determined from the complementary Bid securing instrument, i.e. the expiry period of Bid Security or Bids Securing Declaration as the case may be.

17.2 The procuring agency shall ordinarily be under an obligation to process and evaluate the bid and to issue letter of award within the stipulated bid validity period.

17.3 Under exceptional circumstances, prior to the expiration of the initial Bid validity period, the Procuring Agency may request the Bidders' consent to an extension of the period of validity of their Bids only once through **EPADS v2.0**, for the period not more than the period of initial bid validity. The Bid Security provided under **ITB 18** shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid security or causing to be executed its Bid Securing Declaration. A Bidder agreeing to the request will not be required nor permitted to modify its Bid, but will be required to extend the validity of its Bid Security or Bid Securing Declaration for the period of the extension.

18. Bid Security or Bid Securing Declaration

18.1 The Bidder shall furnish as part of its Bid, a Bid Security in accordance with Rule 25 of the Public Procurement Rules, 2004.

18.2 The original Bid Security shall be enclosed within the sealed envelope and to be submitted physically before closing time for submission of bids. Whereas, scanned copy of bid security shall be uploaded electronically through EPADS v2.0 before closing hours for submission of bids.

18.3 The Bidder who failed to submit the original Bids security before the submission deadline shall be disqualified straightaway.

18.4 The Bid Security or Bid Securing Declaration is required to protect the Procuring Agency against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to **ITB 18.7**.

18.5 The Bid Security shall be denominated in the local currency, and it shall be a Bank Draft in the name of the Procuring Agency and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period

for Bids/Bid Validity is extended. In either case, the form must include the complete name of the Bidder.

18.6 The Bid Security shall be payable promptly upon written demand by the Procuring Agency in case any of the conditions listed in **ITB 18** are invoked.

18.7 Unsuccessful Bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bids Validity prescribed by the Procuring Agency pursuant to **ITB 17**. The Procuring Agency shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest:

1. the expiry of the Bid Security;
2. the entry into force of a procurement contract and the provision of a Performance Guarantee, for the performance of the contract if such a guarantee, is required by the Bid documents;
3. the rejection by the Procuring Agency of all Bids;
4. the withdrawal of the Bids prior to the deadline for the submission of Bids, unless the Bids documents stipulate that no such withdrawal is permitted.

18.8 The successful Bidder's Bids Security will be discharged upon the Bidder signing the contract, or furnishing the Performance Guarantee.

18.9 The Bid Security may be forfeited or the Bid Securing Declaration executed:

1. if a Bidder:
 2. withdraws its Bid during the period of Bid Validity as specified by the Procuring Agency, and referred by the Bidder on the Form of Bids except as provided for in **ITB 17.2**; or
 3. does not accept the correction of errors; or
 4. in the case of a successful Bidder, if the Bidder fails:
 5. to sign the contract; or
 6. to furnish Performance Guarantee.

19. Withdrawal, Substitution, and Modification of Bid

19.1 Before Bid submission deadline, any Bidder may withdraw, substitute, or modify its Bid after it has been submitted through EPADS v2.0. Bids requested to be withdrawn, shall be returned unopened to the Bidders through **EPADS v2.0**.

20. Format and Signing of Bid

20.1 The Bidder shall prepare and submit Bids with due diligence after carefully reading all the terms and condition **before bid submission deadline** through EPADS v2.0.

D. Submission of Bids

21. Submission of Bids through EPADS v2.0

21.1 The Technical and Financial Bids if required to submitted, shall be submitted on **EPADS v2.0**.

22. Deadline for Submission of Bids

22.1 Bids shall be received by the Procuring Agency through **EPADS v2.0** before bid submission deadline.

22.2 The Procuring Agency may, under exceptional circumstances, extend the deadline for the submission of Bids, after recording reasons in writing and in an equal opportunity manner.

In such case, all rights and obligations of the Procuring Agency and the Bidders that were previously governed by the original deadline shall thereafter be subject to the revised deadline.

E. Opening and Evaluation of Bids

23. Opening of Bids

23.1 The Bid Evaluation Committee of the Procuring Agency shall open all Bids through the EPADS v2.0, on the date and time specified in the Bid Data Sheet (BDS).

23.2 The Bid Evaluation Committee **shall generate minutes through EPADS v2.0 containing brief details of bid opening process.** The record of the Bid opening shall include, as a minimum: the name of the Bidder, the Bid price if applicable, and the presence or absence of a Bid Security or Bid Securing Declaration.

23.3 The procuring agency shall live broadcast the opening of bids on national media or on their website or digital channels, if the volume of procurement exceeds five hundred million rupees in case of goods and services and one thousand million rupees in case of works.

23.4 In case the date of opening of bid has been declared as public holiday or the procuring agency fail to open bid due to any EPADS v2.0 related issues, the submission and opening of bids shall be shifted to the next working day on the same time.

23.5 In case of Single Stage One Envelope Procedure, the Bidders names, the Bid prices, the total amount of each Bid and, the presence or absence of Bid Security, Bid Securing Declaration and such other details as the Procuring Agency may consider appropriate, will be announced by the Bid Evaluation Committee.

24. Clarification of Bids

24.1 To assist in the examination, evaluation and comparison of Bids of the Bidders, the Procuring Agency may, ask any Bidder for a clarification of its Bid including breakdown of prices.

24.2 The request for clarification and the response shall be sought through EPADS v2.0 **before three days prior to the deadline for submission of bids.** No change in the prices or substance of the Bids shall be sought, offered, or permitted.

24.3 The alteration or modification in the BIDS which in any way affect the following parameters will be considered as a change in the substance of a Bids:

1. evaluation & qualification criteria;
2. required scope of work or specifications;
3. all securities requirements;
4. tax requirements;

5. terms and conditions of Bidding documents.

6. change in the ranking of the Bidder

24.4 From the time of Bids opening to the time of Contract award if any Bidder wishes to contact the Procuring Agency on any matter related to the Bids it should do so through **EPADS v2.0**.

25. Preliminary Examination of Bids

25.1 Prior to the detailed evaluation of Bids, the Procuring Agency will determine whether each Bid:

1. meets the eligibility criteria defined in **ITB 3**;
2. has been prepared as per the format and contents defined by the Procuring Agency in the Bidding documents;
3. is accompanied by the required securities; and
4. is substantially responsive to the requirements of the Bidding documents.

25.2 The Procuring Agency's determination of a Bid's responsiveness will be based on the contents of the Bid itself.

25.3A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one that: -

1. affects in any substantial way the scope, quality, or performance of the Goods;
2. limits in any substantial way, inconsistent with the Bidding documents, the Procuring Agency's rights or the Bidders obligations under the Contract; or
3. if rectified, would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.3 If a Bids is not substantially responsive, it will be rejected by the Procuring Agency and may not subsequently be evaluated for complete technical responsiveness.

26. Examination of Terms and Conditions; Technical Evaluation

26.1 The Procuring Agency shall examine the Bids to confirm that all terms and conditions specified in the **GCC** and the **SCC** have been accepted by the Bidder without any material deviation or reservation.

26.2 The Procuring Agency shall evaluate the technical aspects of the Bids submitted, to confirm that all requirements specified in Schedule of Requirements and Technical Specifications of the Bidding documents have been met without material deviation or reservation.

26.3 If after the examination of the terms and conditions and the technical evaluation, the Procuring Agency determines that the Bid is not substantially responsive in accordance with **ITB 25.2**, it shall reject the Bid.

27. Correction of Errors

27.1 Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

1. if there is a discrepancy between unit prices and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the Procuring Agency there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;
2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and
3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.
4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bids, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

27.2 The amount stated in the Bid will, be adjusted by the Procuring Agency in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, its Bid will then be rejected, and the Bid Security may be forfeited or the Bids Securing Declaration may be executed.

28. Conversion to Single Currency

28.1 To facilitate evaluation and comparison, the Procuring Agency will convert all Bids prices expressed in the amounts in various currencies in which the Bids prices are payable. For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate prevailing on the date of opening of financial bids specified in the bidding documents, in accordance with weighted average customer exchange rates list issued by the State Bank of Pakistan on that day.

29. Evaluation of Bids

29.1 The Bids, quotations, or proposals shall be evaluated by the respective evaluation committees as per evaluation criteria described in the Bidding Documents in accordance with Rule 29 and 30 of the Public Procurement Rules, 2004.

1. Least Cost Based Selection (LCBS)

After meeting the requirements of eligibility, qualification and substantial responsiveness, the bid in compliance with all the mandatory (technical) specifications/requirements and/or requisite quality threshold (if any), and having lowest evaluated cost (or financial proposal) shall be considered Successful Bid.

2. Quality and Cost Based Selection (QCBS)

In such combination, there shall be some specific weightage of both the technical features and financial aspects of the proposal. The financial marks shall be awarded on the basis of inverse proportion calculations. The successful bid shall be declared, on the basis of combined evaluation.

3. Quality Based Selection (QBS)

After meeting the requirements of eligibility, qualification and substantial responsiveness the bid in compliance with all the mandatory (technical) specifications/requirements and attaining highest marks in the Technical Evaluation considering all other qualitative and/or quantitative parameters (or point rated criteria) for technical proposal(s) such as working methodology, implementation plan, resource allocation, additional functionalities, risk management approach, knowledge transfer techniques, post implementation methodology etc. shall be treated as highest ranked bid. Later on, the financial proposal of highest ranked bidder shall be opened, however, in case of failure to proceed further with such a bidder, the procuring agency may resort to second

highest bidder and so on.

29.2 In case of tie of bids, the bidders shall be provided an opportunity to offer their best and final monetary offer through EPADS v2.0. However, in no case the rates shall be higher than the original financial bids.

30. Domestic Preference

30.1 The procuring agency shall evaluate and compare bids, allow for preference to domestic bidders, while competing with the international bidders in accordance with the policies of Federal Government.

The percentage of preference, to be accorded shall be clearly mentioned in the bidding documents under the bid evaluation criteria.

31. Determination of Successful Bid

31.1 Selection technique will be adopted for determining the Successful Bid in accordance with the criteria referred in the BDS or prescribed in the separate section titled as Evaluation Criteria.

31.2 In case where the Procuring Agency adopts the Cost Based Evaluation Technique and, the Bid with the lowest evaluated price from amongst those which are eligible, compliant and substantially responsive shall be the Successful Bid.

31.3 The Procuring Agency may adopt the Quality & Cost Based Selection Technique due to the following two reasons:

1. Where the Procuring Agency knows about the main features, usage and output of the products; however not clear about the complete features, technical specifications and functionalities of the goods to be procured and requires the bidders to submit their proposals defining those features, specifications and functionalities; or
2. Where the Procuring Agency, in addition to the mandatory requirements and mandatory technical specifications, requires parameters specified in EvaluationCriteria to be evaluated while determining the quality of the goods.

31.4 In such cases, the Procuring Agency may allocate certain weightage to these factors as a part of Evaluation Criteria, and may determine the ranking of the bidders on the basis of combined evaluation in accordance with provisions of Rule 2(1)(h) of the Public Procurement Rules, 2004.

32. Abnormally Low Financial Bids

32.1 Where the Bid price is considered to be abnormally low, the Procuring Agency shall perform price analysis either during determination of Successful Bids or as a part of the post-qualification process.

32.2 The Procuring Agency may reject an Abnormally low financial bids.

32.3 In order to identify the Abnormally Low Bids (ALB) following approaches can be considered to minimize the scope of subjectivity:

1. Comparing the Bids price with the cost estimate;
2. Comparing the Bids price with the Bids offered by other Bidders submitting substantially responsive Bids; and
3. Comparing the Bids price with prices paid in similar contracts in the recent past either government- or development partner-funded.

32.4 The Procuring Agency will determine to its satisfaction whether the Bidder that is selected as having submitted the successful bid is qualified to perform the contract satisfactorily.

32.5 The determination will take into account the Bidder's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Procuring Agency deems necessary and appropriate. Factors not included in these Bidding documents shall not be used in the evaluation of the Bidders' qualifications.

32.6 Procuring Agency may seek "Certificate for Independent Price Determination" from the Bidder and the results of reference checks may be used in determining an award of contract.

Explanation: The Certificate shall be furnished by the Bidder. The Bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.

32.7 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's Bids, in which event the Procuring Agency will proceed to the next ranked Bidder to make a similar determination of that Bidder's capabilities to perform

satisfactorily.

F. Award of Contract

33. Criteria of Award

33.1 The Procuring Agency will award the Contract to the Bidder whose Bids has been determined to be substantially responsive to the Bidding documents and who has been declared as Most Advantageous Bidder.

34. Negotiations

34.1 The procuring agency shall not engage in negotiations with respect to scope and price with the bidder except when the procuring agency conducts a procurement using direct **or negotiated** contracting or a request for proposals with evaluation based on quality alone.

34.2 The procuring agency may negotiate with the most advantageous bid with a view to streamline the work or task execution, at the time of contract finalization on methodology, work plan, staffing, finalizing payment arrangements, delivery arrangements, minor amendments to the special conditions of the contract.

35. Procuring Agency Right to reject all bids

35.1 The Procuring Agency reserves the right to reject all bids or proposals at any time prior to the issuance of the Letter of Award, without incurring any liability, in accordance with Rule 33 of the Public Procurement Rules, 2004.

36. Procuring Agency's Right to Vary Quantities at the Time of Award

36.1 The Procuring Agency reserves the right at the time of contract award to increase or decrease the **quantity of** Goods originally specified in these Bidding documents provided this does not exceed **by** 15%, without any change in unit price or other terms and conditions of the Bids and Bidding documents.

37. Notification of Award

37.1 Prior to the award of contract, the procuring agency shall announce and publish the result of bid evaluation on **EPADS v2.0** in accordance with Rule 35

of the Public Procurement Rules, 2004.

37.2 The Bidder whose Bids has been accepted will be notified of the award by the Procuring Agency prior to expiration of the Bids/Bid Validity period. The Letter of Award will state the sum that the Procuring Agency will pay the successful Bidder in consideration for the delivery of Goods as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

37.3 The Letter of award will constitute the formation of the Contract, subject to the Bidder furnishing the Performance Guarantee and signing of the contract.

38. Signing of Contract

38.1 Promptly after issuance of Letter of award, Procuring Agency shall send the successful Bidder the draft Contract, incorporating all terms and conditions as agreed by the parties to the contract.

38.2 Immediately after the Redressal of grievance by the GRC (if any), mandatory standstill period in accordance with Rule 35 of the Public Procurement Rules, 2004 and **after fulfillment of all condition's precedent** of the Contract Form, the successful Bidder and the Procuring Agency shall sign the Contract.

39. Corrupt & Fraudulent Practices

39.1 Procuring Agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

F. Grievance Redressal & Complaint Review Mechanism

40. Constitution of Grievance Redressal

40.1 The Grievance Redressal Committee shall address the grievance, if any submitted by any party, including the bidder, in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

40.2 In case if any party or the bidder is not satisfied with the decision of the GRC or if it fails to decide within ten days, the bidder or the party may file an appeal before the Appellate Committee of the Authority in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

G. Mechanism of Blacklisting

41. Mechanism of Blacklisting

41.1 The Procuring Agency shall initiate blacklisting proceedings against any bidder, supplier, or contractor in accordance with the Mechanism for Blacklisting Regulations, 2024, read with Rule 19 of the Public Procurement Rules, 2004.

41.2 The blacklisted/debarred bidder may file the review petition before the Authority in accordance with Rule 19 of the Public Procurement Rules, 2004 to be read with Procedure of filing and disposal of Review Petitions Regulations, 2021.





Bid Data Sheet

Bids Data Sheet (BDS)

The following specific data for the procurement of Goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

BDS Clause Number	ITB Number	Amendments of, and Supplements to, Clauses in the Instruction to Bidders
A. Introduction		
1	1.1	<p>Name of Procuring Agency:P & D Divison (Karachi Port Trust (KPT))</p> <p>The subject of procurement is:Supply, Installation and Commissioning of Vessel Traffic Management System at KPT</p> <p>Expected commencement date: Thursday, August 13, 2026</p>
2.	2.1	<p>Financial year for the operations of the Procuring Agency:2025-26</p> <p>Name and identification number of the Contract: P26009</p>
3.	3.1	<p>JV/Consortium or Association Allowed: Yes</p> <p>Number of JV/Consortium Members: 5</p> <p><i>see section of eligibility criteria.</i></p>
B. Bidding Documents		

4.	8.1	<p>The Bidders may seek clarifications through EPADS v2.0 : Clarification Date: Monday, May 18, 2026</p> <p>Pre-Bid Meeting: Wednesday, May 6, 2026 11:00 AM</p> <p>Venue: KPT HeadOffice, Eduljee Dinshaw Road.</p>
----	-----	---

C. Preparation of Bids

5.	10.1	<p>The Language of all correspondences and documents related to the Bids shall be in: English</p> <p>List of documents required along with the bid:</p> <ol style="list-style-type: none"> 1. Draft SLA agreement 2. A compliance matrix, technical proposal, and radar coverage calculations as a part of their bid submission. 3. Preliminary drawings together with a technical proposal. The preliminary drawings shall include at least the following: <ul style="list-style-type: none"> • Master Plan of the system • Equipment layouts for KPOC (Tower) • Towers and shelters preliminary construction design (if required) 4. Three sets of Operating and Maintenance Manuals (hardware and software) of all system components (as applicable) shall be provided before completion of the project. 5. The bidder shall be required to submit a complete solution diagram for his proposed solution.
----	------	--

6.	11.1	Items/Lots and therrre relateddocuments: <i>See section items and Lots</i>
7.	12.1	Items / Lots Specifications: <i>see section of items specifications.</i>
8.	15.6	The price shall be Fixed .
9.	16.1	Currency of the Bids shall be : PKR
10.	17.1	The Bids/Bid Validity period shall be: 180 Days
11.	18.1	The amount of Bid Security shall be as defined in Bid Security Section for items and lots given in BDS 6 The Bid Security shall be in the form of: Pay Order, Bank Guarantee
D. Submission of Bids		

12.	20.1	<p>Bid shall be submitted online on EPADS v2.0 whereas hard copy of the bid security should be submitted to the following;</p> <p>KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). before bid submission deadline.</p> <p>Bids that are not submitted on EPADS v2.0 shall be disqualified.</p> <p>The deadline for Bids submission is: Thursday, June 4, 2026 02:30 PM</p>
<p>E. Opening and Evaluation of Bids</p>		
13.	23.1	<p>The Bids opening shall take place on EPADS v2.0.</p> <p>Day : Thursday</p> <p>Date: Thursday, June 4, 2026</p> <p>Time : 03:00 PM</p>
14.	31.1	<p>Selection technique adopted will be: Quality and Cost Based Selection (QCBS) <i>see Evaluation Criteria</i></p>
<p>F. Review of Procurement Decisions</p>		
15.	41.1	<p>Grievence against this procurement shall be submitted online on EPADS v2.0.</p> <p>Arbitrator shall be appointed by mutual consent of the both parties.</p>

Eligibility Criteria

Bidder's Type	Required Registration
Any	FBR (NTN) SECP PEC

Eligibility Criteria	Document
Compliance to the following mandatory conditions would constitute "Eligibility" of the bid for technical appraisal	No
2. Failure in any of the Mandatory Conditions would render the bid ineligible for further consideration.	No
Name and details about the organizational set up, address, telephone, fax, email, website, etc. of Tenderer supported with brief company profile	Yes
Name(s) and permanent addresses of Proprietor / Partners / Directors (as applicable) of the Applicant Firm along with copies of their CNIC.	Yes
In case of Joint Ventures / Partnerships / Association of Firms or Foreign Principal-Local Representative Setup, all the said information about all the members / partners / principal / local representative be provided	Yes
Proper and established business office in Pakistan of local firms as well as for firms representing foreign firms.	Yes
Local firm should possess a valid License issued by the Pakistan Engineering Council (PEC) in Financial Category C2 and Code EE07.	Yes

In case of Joint Venture with Foreign firm, the foreign firm shall enter into Joint Venture with Pakistani Firm registered with the council in equivalent / compatible category and submit the same to the employer	Yes
In case of Joint Venture, the firms shall be individually registered on EPADS as per the regulations of PPRA and EPADS.	No
The bidder firm is not blacklisted by or is not presently involved in litigation with KPT or any other Government Agency / Organization. Undertaking to that effect on Rs. 1000 E-Stamp Paper to be submitted by the bidder firm.	Yes
Registration with Income Tax and Sales Tax Departments for local firms / representatives of foreign firms. On-line verification to be demonstrated.	Yes
The Declaration of Beneficial Owners information of Public Procurement Contract Award Regulation, 2022 notified vide S.R.O. 592(I)/2022 be complied by the bidder and submit the documents establishing owners information of Company who will be beneficial for this contract.	Yes
Financial Statements duly audited by ICAP QCR rated Audit Firm for the last 03 (three) years.	Yes

Evaluation Criteria

Eligible bidder(s) with substantially responsive bid(s) offering **Quality and Cost Based Selection (QCBS)** shall be consider for the award of contract(s).

Quality and Cost Based Selection (QCBS)

Technical Marks	100
Passing Marks	70
FIRM'S EXPERIENCE	

Years of Establishment of firm - The OEM / firm having experience of minimum 10 years in the design, supply, installation and commissioning of Information Technology System for seaports. (01 point for each year) (Qualitative)(Doc Required)	10
Completed Projects - Satisfactory execution / completion of minimum two similar projects of Radar & Vessel Traffic Management System of aggregate value of minimum Rs.100 million. (7 points for each project) (Qualitative)(Doc Required)	14
Completed Projects - Satisfactory execution / completion of minimum two similar IT projects of aggregate value of minimum Rs.50 million. (2 points for each project) (Qualitative)(Doc Required)	6
In-hand Projects - Detailed particulars of currently in-hand projects relating to Radar & Vessel Traffic Management System of the project under this tender. (3 marks for each specific project) (Qualitative)(Doc Required)	6
In-hand Projects - Any other similar Port related Project. (2 mark for similar port project) (Qualitative)(Doc Required)	4
Maintenance - Satisfactory post-completion maintenance including 24/7 customer support for minimum of 03 projects of any Information Technology system (01 number for each project) (Qualitative)(Doc Required)	3
Customer Support - Facilities available in Pakistan with the bidder particularly the maintenance workshop / lab for the equipment used in the offered system. (Qualitative)(Doc Required)	2
TECHNICAL PERSONNEL	
Project Manager / Director having minimum 10 years experience with Masters degree. (Qualitative)(Doc Required)	5
Professional engineer having minimum 10 year experience. (2 points) for each qualified engineer upto maximum 6 points. (Qualitative)(Doc Required)	6
Professional Technician having minimum 10 years experience (1 point) for each qualified technician upto max 4 points. (Qualitative)(Doc Required)	4
COMPLIANCE TO SCOPE OF WORK / TECHNICAL SPECIFICATIONS	

Compliance to Technical specifications - Extent of compliance of the offered equipment Radar / software / communication / Surveillance and other systems for Radar & Vessel Traffic Management System with the technical specifications and requirements as per given Scope of Work (Qualitative)(Doc Required)	10
Methodology - Best methodology in designing, installing, deploying, successful implementation and subsequent maintenance of the complete project under actual site and environmental conditions at Karachi Port. (To be assessed on the basis of overall response) (Qualitative)(Doc Required)	10
FINANCIAL POSITION	
Turnover (Qualitative)(Doc Required)	15
Average Turnover of Rs.1000 Million per annum or above for last 03 (three) years. (15)	
Average Turnover between Rs.800 Million to Rs.1000 Million per annum for last 03 (three) years. (13)	
Average Turnover between Rs. 500 million to Rs. 800 Million per annum for last 03 (three) years (11)	
Average Turnover less than Rs.500 Million per annum for last 03 (three) years. (0)	
Working Capital (Qualitative)(Doc Required)	5
Average working capital of Rs. 300 Million per annum or above (5)	
Average working capital of Rs. 200 Million annum to Rs. 299 Million (4)	
Average working capital of Rs. 100 Million annum to Rs. 199 Million (3)	
Average working capital of less than Rs. 100 Million (0)	

Items/Lots

Lot Title : VTMS

Bid Security : 10000000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Radar Sub-system	Radarbased surveillance systems	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	Manufacturer Authorization form	1 Years
AIS Sub-system	Transceivers VHF, UHF single and multi channel	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	Manufacturer Authorization form	1 Years

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
VHF Sub-system including DSC receiver	VHF receivers and associated equipment	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 2	2	Manufacturer Authorization form	1 Years
Voice Dispatch, Voice Alert, Voice & DSC Recording / Voice Communication Management System (VCMS)	VHF receivers and associated equipment	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	Manufacturer Authorization form	1 Years
CCTV Sub-system	Closed circuit television CCTV system	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 5	5	Manufacturer Authorization form	3 Years

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Consoles	Consoles	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 2	2	Any	3 Years
Video wall	Televisions	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 4	4	--	1 Years
Data Network Ethernet switch	Network switches	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	--	3 Years

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Smart rack system	Data center services	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	Manufacturer Authorization form	3 Years
LAN Cable, Equipment-Specific Cables & Installation Material	Fiber optic cable installation service	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	--	--
Audio cables	Fiber optic cable	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Servers	Computer server	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 9	9	Any	3 Years
Laptops	Personal computer	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 2	2	Any	3 Years
UPS & Power Infrastructure	Uninterruptible power supply UPS	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	Any	3 Years

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Supervisor workstation	Personal computer	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 2	2	Any	3 Years
Antenna & feeder cables	Fiber optic cable installation service	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 365 Days Quantity: 1	1	--	--
Software Capability with Existing Procedure / Application / Sensor	Software as a service	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 365 Days Quantity: 1	1	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
Upgradation / Renovation works	Commercial and office building renovation and repair service	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 365 Days Quantity: 1	1	--	--
35-Metre High Steel Tower / Mast	Telecommunication tower or support	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 365 Days Quantity: 1	1	--	--
Training of KPT personnel	Personnel skills training	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 365 Days Quantity: 1	1	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization	Warranty
SLA of 2 years	Basic agreement	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 420 Days Quantity: 1	1	--	--
Routers	Network routers	Address: KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). Schedule: 210 Days Quantity: 1	1	Any	3 Years

Related Services of Goods:

No

VTMS

Item	UNSPSC	Related Services
------	--------	------------------

Radar Sub-system	Radarbased surveillance systems	Supply, Installation and Commissioning of the system at site
AIS Sub-system	Transceivers VHF, UHF single and multi channel	Supply, Installation and Commissioning of the system at site
VHF Sub-system including DSC receiver	VHF receivers and associated equipment	Supply, Installation and Commissioning of the system at site
Voice Dispatch, Voice Alert, Voice & DSC Recording / Voice Communication Management System (VCMS)	VHF receivers and associated equipment	Supply, Installation and Commissioning of the system at site
CCTV Sub-system	Closed circuit television CCTV system	Supply, Installation and Commissioning of the system at site
Consoles	Consoles	Supply, Installation and Commissioning of the system at site
Video wall	Televisions	Supply, Installation and Commissioning of the system at site
Data Network Ethernet switch	Network switches	Supply, Installation and Commissioning of the system at site

Smart rack system	Data center services	Supply, Installation and Commissioning of the system at site
LAN Cable, Equipment-Specific Cables & Installation Material	Fiber optic cable installation service	Supply, Installation and Commissioning of the system at site
Audio cables	Fiber optic cable	Supply, Installation and Commissioning of the system at site
Servers	Computer server	Supply, Installation and Commissioning of the system at site
Laptops	Personal computer	Supply, Installation and Commissioning of the system at site
UPS & Power Infrastructure	Uninterruptible power supply UPS	Supply, Installation and Commissioning of the system at site
Supervisor workstation	Personal computer	Supply, Installation and Commissioning of the system at site
Antenna & feeder cables	Fiber optic cable installation service	Supply, Installation and Commissioning of the system at site

Software Capability with Existing Procedure / Application / Sensor	Software as a service	Integration with existing system
Upgradation / Renovation works	Commercial and office building renovation and repair service	Repair of the existing structure to make it suitable
35-Metre High Steel Tower / Mast	Telecommunication tower or support	Supply, Installation along with all civil works
Routers	Network routers	Supply, Installation and Commissioning of the system at site

Items/Lot Specification

Lot Title : VTMS

Item: Radar Sub-system

UNSPSC: Radarbased surveillance systems

Specifications / Requirements:

X-Band Solid State, Down-Mast Dual Transceiver configuration. Compliant IALA G-1111-3, V-127, V-128; IEC 62301-1, 623021-2, 62388, SOLAS Chapter V or any other relevant VTMS code. Full VTMS integration with redundant radar antenna unit. Proven design Latest model. Supply, Installation and Commissioning of Down Mast configuration with Dual Transceiver (X-Band Radar) at KPOC with following Technical Specification: Antenna size: 12 ft to 18 ft Vertical beam width: 25° Transceiver: Solid-State Polarization: horizontal Frequency Control: Manual & AFC; Horizontal beam width: $\leq 0.65^\circ$ Installation: Down-mast / Embedded Antenna gain: ≥ 33 dBi Sector blanking: at-least two sectors Radar Range: Up to 48 NM) with high resolution in Radar system Operational wind

speed: Up to 100knots The radar system shall include the following components for redundancy: 1. 02 × Radar Transceivers (Redundant Configuration) 2. 02 × Radar Tracker / Signal Processor Units (Redundant Configuration) • Module: Latest • Country of Origin: Japan / Germany / Western Europe or equivalent reputable make • System shall be fully compatible with IALA VTS operational requirements. • Radar shall support target detection, tracking, and integration with VTMS systems. • Equipment shall be suitable for continuous 24/7 coastal surveillance operation in a marine environment. The Radar system should detect small objects, such as channel buoys, small craft, fishing boats, vessel and provide accurate target separation such as a) A range cell size of: • 3m with instrumented range up to 12NM • 6m with instrumented range up to 48NM b) A target separation in range of: • 12m (3m cell) with instrumented range up to 12NM • 24m (6m cell) with instrumented range up to 48NM Note: A spare scanner has been envisaged at Steel Tower and shall be operated on a plug and play basis, as and when required, including provision within the down mast haulyard arrangement to ensure operational readiness.

Item: AIS Sub-system

UNSPSC: Transceivers VHF, UHF single and multi channel

Specifications / Requirements:

IALA-compliant VHF Data Link Class A/B transceiver, dual-channel simultaneous receive, NMEA 0183/2000 interface, GPS/GNSS receiver, VHF collinear antenna with LMR-400 feeder. (Ref: IALA A-126, ITU-R M.1371-5, SOLAS Ch.V Reg.19. Proven design Latest model. Supply, installation and commissioning of AIS Sub-system with following technical specifications: o Module: Latest o Country of Origin: Japan / Germany / Western Europe or equivalent reputable make. • AIS Base Station redundant Configuration • VHF / GPS antennas with necessary support structure and grounding • Cable, Surge Protector TX Power 2 W /12.5W Selectable Frequency range 156.025 – 162.025 MHz (Marine VHF Band) Band Width 25 KHz Receiving sensitivity -115 dBm Communication ports RS-232 or RS-485 or Ethernet Compliance IALA, IEC 62320-2, ITU- R M.1371-5 Environmental Marine-grade hardware for 24/7 coastal operation a) Built-in web-servers for configuration and monitoring b) Support for SNMP for network monitoring c) Built-in monitoring and self-diagnostics, including remote alarm messaging 19” rack mountable form-factor d) The integration between Radar and AIS systems is essential and that will be the mandatory part of the VTMS. e) The existing AIS system shall be incorporated and operationalized within the VTMS. (Specification will be provided)

Item: VHF Sub-system including DSC receiver

UNSPSC: VHF receivers and associated equipment

Specifications / Requirements:

02 Sets (one per operator console). GMDSS-compliant maritime VHF, 25W/1W TX, DSC Class D Class D controller, Channel 16/70 watch, dual watch capability, remote control head per console, VHF antenna (provided under Item 09/tower works). Interface to Voice Recording System (Item 05). (Ref: ITU-R M.489-2, ITU-R M.493-14, GMDSS, IEC 60945) Proven design Latest model. • Module: Latest • Country of Origin: Japan / Germany / Western Europe or equivalent reputable make. VHF RADIO INCLUDING DSC RECEIVER Technical specification of VHF Base Station: Frequency Range: 156.025 MHz – 162.025 MHz Transmitter Output Power: Minimum 50 W Channel Spacing: 12.5 kHz / 25 kHz Number of Programmable Channels: Minimum 20 Receiver Sensitivity Equal or better than 2 uVEMF for a signal-to-noise ratio 20dB DSC Capability Integrated Digital Selective Calling (DSC) Receiver compliant with ITU-R M.493 • Operation: Continuous 24/7 operation in marine environment • Interface: Remote control capability for VTMS console operation • Audio output: External audio interface for VTMS console integration • Fair weather Trial Range; $\geq 40\text{NM}$ VHF Antennas: Technical specification of VHF Base Station Frequency: 145-180 MHz Polarization: Vertical – Linear Maximum Input Power: 150 W Impedance: 50 Ohm Wind lad: 160 km/h VSWR: 1.5:1 Gain: 0dBs Mounting: Mast or tower mounting suitable for coastal installations Construction: Marine-grade corrosion-resistant material (e.g., fiberglass or stainless steel)

Item: Voice Dispatch, Voice Alert, Voice & DSC Recording / Voice Communication Management System (VCMS)

UNSPSC: VHF receivers and associated equipment

Specifications / Requirements:

Continuous multi-channel VHF recording 24/7, min. NTP UTC time-stamped, synchronized audio and data replay with radar/AIS/CCTV, DSC integration, role-based access. (Ref: IALA G-1111-4, SOLAS Ch.V Reg.20) Proven design Latest model. Voice Dispatch, Voice Alert Message and Voice & DSC Recording / Voice and Communication System: System Requirements: • Compatible with VHF base stations and DSC receivers • Support 24/7 continuous operation • Provide user authentication and secure access • Provide event logging and system diagnostics • Suitable for mission-critical VTS operations • Storage Capacity: Minimum 30 days

recording capacity • Play Back: Search by time, channel, or event (playback and retrieval of DSC messages. Voice Recording is capable of transferring to other storage systems). • Record without multiple voice effect • Fair weather Trial Range; $\geq 40\text{NM}$ NOTE: Min. 180-day storage VTMS SYSTEM (synchronized audio and data replay with radar/AIS/CCTV, DSC integration, role-based access The recording durations for the VTMS will be 90 Days as well as 90 days recording for Archive or available in suitable storage .

Item: CCTV Sub-system

UNSPSC: Closed circuit television CCTV system

Specifications / Requirements:

Control Tower (1 Long Range PTZ) 20× optical zoom minimum preferably for long-range identification across the harbor + 4 Remote Stations. IP network cameras min. 4MP/2560 x 1440 p, H.265, IP66/IP67, IR night vision min. 50m, PTZ min. 20× optical zoom at min. 2 stations. OS2 fiber connectivity to remote stations. RTSP/ONVIF Profile S compliant. No separate NVR — recording handled by VTMS Server. (Ref: IALA G-1111-7) Proven design Latest model. • Module: Latest • Country of Origin: Japan / Germany / Western Europe or equivalent reputable make S. No Location Qty Camera range Remarks 1. Light House 01 15 KM Replacement 2. KPOC 01 5 KM Replacement 3. Berth No. 24 01 5 KM Replacement 4. OP-I 01 5 KM Replacement 5. Berth No. 13/ 14 01 5 KM New The CCTV system should detect small objects, such as channel buoys, small craft, fishing boats, vessels and provide accurate target separation. 1. Long-Range Camera (15 km or more detection) Resolution: 4 MP (2688 × 1520) or greater. Vessel Type Detection Range: 15 km or more. Vessel Identity Recognition / Identification Range: 10–12 km under nominal visibility. Optics: 60× optical zoom, focal length 30–1500 mm, aperture f/4.0–f/8.0, motorized — providing identification at 10–12 km and detection at 15 km or beyond. Low-Light Performance: Starlight sensor, IR illumination, or equivalent technology for effective nighttime and fog visibility. Automatic Target Tracking: Enabled, with manual override available via the VTMS operator interface. Integration and Connectivity: ONVIF-compliant; supports RTSP, HTTP, RTP, and TCP streaming; remote control via VTMS console; PTZ control and video streaming latency below 250 ms. Thermal Imaging Specifications: HD uncooled thermal imager with 1280 × 1024 HD resolution and 12 μm pixel pitch. Motorized zoom lens of 31–310 mm at f/1.3, providing 14.1°–1.42° horizontal field of view. Supports 2× and 4× dynamic digital zoom and pan with range switching. Spectral range LWIR (7,000–14,000 nm). Operational temperature range -40 °C to +60 °C. Wide Dynamic Range (WDR) for glare and shadow handling. Environmental Features: IP67 weatherproof housing, IK10 impact resistance, marine-grade anti-corrosion coating, operating temperature -40 °C to +60 °C, salt fog resistance per IEC 60068-2-52,

and wind load certification compliant with local wind speed ratings (greater than 150 km/h). Video Encoding: H.265 and H.264, ONVIF compliant. 2. Medium-Range Camera (5 km or more detection) Resolution: 4 MP (2688 × 1520) or greater. Vessel Type Detection Range: 5 km or more. Vessel Identity Recognition / Identification Range: 3–4 km under nominal visibility. Optics: 33× optical zoom, focal length 6–200 mm, aperture f/1.8–f/4.0 — providing identification at 3–4 km and detection at 5 km or beyond. Low-Light Performance: Starlight sensor, IR illumination, or equivalent technology for effective nighttime and fog visibility. Automatic Target Tracking: Enabled, with manual override available via the VTMS operator interface. Integration and Connectivity: ONVIF-compliant; supports RTSP, HTTP, RTP, and TCP streaming; remote control via VTMS console; PTZ control and video streaming latency below 250 ms. Wide Dynamic Range (WDR): For glare and shadow handling. Environmental Features: IP67 weatherproof housing, IK10 impact resistance, marine-grade anti-corrosion coating, operating temperature -40 °C to +60 °C, salt fog resistance per IEC 60068-2-52, and wind load certification compliant with local wind speed ratings (greater than 150 km/h). Video Encoding: H.265 and H.264, ONVIF compliant.

Item: Consoles

UNSPSC: Consoles

Specifications / Requirements:

Each comprising: a) VTMS Client Software license (server + operator) b) Remote license for VTMS, ENC and associated software c) Complete PC system (Dell Precision 5860 or equiv., Intel Xeon W3-2435, 64GB DDR5 ECC, 1TB NVMe, NVIDIA RTX A4000 8GB Minimum or equivalent) 40" 4K LED Commercial Display × 3 per console d) Touchscreen PTT radio console e) ISO-11064 ergonomic VTS console furniture f) Operator chair (24/7 rated). • A powerful PC, keyboard, and mouse for operator use. Dell Precision 5860 Tower or equivalent — Intel Xeon W3-2435 (8-Core, 4.5GHz Turbo), 64GB DDR5 ECC RDIMM, 1TB Samsung NVMe PCIe Gen4 SSD + 2TB SATA SSD, NVIDIA RTX A4000 8GB minimum (supports 4 x 4K monitors), Dual 1GbE + Intel 10GbE NIC, Windows 11 Pro for Workstations (64-bit), 5-Year ProSupport Plus On-site. • VTMS Client software including ENC charts (Pak 30, Pak 33 and Pak 5 equivalent chart areas compliant with IHO S-57 / S-63 standards). • Remote Access License for VTMS, ENC and other associated Software's. • Complete PC system (compatible with VTMS system and capable of handling multi-sensor data processing and display). • At least 03 (three) LED monitors for each console measuring at least 40" (inches) in size suitable for continuous 24/7 VTS operational use. These monitors shall display various sensors information, including Radar, AIS, ECDIS, CCTV, and meteorological

data. Recommended: Samsung QM40B 40" 4K Commercial Display (3840x2160, 500 nit, IPS 178-degree viewing angle, HDMI 2.0 x3 + DisplayPort 1.2, RS-232 serial + RJ-45 LAN monitor control, 24/7 commercial-grade rated, VESA 200x200mm). Total: 3 per console x 2 consoles = 06 displays. • A table-top touch screen console designed for voice communication radios, equipped with a desk push-to-talk (PTT) microphone, speakers, and a headset. Recommended: Frequentis 3020 VCS Touch Console or equivalent VTS-grade unit, Jabra Speak 750 PTT desk microphone, Bose Companion 2 desktop speakers, Plantronics EncorePro HW710 wired headset with DA85 USB audio processor. • Ergonomically designed chairs to maximize operator comfort. Cable trays to facilitate efficient cable management. Recommended: Herman Miller Aeron or equivalent 24/7-rated VTS operator chair. • Accessibility of all controls from the operator's central seating position. • Consoles built in compliance with current ergonomic principles, prioritizing operator comfort and task efficiency. • 02 (two) way Power Distribution Units (PDUs) per console. Recommended: APC AP9572 console-mount PDU (2 per console — front and rear). • Two rows of cable management inside the console void. • Storage for PCs located inside the console void, accessible via front and back lift-off panels. • Easy opening and removal of panels for internal equipment components and connections. • A removable panel system for easy access to the cable void. • Designed with certification for 24/7 use.

Item: Video wall

UNSPSC: Televisions

Specifications / Requirements:

Wall-mounted Smart 65" LED screens, min. 4K UHD (3840x2160), 500 nit, ultra-slim bezel, 24/7 commercial-grade rated. VGA + HDMI + eARC, Display Port inputs, RS-232 + RJ-45 monitor control, VESA ceiling mount compatible. Each screen driven by dedicated fanless compact PC (min. Intel i7, 32GB RAM, SSD, 4K output). Proven design Latest model.

Item: Data Network Ethernet switch

UNSPSC: Network switches

Specifications / Requirements:

Min. 48-port managed PoE+ (802.3at, min. 370W PoE budget), 4x 10G SFP+ fiber uplinks, full Layer 2/3 (SNMP v3, VLAN, QoS, STP).

Proposed: Cisco Catalyst 9300-48P or equivalent.

Item: Smart rack system

UNSPSC: Data center services

Specifications / Requirements:

OEM: APC EcoStruxure Micro Data Center, Vertiv VRC-S, Huawei FusionModule500, Rittal Edge Data Centre, Eaton MIC, or equivalent
Enclosure: 42U × 800 × 1200 mm sealed cabinet, IP30, powder-coated steel, ≥1500 kg static load, gasketed front/rear doors and side panels, sealed cable entries, EIA-310-E 19" rails, leveling feet + casters. Cooling: Factory-integrated 8 kW closed-loop DX cooling, N+1 redundant fans, R410A/R32, outdoor condenser with 15m piping kit, condensate pump, 22–27 °C setpoint. UPS: Integrated 10 kVA online double-conversion (VFI-SS-111), ≥30-min full-load runtime, SNMP v3. PDUs: 2× intelligent monitored + switched PDUs, dual A/B feed, 24× C13 + 4× C19 each, SNMP v3. Monitoring: Multi-sensor (temp, humidity, door, leak, smoke, cooling health) with SNMP v3. Security: Smart RFID + PIN lock with audit logging. Earthing: ≤1 Ω to main earth pit. Seismic: Zone 2B anchoring kit. Cabling: Vertical/horizontal managers, 2× 24-port Cat6A + 2× 24-port LC fiber patch panels, blanking panels.

Item: LAN Cable, Equipment-Specific Cables & Installation Material

UNSPSC: Fiber optic cable installation service

Specifications / Requirements:

Cat6A STP throughout (no Cat5e), OS2 single-mode fiber optic backbone for sensor section to equipment room (min. 8 runs × 100m), Cisco SFPs, patch panels, cable trays. All runs certified to TIA-568-C.2 standard.

Item: Audio cables

UNSPSC: Fiber optic cable

Specifications / Requirements:

Shielded audio cables for VHF console, voice recording, and PA system integration.

Item: Servers

UNSPSC: Computer server

Specifications / Requirements:

Acceptable OEMs Tier-1 server OEM with established service presence in Karachi: Dell PowerEdge, HPE ProLiant, Lenovo ThinkSystem, Huawei FusionServer, or equivalent. A. VTMS Application & Database Servers — 02 Nos. (1 Active + 1 Hot Standby) Form factor: 2U rack-mount, 19-inch Recommended: Dell PowerEdge R760 / HPE ProLiant DL380 Gen11 / Lenovo SR650 V3 Processor: 2× Intel Xeon Silver 4416+ (20-core, 2.0 GHz) or higher Memory: 128 GB DDR5-4800 ECC RDIMM (expandable to 2 TB), minimum 16 DIMM slots Storage: 2× 480 GB SATA SSD RAID-1 (OS) + 8× 2.4 TB SAS 10K HDD RAID-10 (data) with hardware RAID controller, 8 GB cache, BBU Network: 4× 1 GbE + 2× 10/25 GbE SFP28 (Intel/Broadcom) Out-of-band management: iDRAC9 Enterprise / iLO Advanced / XCC Platinum Power: Dual 1100 W Platinum hot-swap PSU Redundant hot-swap fans (N+1) TPM 2.0 OS: Windows Server 2022 Datacenter or RHEL 9 (per VTMS vendor) Hypervisor option: VMware vSphere or Microsoft Hyper-V if virtualized B. Extractor/Tracker PCs — 02 Nos. (1 Active + 1 Hot Standby) Form factor: Tower workstation, server-grade Recommended: Dell Precision 7960 Tower or equivalent Processor: Intel Core i9-14900K (24C/32T, 6.0 GHz Turbo) or latest equivalent Memory: 64 GB DDR5-5600 ECC RDIMM (expandable to 192 GB) Storage: 2× 512 GB NVMe Gen 4 SSD in RAID-1 (OS) + 2× 2 TB NVMe SSD (data) Graphics: NVIDIA RTX A4000 16 GB or RTX 4070/4080 (per VTMS software requirement) Network: Dual-port 10 GbE NIC (Intel X710 or equivalent) Power: Dual 1000 W Platinum hot-swap PSU TPM 2.0 OS: Windows 11 Pro for Workstations or RHEL 9 (per VTMS vendor) C. Network Attached Storage (NAS) — 01 No. Form factor: 2U/3U rack-mount Recommended: Synology RS3621xs+ / QNAP TS-h2490FU / Dell PowerVault Capacity: Minimum 80 TB usable in RAID-6 (12× 8 TB enterprise SAS/SATA HDDs) Controller: Dual hot-swap controllers preferred Network: 4× 1 GbE + 2× 10 GbE SFP+ Protocols: SMB, NFS, iSCSI, FTP, S3-compatible Snapshot, replication, encryption (AES-256), and backup capability Redundant hot-swap PSUs D. Network Video Recorder (NVR) — 01 No. Form factor: 3U/4U rack-mount Recommended: HikVision DS-96256NI-I24 / Dahua NVR616 / Axis Camera Station Channels: Minimum 64 IP camera channels (expandable to 128) Recording bandwidth: ≥320 Mbps incoming, ≥256 Mbps outgoing Storage: 16× hot-swap bays, 96 TB usable in RAID-6 (with 8 TB enterprise surveillance HDDs) Codec: H.265, H.264, MJPEG; 4K recording supported Network: 4× 1 GbE + 2× 10 GbE Compatibility: ONVIF Profile S/G/T Redundant hot-swap

PSUs E. NTP Time Server — 01 No. Form factor: 1U rack-mount Recommended: Meinberg LANTIME M300 / Microsemi SyncServer S600 Time source: GPS/GNSS with rooftop antenna (50 m cable + lightning protection) Accuracy: ≤ 100 ns to UTC Holdover: ≥ 24 hours within 1 ms after GPS loss Network: 2x Gigabit Ethernet Protocols: NTP v4, PTP IEEE 1588v2, SNMP v3 Redundant PSUs Common Requirements Reference standards: IEC 62368-1, IEC/EN 55032/55035, FCC, CE, RoHS, ENERGY STAR, EPEAT. Redundancy: All critical servers in active/hot-standby with automatic failover; ECC memory; RAID storage; redundant PSUs; redundant fans. Installation: Within smart rack (Tech Spec 02.9), dual A/B power, redundant network uplinks. Acceptance Testing: OEM factory burn-in; site test for boot, RAID rebuild, failover, network throughput, OOB management, integration with VTMS application. Documentation: OEM manuals, server config sheets, network/storage design, RAID and replication setup, FAT/SAT reports, warranty certificates, sealed admin credentials envelope. MIS Application / DB Servers x2 — Active-Passive HA, Tier-1 OEM 1U rack server, 128 GB DDR5 ECC, RAID-10 NVMe.

Item: Laptops

UNSPSC: Personal computer

Specifications / Requirements:

Field Maintenance Laptops — 02 Nos. + Accessories. Dell Latitude 5430 or equivalent, i7 vPro or ultra, 32GB DDR4, 1TB NVMe with RTX or equivalent card minimum 6GB dedicated , 14" 1000-nit, built-in RS-232 DB9, Wi-Fi 6E, 4G LTE , minimum 4USB slots and Type C 3.0). Quantity (Two) identical units Hardware Specifications Base Platform • Make/Model: Dell Latitude 5440/5450, HP EliteBook 840/860 G11, Lenovo ThinkPad T14/P14s, or equivalent business-grade laptop • Form factor: 14-inch clamshell Processor • Intel Core i7 vPro (13th Generation or later) or Intel Core Ultra 7 vPro • Minimum 10 cores with hyper-threading • Base clock ≥ 2.0 GHz, turbo ≥ 4.5 GHz • vPro Enterprise with Intel AMT support for remote management Memory • 32 GB DDR4-3200 or DDR5-5200 SODIMM • Minimum 2 SODIMM slots (at least one user-accessible for future upgrade) Storage • 1 TB NVMe PCIe Gen 4 SSD, M.2 2280 • Self-encrypting drive with TCG Opal 2.0 support • Read speed $\geq 5,000$ MB/s Graphics • Discrete GPU: NVIDIA RTX 2000 Ada / RTX A1000 / RTX 3050 mobile or equivalent • Minimum 6 GB dedicated GDDR6 VRAM • Capable of driving multiple external displays • Integrated graphics (Intel Iris Xe / Arc) for battery-efficient operation Display • 14-inch diagonal • Full HD (1920x1080) minimum • Brightness: 1000 nits (outdoor-readable / sunlight-viewable) • Anti-glare coating • 100% sRGB color gamut Keyboard and Input • Backlit spill-resistant keyboard • Precision touchpad • Fingerprint reader (integrated in power button or palm rest)

Wireless Connectivity • Wi-Fi 6E (802.11ax, tri-band 2.4/5/6 GHz) • Bluetooth 5.3 or later • 4G LTE Cat-12 or higher cellular modem with nano-SIM slot • GPS/GNSS receiver (integrated with cellular module) Wired I/O • Built-in RS-232 DB9 serial port (native, not USB adapter) — mandatory • USB Type-A 3.2 Gen 2: minimum 4 nos. • USB Type-C with Thunderbolt 4 / USB4: minimum 1 no., with power delivery and DisplayPort alt-mode • HDMI 2.0 or 2.1 output • RJ-45 Gigabit Ethernet • 3.5 mm audio combo jack • SD card reader Security • TPM 2.0 discrete module • Kensington lock slot • Hardware webcam privacy shutter • BIOS-level security (Intel Boot Guard, Secure Boot) Power and Battery • Primary battery: Minimum 65 Wh Li-ion • Battery life: minimum 10 hours on typical workload (per MobileMark specification) • AC adapter: 90W–130W USB-C PD or proprietary barrel connector Physical • Weight: ≤1.8 kg • Chassis: Aluminum or magnesium alloy • Operating temperature: 0 °C to +40 °C 02.7.5 Operating System and Software Operating System • Microsoft Windows 11 Pro 64-bit (pre-installed, with OEM license and recovery media) • BIOS/firmware in latest stable release at time of delivery • Vendor configuration software for deployed VTMS equipment (radar, AIS, VHF, CCTV, network switch clients) — bidder shall coordinate with VTMS system integrator Security Software • Endpoint protection (Microsoft Defender for Endpoint or equivalent) • Full-disk encryption (BitLocker) enabled on delivery Accessories (per laptop) • Padded laptop carrying case / backpack • AC power adapter with universal 3-pin plug and 1.8 m cable • Car charger (12/24 V DC) with cigarette-lighter plug • USB-C to HDMI adapter • USB-C to VGA adapter (for legacy equipment consoles) • USB-C to Gigabit Ethernet adapter • USB-to-RS485/RS422 isolated serial adapter (FTDI chipset) • DB9 M-F serial cable, 3 m • DB9 null-modem cable, 2 m • CAT6A Ethernet patch cable, 5 m (2 nos.) • Console cable kit (RJ45-to-DB9, USB-to-console for network switches) • Wired USB optical mouse • Wireless mouse with USB receiver • Screen cleaning kit and microfiber cloth

Item: UPS & Power Infrastructure

UNSPSC: Uninterruptible power supply UPS

Specifications / Requirements:

Acceptable OEMs Tier-1 OEM with established service presence in Karachi: APC Smart-UPS SRT / Galaxy VS, Eaton 93PS / 9PX, Vertiv Liebert GXT / APM, Schneider Electric, or equivalent. A. Main UPS — 01 No. Topology: Online double-conversion (VFI-SS-111 per IEC 62040-3), IGBT rectifier and inverter Capacity: 20 kVA / 20 kW (unity output power factor) Form factor: Floor-standing / tower Input: 3-phase + N + E, 380/400/415 V, 50 Hz, ±20% voltage tolerance Output: 3-phase, voltage regulation ±1%, THD ≤3% linear / ≤5% non-linear Input PF: ≥0.99; Input THD: ≤3% Efficiency: ≥96% in double-conversion mode Transfer time: 0 ms (seamless to battery),

2 ms bypass Overload: 125% for 10 min, 150% for 1 min Display: Color LCD, audible alarm with mute Communication: SNMP v3 NMC with Gigabit Ethernet (HTTPS, SSH, SMTP, Modbus TCP, Syslog), RS-232, USB, ≥ 4 dry contacts, EPO input, environmental probe port Cooling: Variable-speed fans, ≤ 60 dBA at 1 m Operating temperature: 0–40 °C, humidity 5–95% non-condensing B. Battery System — Sized for 30-min Full-Load Autonomy Primary option (VRLA): Sealed maintenance-free AGM, IEC 60896-21/22 compliant, ≥ 10 -year design life at 25 °C, hot-swap capable, in floor-standing battery cabinet with hinged lockable door, integrated DC isolator (MCCB or HRC fuse), inter-battery cabling with crimped lugs, earth bonding, ventilation. Alternative option (Li-ion): LiFePO₄ with integrated BMS (CAN/RS-485 to UPS), ≥ 15 -year design life, IEC 62619 + UN 38.3 certified, thermal runaway protection. Bidder shall demonstrate 10-year TCO if Li-ion offered. C. Servo Voltage Stabilizer — 15 kVA, 3-Phase Topology: Servo motor-driven variable auto-transformer (not static) Input: 300–470 V line-to-line ($\pm 25\%$); Output: 400 V $\pm 1\%$ Correction speed: ≥ 20 V/sec; Efficiency: $\geq 97\%$ Floor-standing enclosure with input/output MCCB, over/under-voltage cutoff, overload, phase reversal, single-phase preventer, digital metering, manual bypass D. Automatic Transfer Switch (ATS) — 40 A, 3-Phase Open transition, break-before-make, ≤ 5 sec transfer Microprocessor controller with LCD, programmable thresholds and time delays Wall-mount sheet-steel cubicle, IP42, with MCCB on each incomer, phase-fail and phase-sequence protection, manual override (Auto/Mains/Generator) Dry contacts for generator start/stop signaling E. Desk-Side UPS — 03 Nos. (Per Operator Workstation) 1500 VA / 1000 W line-interactive with AVR ≥ 15 -min runtime at typical workstation load (~ 400 W) Tower or rack-mount, $\geq 6 \times$ IEC C13 outlets with battery-backed/surge-only differentiation LCD display, USB/serial communication for shutdown software APC Smart-UPS 1500VA, Eaton 5P 1550, Vertiv Liebert PSA, or equivalent F. Surge Protection Devices — 06 Nos. Type 2 per IEC 61643-11, $I_n \geq 20$ kA, $I_{max} \geq 40$ kA, $U_p \leq 1.5$ kV, response ≤ 25 ns, replaceable cartridge, visual + dry contact status indication G. Distribution & Bypass Input Distribution Panel: Wall-mount IP42, MCCB, Type 2 SPD, multi-function digital meter, indicator lamps, earth/neutral bars Output Distribution Panel: MCBs per circuit, dedicated feeders for VTMS rack, workstations, video wall, network gear, radar processor External Maintenance Bypass Switch: 3-position make-before-break (Normal/Bypass/Test), ≥ 40 A, lockable IP42 enclosure H. Installation, Cabling & Earthing Installation: Within VTMS Server Room in dedicated power zone (≥ 1 m clearance from IT racks); floor-mount placement preferred Cabling: XLPE/PVC copper with $\geq 25\%$ spare capacity, color-coded DC battery cables with factory-crimped lugs, hot-dip galvanized cable tray with covers, IP68 marine-grade glands for outdoor routing Earthing: Dedicated copper earth bar, ≥ 50 mm² cable to main earth pit, ≤ 1 Ω resistance, equipotential bonding bar I. Safety EPO mushroom-head break-glass button outside power zone, wired to UPS EPO input Bilingual (English/Urdu) signage: high voltage warning, EPO location, authorized access only Rubber mat in front of panels, CO₂ extinguisher, first-aid kit Heat load calculation submitted by bidder; if existing HVAC insufficient,

additional split AC quoted as separately priced optional item J. Acceptance Testing FAT (OEM facility): Full-load test 100% for ≥ 2 hours, efficiency at 25/50/75/100% load, input THD, transfer test, battery autonomy, SNMP/alarm functional test. SAT (site): Resistive load bank test 100% for ≥ 4 hours, battery discharge to verify autonomy, bypass transfer (manual/auto), EPO functional, ATS mains/generator changeover, SNMP integration with KPT NMS, earth resistance, insulation resistance, harmonic distortion. Bidder supplies/arranges load bank. K. Documentation, Training & Warranty Documentation: O&M manuals, single-line diagram, cable schedule, layout drawing, FAT/SAT reports, OEM warranty certificates, compliance certificates, spare parts list, PM schedule

Item: Supervisor workstation

UNSPSC: Personal computer

Specifications / Requirements:

Form factor: Mid-tower, factory-assembled workstation Processor: Intel Core i9-14900K (24 cores: 8 P + 16 E, 32 threads, base ≥ 3.2 GHz, turbo ≥ 5.8 GHz) with adequate cooling (240 mm AIO liquid cooler or premium air cooler) to sustain all-core turbo Memory: 32 GB DDR5-5200 ECC, 2x 16 GB dual-channel, ≥ 4 DIMM slots (expandable to 128 GB). Note: ECC requires W680/Q670 workstation chipset; non-ECC DDR5-5600 acceptable as declared deviation Storage: 512 GB NVMe PCIe Gen 4 SSD (M.2 2280) for OS, self-encrypting (TCG Opal 2.0), read $\geq 5,000$ MB/s, write $\geq 4,000$ MB/s. Optional 2 TB SATA SSD/HDD secondary Graphics: NVIDIA RTX 4060 Ti 8 GB GDDR6 minimum, or RTX A2000 12 GB / RTX 2000 Ada equivalent. Minimum 4 display outputs (DisplayPort 1.4 / HDMI 2.1), capable of driving 2x 27" 4K at 60 Hz with headroom for 4 displays Network: Integrated Gigabit Ethernet (Intel i219/i225); optional 2.5/10 GbE NIC quoted separately I/O: 6x USB-A 3.2 Gen 2 (2 front, 4 rear), 1x USB-C front (10 Gbps + DP alt-mode), PS/2 ports, 3.5 mm audio combo + line-in/out, RJ-45 GbE Expansion: ≥ 2 free PCIe slots, ≥ 2 free M.2 slots, ≥ 2 free 2.5"/3.5" bays Security: TPM 2.0, BIOS-level (Intel Boot Guard, Secure Boot), chassis intrusion detection, Kensington lock slot Power: 500-750 W 80-Plus Gold PSU, active PFC, 100-240 V AC Acoustic: ≤ 35 dBA idle, ≤ 45 dBA typical load Operating temperature: 10-35 °C Manageability: Intel vPro with AMT for remote KVM, power control, BIOS access B. Monitors Make: Samsung QM27B, LG 27BN65Q, Dell UltraSharp U2723QE, or equivalent commercial-grade Size: 27-inch IPS panel Resolution: 4K UHD (3840x2160) preferred; QHD (2560x1440) acceptable minimum Brightness: ≥ 350 cd/m² (400 preferred) Contrast: $\geq 1,000:1$ static Color: 100% sRGB, 95% DCI-P3 preferred Refresh rate: 60 Hz; Response: ≤ 5 ms GTG Viewing angle: 178° H/V Inputs: DisplayPort 1.4, HDMI 2.0 (x2), USB-C with DP alt-mode (preferred for one) Built-in 4-port USB 3.2 hub preferred Ergonomics: Height-adjustable stand (≥ 130 mm travel), tilt -5°

to +20°, swivel ±45°, pivot 90° portrait, VESA 100×100 Bezel: Narrow (≤8 mm) on three sides for side-by-side dual layout Eye care: Flicker-free, low blue light certified (TÜV Rheinland or equivalent) 24×7 commercial duty rating mandatory; consumer/gaming monitors not acceptable Warranty: 3-year on-site, zero dead-pixel policy C. Peripherals Keyboard: Logitech MX Keys for Business, Dell KB900, or equivalent premium business keyboard. Full-size with numeric keypad, wired USB primary (wireless optional), backlit, scissor or low-profile mechanical switches rated ≥10 million keystrokes, spill-resistant Mouse: Logitech MX Master 3S for Business, Dell MS900, or equivalent. Wired or wireless (USB receiver + Bluetooth), ergonomic right-handed, ≥4,000 DPI adjustable, ≥6 programmable buttons, USB-C rechargeable if wireless D. Supervisor Console Chair — 01 No. Make: Herman Miller Aeron, Steelcase Leap V2, Humanscale Freedom, or equivalent premium ergonomic task chair rated for 24×7 multi-shift use. Acceptable mid-range: Sihoo Doro C300, Ergohuman V2, HON Ignition 2.0 Compliance: BIFMA X5.1 (intensive use) or EN 1335 Type A Back: High-back with adjustable lumbar support (height + depth) Headrest: Adjustable height and angle Armrests: 4D adjustable (height, width, depth, pivot) Seat: Synchronous tilt with tension adjustment and multi-position lock; sliding seat pan for depth adjustment Seat height: Class 4 gas lift, ≥50 mm adjustment range Upholstery: Breathable mesh back; mesh or fabric seat (leather not recommended for 24×7) Base: 5-star aluminum or reinforced nylon with twin-wheel hooded casters for carpet and hard floors Weight capacity: ≥120 kg Warranty: ≥5 years (premium brands typically 12 years) E. Software Windows 11 Pro for Workstations 64-bit (OEM-licensed, with recovery media) Microsoft Office Professional Plus 2021 or Microsoft 365 Apps for Enterprise (1-year license minimum) Endpoint protection (Microsoft Defender for Endpoint, Kaspersky, or equivalent) BitLocker full-disk encryption enabled on delivery VPN client pre-configured VTMS supervisor client, CCTV VMS client, radar/AIS display, reporting tools — pre-installed and configured by VTMS system integrator F. Installation & Acceptance Installation: Designated supervisor position in Operations Room, dual-monitor side-by-side at matched height, all cables routed through desk grommets, UPS-protected feed from main VTMS UPS plus desk UPS, Ethernet to VTMS network with appropriate VLAN, ergonomic setup with monitor top edge at/below operator eye level Acceptance: Boot/BIOS/OS verification, ECC RAM check, GPU multi-monitor output (2× 4K/QHD at 60 Hz), network connectivity, all pre-installed software functional, sustained CPU+GPU thermal test 30 min without throttling, noise level at operator position, all peripherals and chair adjustments functional. Sign-off by KPT IT/MIS and VTMS Operations

Item: Antenna & feeder cables

UNSPSC: Fiber optic cable installation service

Specifications / Requirements:

Radar IF/fiber cable (mast to equipment room). VHF antenna coaxial feeders: LMR-400 low-loss 50-Ohm, min. 100m, N-type connectors, weatherproofed. AIS antenna feeder: LMR-400, min. 80m. GPS/NTP antenna cable: LMR-195, min. 30m. Lightning arrestors at all antenna entry points. All feeders labeled (Brady industrial labels) at both ends. Proven design Latest model.

Item: Software Capability with Existing Procedure / Application / Sensor

UNSPSC: Software as a service

Specifications / Requirements:

VTMS server software integration with existing KPT systems: Berth Planning, Pilotage, Ship Movement, Statistics, Billing, Tidal Sensors (Sat Link 3), CCTV, VHF, IPOS, ERP, and Terminal Operating Systems.

Item: Upgradation / Renovation works

UNSPSC: Commercial and office building renovation and repair service

Specifications / Requirements:

Works required to make KPOC (Karachi Port Operations Centre) suitable as the main VTMS Control Station: electrical upgrades, data cabling infrastructure, environmental works, as assessed and specified by the Bidder following site survey before submission of bid

Item: 35-Metre High Steel Tower / Mast

UNSPSC: Telecommunication tower or support

Specifications / Requirements:

01 No. Including marine grade paint, ICAO aviation warning lights, earthing and lightning protection, access ladder with safety cage, sensor mounting platforms. Structural design certificate required from licensed structural engineer. 35 meters high steel tower / mast including marine grade paint • Sensor (Radar) Tower (150 feet) with Equipment Building as per specifications in the technical

proposal and final design including Installation Structures (Radar Pedestal, equipment masts, Brackets, etc) • Civil Works/Data Links

Item: Training of KPT personnel

UNSPSC: Personnel skills training

Specifications / Requirements:

Comprehensive programme for VTS Operators, System Administrators, and Maintenance Engineers. Classroom instruction, hands-on console operation, simulator exercises, training manuals, competency assessment. Minimum 10 KPT personnel. OEM certification where applicable. Training of KPT Personnel: The Contractor shall provide comprehensive training for KPT staff as per requirement. The overall training will be required for 14 Nos. staff (i.e. IT 02 Nos., Technical 02, Operator / Supervisor 10) Foreign Training. The bidder will also provide the foreign Training for two KPT Officials i.e. One Operational side and One Technical side in accordance with IALA standards and certification.

Item: SLA of 2 years

UNSPSC: Basic agreement

Specifications / Requirements:

02 - year SLA including list of critical spare parts along with their prices in USD. 24/7 support, on-site response within 4 hours, quarterly preventive maintenance visits, software updates and patches, and critical spare parts stock as per agreed Critical Component List (CCL)

Item: Routers

UNSPSC: Network routers

Specifications / Requirements:

OEM: Cisco Catalyst 8300, Juniper SRX380, Huawei NetEngine AR6300, HPE Aruba CX 9300, Fortinet FortiGate 600F, or equivalent

Form factor: 1U/2U rack-mount, 19-inch. Performance: ≥ 10 Gbps routing/firewall throughput; ≥ 3 Gbps IPsec VPN (hardware-accelerated); $\geq 1M$ concurrent sessions; ≥ 50 site-to-site VPN tunnels. Interfaces: 8x 1 GbE RJ-45 + 4x 10 GbE SFP+ built-in; 2x modular NIM/SPA slots; RJ-45 + USB console; dedicated OOB management port; 1x USB 3.0. Redundancy: Dual hot-swap AC PSUs (1+1); hot-swap N+1 fans. Power: 100–240 V AC, ≤ 300 W typical. Environmental: 0–45 °C operating; 5–90% RH non-condensing; MTBF $\geq 100,000$ hrs. Compliance: IEC 62368-1, IEC/EN 55032/55035, FCC, CE, RoHS.

Price Schedule

For Individual Items

#	Item Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
1							
2							

For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		





General Conditions of Contract

A. General

1. Definitions

1.1 Unless the context otherwise requires, the following terms whenever used in this Contract shall have the same meaning and shall be interpreted as indicated

1. "Applicable Law" means the laws and any other instruments having the force of law in the Government's Country, or in such other country as may be specified in the Special Conditions of the Contract (SC), as they may be issued and in force from time to time;
2. "Procuring Agency" means:-
 - 2.1. any Ministry, Division, Department or any Office of the Government;
 - 2.2. any authority, corporation, body or organization established by or under a Law or which is owned or controlled by the Government;
3. "The Contract" means an agreement enforceable by law;
4. "The Contract Price" means the price payable to the Bidder under the Contract for the full and proper performance of its contractual obligations;
5. "Ancillary Services" means those services ancillary to the provision of Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Bidder covered under the Contract;
6. "GCC" means the General Conditions of Contract contained in this section;
7. "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented;
8. "Day" means calendar day unless indicated otherwise.
9. "Effective Date" means the date on which this Contract comes into force and effect.
10. "The Bidder" means the individual or corporate body whose Bids to provide the Goods has been accepted by the Procuring Agency;
11. "The Project Site," where applicable, means the place or places named in Bids Data Sheet and technical Specifications;
12. "Government" means the Government of Pakistan;
13. "Subcontractor" means any entity to which the Bidder subcontracts any part of the Goods.
14. "Service" means any object of procurement other than goods or works;
15. "Party" means the Procuring Agency or the Bidder, as the case may be, and "Parties" means both of them;
16. "Foreign Currency" means any currency other than the currency of the country of the Procuring Agency;

17. "Completion Date" means the date of completion of the contract by the Bidder as certified by the Procuring Agency;

18. "In Writing" means communicated in written form with proof of receipt;

19. "Local Currency" means the currency of Pakistan;

2. Application and Interpretation

2.1 These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.

2.2 In interpreting these Conditions of Contract headings and marginal notes are used for convenience only and shall not affect their interpretations unless specifically stated; references to singular include the plural and vice versa; and masculine include the feminine. Words have their ordinary meaning under the language of the Contract unless specifically defined.

3. Applicable Law

3.1 The contract shall be governed and interpreted in accordance with the laws of Pakistan, unless otherwise specified in SCC.

4. Governing Language

4.1 The Contract as well as all correspondence and documents relating to the Contract exchanged between the Bidder and the Procuring Agency, shall be written in the **English language** unless otherwise stated in the **SCC**. Supporting documents and printed literature that are part of the Contract may be in another language provided these are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5. Notices

5.1 Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram, or facsimile to such Party at the address specified in the **SCC**.

6. Delivery/Location

6.1 The Goods shall be delivered to such locations as the Procuring Agency may approve and as specified in **SCC**.

7. Authorized Representatives / Authority of Member in charge

7.1 Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Procuring Agency or the Bidder may be taken or executed by the officials specified in the **SCC**.

B. Commencement, Completion, Modification, and Termination of Contract

8. Effectiveness of Contract

8.1 This Contract shall come into effect on the date the Contract is signed by both parties and such other later date as may be stated in the SCC.

9. Commencement of Services

9.1 The Bidder shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the SCC.

10. Program

10.1 Before commencement of the Services, the Bidder shall submit to the Procuring Agency for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated.

11. Starting Date/Expiration Date

11.1 The Bidder shall start carrying out the Services Five (05) days after the date the Contract becomes effective, or at such other date as may be specified in the SCC.

11.2 Unless terminated earlier pursuant to Clause **GCC 15** hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SCC.

12. Entire Agreement

12.1 This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

13. Modification

13.1 Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any Bids for modification or variation made by the other Party.

13.2 In cases of any modifications or variations, the prior written consent of the Procuring Agency is required.

14. Force Majeure

14.1 Definition

For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

14.2 No Breach of Contract

The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract in so far as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

14.3 Extension of Time

Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

14.4 Payments

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Bidder shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.

15. Termination

15.1 By the Procuring Agency

The Procuring Agency may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (e) of this Clause. In such an occurrence the Procuring Agency shall give at least thirty (30) calendar days' written notice of termination to the Bidder in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e);

1. If the Bidder fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension;
2. If the Bidder becomes (or, if the Bidder consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;
3. If the Bidder fails to comply with any final decision reached as a result of arbitration proceedings;
4. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;
5. If the Procuring Agency, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

15.2 By the Bidder

The Bidder may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Procuring Agency, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

1. If the Procuring Agency fails to pay any money due to the Bidder pursuant to this Contract and not subject to dispute within forty-five (45) calendar days after receiving written notice from the Bidder that such payment is overdue.
2. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.
3. If the Procuring Agency fails to comply with any final decision reached as a result of arbitration.
4. If the Procuring Agency is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Bidder may have subsequently approved in writing) following the receipt by the Procuring Agency of the Bidder's notice specifying such breach.

C. Obligations of the Bidder

16. General

16.1 Standard of Performance

1. The Bidder shall deliver the product and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Bidder shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Procuring Agency, and shall at all times support and safeguard the Procuring Agency's legitimate interests in any dealings with the third parties.

16.2 Law Applicable to Goods

The Bidder shall deliver the goods in accordance with the Contract and in accordance with the Law of Pakistan and shall take all practicable steps to ensure that any of its Experts and Sub-Bidders, comply with the Applicable Law.

17. Conflict of Interests

17.1 Bidder Not to Benefit from Commissions and Discounts.

The remuneration of the Bidder shall constitute the Bidder's sole remuneration in connection with this Contract or the Services, and the Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Bidder shall use their best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration.

17.2 Bidder and Affiliates Not to be Otherwise Interested in Project

The Bidder agree that, during the term of this Contract and after its termination, the Bidder and its affiliates, as well as any Subcontractor and any of its affiliates, shall be disqualified from providing Goods for any project resulting from or closely related to the Services.

17.3 Prohibition of Conflicting Activities

Neither the Bidder nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

1. during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract;
2. during the term of this Contract, neither the Bidder nor their Subcontractors shall hire public employees in active duty or on any type of leave, to perform any activity under this Contract;

18. Confidentiality

18.1 Except with the prior written consent of the Procuring Agency, the Bidder and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the contract.

19. Insurance to be Taken Out by the Bidder

19.1 The Bidder(a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Procuring Agency, insurance against the risks, loss or damage, and for the coverage, as shall be specified in the SCC; and (b) at the Procuring Agency's request, shall provide evidence to the Procuring Agency showing that such insurance has been taken out and maintained and that the current premiums have been paid.

20. Bidder's Actions Requiring Procuring Agency's Prior Approval

20.1 The Bidder shall obtain the Procuring Agency's prior approval in writing before taking any of the following actions:

- (a) appointing such members of the Personnel not provided by the Bidder;
- (b) changing the Program of activities; and
- (c) any other action that may be specified in the SCC.

21. Reporting Obligations

21.1 The Bidder shall submit to the Procuring Agency the reports and documents in the numbers, and within the periods as prescribed by the Procuring Agency.

22. Liquidated Damages

22.1 If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring Agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the performance security (or guarantee) specified in SCC. Once the said maximum is reached, the Procuring Agency may consider termination of the Contract pursuant to **GCC Clause 15**.

22.2 Correction for Over-payment

If the Intended Completion Date is extended after liquidated damages have been paid, the Procuring Agency shall correct any overpayment of liquidated damages by the Bidder by adjusting the next payment certificate. The Bidder shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in SCC.

22.3 Lack of performance penalty

If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, a penalty for Lack of performance will be paid by the Bidder. The amount to be paid will be calculated as a percentage of the cost of having the Defect corrected, assessed as specified in the SCC.

23. Performance Guarantee

23.1 Within Seven (07) days from the issuance of acceptance letter from the Procuring Agency, the successful Bidder shall furnish the Performance Guarantee in shape of ----- at the discretion of the PA in the amount **specified in SCC**. In case the amount of Bids security is equal or greater than

23.2 The proceeds of the Performance Guarantee shall be payable to the Procuring agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

23.3 The Performance Guarantee shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Procuring agency and shall be in the acceptable form as specified in SCC.

23.4 The Performance Guarantee will be discharged by the Procuring agency and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC**.

24. Fraud and Corruption

24.1 The Procuring Agency requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the Bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

25. Sustainable Procurement

25.1 The Bidder shall conform to the sustainable procurement contractual provisions, if and as specified in the SCC.

D. Bidder's Personnel

26. Description of Personnel

26.1 The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Bidder's Key Personnel. The Key Personnel listed by title as well as by name are hereby approved by the Procuring Agency.

27. Removal and/or Replacement of Personnel

27.1 Except as the Procuring Agency may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Bidder, it becomes necessary to replace any of the Key Personnel, the Bidder shall provide as a replacement a person of equivalent or better qualifications.

27.2 If the Procuring Agency finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Bidder shall, at the Procuring Agency's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Procuring Agency.

27.3 The Bidder shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

E. Obligations of the Procuring Agency

28. Assistance and Exemptions

28.1 The Procuring Agency shall use its best efforts to ensure that the Government shall provide the Bidder such assistance and exemptions as specified in the SCC.

29. Change in the Applicable Law

29.1 If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost of the related Services rendered by the Bidder, then the remuneration and reimbursable expenses otherwise payable to the Bidder under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred in the SCC.

30. Services and Facilities

30.1 The Procuring Agency shall make available to the Bidder and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described, at the times and in the manner specified in the SCC or terms of reference.

30.2 In case that such services, facilities and property shall not be made available to the Bidder, the Parties shall agree on (i) any time extension that it may be appropriate to grant to the Bidder for the performance of the Services, (ii) the manner in which the Bidder shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the Bidder as a result thereof.

F. Payments to the Bidder

31. Contract Price

31.1 The price payable shall be in Pakistani Rupees unless otherwise specified in the SCC. Prices charged by the Supplier for Goods delivered under the Contract shall not vary from the prices quoted by the Supplier in its Bid.

32. Terms and Conditions of Payment

32.1 Payments will be made to the Bidder according to the payment schedule stated in the SCC and as per actual invoice submitted by the Bidder.

32.2 Unless otherwise stated in the SCC, the advance payment shall be made against the provision by the Bidder of a bank guarantee for the same amount, and shall be valid for the period stated in the SCC. Any other payment shall be made after the conditions listed in the SCC for such payment have been met, and the Bidder have submitted an invoice to the Procuring Agency specifying the amount due.

33. Currency of Payment

33.1 Any payment under this Contract shall be made in the currency(ies) specified in the SCC.

G. Quality Control

34. Identifying Defects

34.1 The principle and modalities of Inspection of the Goods by the Procuring Agency shall be as indicated in the SCC. The Procuring Agency shall check the Bidder's performance and notify him of any Defects that are found. Such checking shall not affect the Bidder's responsibilities. The Procuring Agency may instruct the Bidder to search for a Defect and to uncover and test any service that the Procuring Agency considers may have a Defect. Defect Liability Period is as defined in the SCC.

35. Correction of Defects, and

Lack of Performance Penalty

35.1 The Procuring Agency shall give notice to the Bidder of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice a Defect is given, the Bidder shall correct the notified Defect within the length of time specified by the Procuring Agency's notice.

35.3 If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, the Procuring Agency will assess the cost of having the Defect corrected, the Bidder will pay this amount, and a Penalty for Lack of Performance.

36. Taxes and Duties

36.1 A Supplier shall be entirely responsible for all taxes, duties, fees, etc., incurred until delivery of the contracted Goods to the Procuring Agency.

H. Settlement of Disputes

37. Alternate Dispute Resolution

37.1 The disputes between the parties to the contract may be settled in accordance with Public Procurement Rules, 2004.

37.2 The procuring agency shall refer the matter to the Chief Justice Islamabad High Court or Managing Director PPRA or the Secretary Ministry of Law & Justice for appointment of Arbitrator.

37.3 The fee for the Arbitrator shall be specified in Pak Rupees as determined by the appointing authority which shall be borne and shared equally by the contracting parties.





Special Conditions of Contract

SECTION VIII. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
GCC 1	<p>Definitions</p> <p>The Procuring Agency is: P & D Divison (Karachi Port Trust (KPT)), Project Manager KPT Head Office, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).</p> <p>The Supplier is:</p> <p>The title of the subject procurement is: Supply, Installation and Commissioning of Vessel Traffic Management System at KPT</p>
GCC 3	<p>Applicable/Governing Law:</p> <p>The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan</p>
GCC 4	<p>Language:</p> <p>The language of the Contract, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be in English.</p>

<p>GCC 5</p>	<p>Notices:</p> <p>The addresses for the notices are:</p> <p>Procuring Agency:</p> <p>P & D Divison (Karachi Port Trust (KPT)),Project Manager KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). +92-300-213-9352 pmp@kpt.gov.pk</p> <p>Contractor/ Bidder:</p> <p>[Name, address and telephone number].</p> <p>The Contractor/ Bidder’s Representative(s)</p> <p>[Name, address, telephone number and e-mail address]</p>
<p>GCC 7.1</p>	<p>The Authorized Representatives are:</p> <p>For the Procuring Agency:</p> <p>P & D Divison (Karachi Port Trust (KPT)),Project Manager KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). +92-300-213-9352 pmp@kpt.gov.pk</p> <p>For the Bidder:</p> <p>Name:</p> <p>Designation:</p> <p>Address:</p>
<p>GCC 8</p>	<p>Effectiveness of the contract</p>
<p>GCC 9</p>	<p>Commencement of Contract:</p>
<p>GCC 11.2</p>	<p>Expiration of Contract:</p>

<p>GCC 15</p>	<p>Termination</p> <p>In the event of termination of the contract due to any reason as already defined in the General Conditions of Contract, the Bidder shall be responsible for providing to the Authority the Goods till the time of alternate arrangements.</p>
<p>GCC 17</p>	<p>Conflict of Interest:</p> <p>The Procuring Agency reserves the right to determine on a case-by-case basis whether the Bidder should be disqualified from providing goods or services due to a conflict of a nature described in Clause GCC 17.</p>
<p>GCC 22</p>	<p>Liquidated Damages</p> <p>If the Bidder fails to provide services as required under the contract or in case of any data loss/data breach or any incident compromising the data security or other such failures related to any services, the Bidder shall pay to the Procuring Agency as Liquidated Damages at a rate of 0.02% to 10.00% of the Contract value, in accordance with the extent of performance failure & the cost of investigating such incidents as judged by the Authority.</p>
<p>GCC 23</p>	<p>Performance Guarantee:</p> <p>The amount of performance guarantee shall be 10.00% of the contract price in acceptable form of Bank Guarantee</p>
<p>GCC 32</p>	<p>Payment terms:</p> <p>Payment will be made to the Bidder against the procured Goods and services according to the actual invoice or running bills submitted by the Bidder against the services provided within the time given in the conditions of the contract.</p>
<p>GCC 33</p>	<p>Currency of Payment:</p> <p>All the payment to be released to the contractor/Bidder shall be in Pakistani Rupees.</p>

GCC 34**Identifying Defects:**

The Authority reserves the right at any time to inspect the premises of the provider to inspect the goods and monitor the goods being provided.

Inspections & Tests Requirements

For being Brand New, bearing relevant reference numbers of the equipment (Certificate from supplier)

For Physical Fitness having No Damages (Certificate from supplier)

For the Country of Origin as quoted by the Supplier (Certificate from manufacturer)

For conformance to specifications and performance parameters, through Prior to delivery inspection (Inspection Report by Procurement Committee / Inspection Team)

For successful operation at site after complete installation, testing and commissioning of the equipment (Installation, Testing and Commissioning Report by Procurement Committee / Inspection Team)

Delivery & Documents

Copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;

Original and two copies of the usual transport document (for example, a negotiable bill of lading, a non-negotiable sea waybill, an inland waterway document, an air waybill, a railway consignment note, a road consignment note, or a multimodal transport document) which the buyer may require to take the goods;

Copies of the packing list identifying contents of each package;

Insurance Certificate;

Manufacturer's or Supplier's Valid Warranty Certificate;

Inspection Certificate issued by the Nominated Inspection Agency (if any), and the Supplier's Factory Inspection Report;

Certificate of Origin.

The above documents would be required even if the equipment has already been imported and is available with the supplier ex-stock

Following is the guidance for Dispute Resolution

1. If any dispute of any kind whatsoever shall arise between the Authority and the Bidder in connection with or arising out of the Contract, including without prejudice to the generality of foregoing, any question regarding its existence, validity, termination and the execution of the Contract – whether during developing phase or after their completion and whether before or after the termination, abandonment or breach of the Contract – the parties shall seek to resolve any such dispute or difference by mutual diligent negotiations in good faith within 14 (fourteen) days following a notice sent by one Party to the other Party in this regard.
2. At future of negotiation the dispute shall be resolved through mediation and mediator shall be appointed with the mutual consent of the both parties.
3. At the event of failure of mediation to resolve the dispute relating to this contract such dispute shall finally be resolved through binding Arbitration by sole arbitrator in accordance with Arbitration Act 1940. The arbitrator shall be appointed by mutual consent of the both parties. The Arbitration shall take place in Islamabad, Pakistan and proceedings will be conducted in English language.
4. The cost of the mediation and arbitration shall be shared by the parties in equal proportion however the both parties shall bear their own costs and lawyer's fees regarding their own participation in the mediation and arbitration. However, the Arbitrator may make an award of costs upon the conclusion of the arbitration making any party to the dispute liable to pay the costs of another party to the dispute.
5. Arbitration proceedings as mentioned in the above clause regarding resolution of disputes may be commenced prior to, during or after completion of the contract.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree that the Authority shall pay the Bidder any monies due to the Bidder.

Rules of procedure for arbitration proceedings:

Any dispute between the Authority and a Bidder who is a national of the Islamic Republic of Pakistan arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Islamic Republic of Pakistan including Arbitration Act 1940, however above provision shall prevail in referring the case to the Arbitrator.

Place of Arbitration and Award:

The arbitration shall be conducted in English language and place of arbitration shall be at Islamabad. The award of the arbitrator shall be final and shall be binding on the parties.



Bid Securing Declaration

Form 9: Bid Securing Declaration

Date: *[insert date (as day, month and year)]*

Bid No.: **P26009**

To: **P & D Divison (Karachi Port Trust (KPT)), Project Manager KPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

1. have withdrawn or modified our Bid during the period of Bid Validity specified in the Form of Bid;
2. Disagreement to arithmetical correction made to the Bid price; or
3. having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid Validity, (i) failure to sign the contract if required by Procuring Agency to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the Bidding Documents.

We understand this Bid Securing Declaration shall expire if we are not the successful

Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight (28) days after the expiration of our Bid.



Contract Form

SECTION IX: CONTRACT FORMS

THIS AGREEMENT made the _____ day of _____ 20____ between **P & D Divison (Karachi Port Trust (KPT)), Project Manager KPT Head Office, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

(hereinafter called “the Procuring Agency”) of the one part and [name of Bidder] of [city and country of Bidder] (hereinafter called “the Bidder”) of the other part:

WHEREAS the Procuring Agency invited Bids for provision of goods, viz., **Supply, Installation and Commissioning of Vessel Traffic Management System at KPT (P26009)** and has accepted a Bids by the Bidder for the provision of Goods in the sum of [contract price in words and figures] (hereinafter called “the Contract Price”).

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-

1. This form of Contract;
2. the Form of Bids and the Price Schedule submitted by the Bidder;
3. the Schedule of Requirements;
4. the Technical Specifications;
5. the Special Conditions of Contract;
6. the General Conditions of the Contract;
7. the Procuring Agency’s Letter of Acceptance; and
8. [add here: any other documents]

3. In consideration of the payments to be made by the Procuring Agency to the Bidder as hereinafter mentioned, the Bidder hereby covenants with the Procuring Agency to provide the Goods related services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Agency hereby covenants to pay the Bidder in consideration of the provision of Goods and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Contract to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Procuring Agency:

.....

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Bidder:





Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: Contract Value: Contract Title:

Dated:

[Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.



Performance Guarantee Form

Performance Guarantee Form

To: **P & D Divison (Karachi Port Trust (KPT)),Project ManagerKPT HeadOffice, Eduljee Dinshaw Road., Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

WHEREAS *[name of Bidder]* (hereinafter called “the Bidder”) has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* for provision of Goods(hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by you in the said Contract that the Bidder shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Bidder’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Bidders guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, up to a total of *[amount of the guarantee in words and figures]*, and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]



Annexure

Technical Requirements

Information (Read-Only)

See Form Under Additional Forms and Documents: **Technical Requirements** (page number: 91)

Technical Requirements - Miscellaneous

Information (Read-Only)

See Form Under Additional Forms and Documents: **Technical Requirements - Miscellaneous** (page number: 111)





Procurement Forms

Past Experience and Completed Contracts

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 113)

Historical Contract Non-Performance, and Pending Litigation and Litigation History

See Form Under Additional Forms and Documents: **Historical Contract Non-Performance, and Pending Litigation and Litigation History** (page number: 114)

Current Contracts and Their Progress

See Form Under Additional Forms and Documents: **Current Contracts and Their Progress** (page number: 116)

Financial Capacity and Net Worth Evaluation Form

See Form Under Additional Forms and Documents: **Financial Capacity and Net Worth Evaluation Form** (page number: 117)

Average Annual Turnover

See Form Under Additional Forms and Documents: **Average Annual Turnover** (page number: 119)





Additional Forms and Documents

Technical Requirement

A. Background

01.	<p>The Procuring Agency; Karachi Port Trust (KPT), established in January 1887 by an Act of Parliament, operates under the Ministry of Maritime Affairs (MoMA). The Government of Pakistan owns KPT and is pivotal in administering the Port of Karachi.</p> <p>The Karachi Port Trust (KPT) is responsible for overseeing the Operations of Karachi Port, one of South Asia’s largest and busiest seaports. It manages a variety of terminals, berths, and services, including container terminals, oil terminals, and dry cargo berths. KPT also plays a role in environmental protection and community development through its CSR initiatives.</p> <p>The Karachi Port Trust (KPT) is indeed a vital gateway to Pakistan, boasting extensive road links to neighboring countries. It’s strategically located, serving as a major hub for international trade, particularly with landlocked Central Asia. The port facilitates trade by connecting these regions with major shipping lines globally.</p>
02.	<p>Business Objectives of the Procuring Agency Following the International Association of Marine Aids to navigation and Light House Authorities (IALA recommendations V-128) and in line with resolution No.A-1158(32) Guidelines of International Maritime Organization (IMO) and the International Conventional for the Safety of Life at Sea 1974 (SOLAS 74 as amended) pertains to Vessel Traffic Services, KPT has prepared the Bidding Documents for Design, Supply, Installation and Commissioning of Radar & Vessel Traffic Management System at KPT.</p> <p>This document aims to define specifications for the Design, Develop, Implement, and Commissioning of Radar & Vessel Traffic Management System (VTMS) for Karachi Port which must comply with the general and technical specifications outlined herein. Any deviations from the fundamental requirements, if present, MUST be thoroughly explained in writing as part of the offer, and be supported by relevant data such as calculation sheets, etc. The procuring Agency reserves the right to reject the products if such deviations are deemed critical to the use and operation of the products.</p> <p>To address the growing Vessel Traffic and evolving Maritime and Port Sectors and as part of its strategic plan, KPT is embarking on implementing a comprehensive Vessel Traffic Management System (VTMS) for the Port of Karachi, whose primary objective is to ensure safe, secured and efficient navigation of vessels, aligning with the regulations and recommendations set forth by the International Maritime Organization (IMO) and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).</p>

	<p>The project represents a significant step towards ensuring safety and efficiency of maritime operations at the Port by, embracing advanced technologies. Being an integrated system, it is envisaged to facilitate Vessel Traffic Management and enhance overall Port Operations, including cargo management, resource allocation, and logistics coordination. It embodies a forward-looking approach that reflects the commitment of the KPT to meet the evolving demands of the Maritime Industry and ensure seamless, safe, and efficient Port operations at the Port.</p>																																																											
03.	<p>Acronyms Used in These Technical Requirements</p> <table border="1"> <thead> <tr> <th>Terms</th> <th>Explanation</th> </tr> </thead> <tbody> <tr> <td>AFC</td> <td>Automatic Frequency Control</td> </tr> <tr> <td>AIS</td> <td>Automatic Identification System</td> </tr> <tr> <td>AISBS</td> <td>Automatic Identification System Base Station</td> </tr> <tr> <td>API</td> <td>Application Programming Interface</td> </tr> <tr> <td>ASTERIX</td> <td>All-Purpose Structured Euro-control Surveillance Information Exchange</td> </tr> <tr> <td>A to N</td> <td>Aid to Navigation</td> </tr> <tr> <td>ATP</td> <td>Acceptance Tests Procedure</td> </tr> <tr> <td>BITE</td> <td>Built-In Test Equipment</td> </tr> <tr> <td>BPS</td> <td>Bit Per Second</td> </tr> <tr> <td>BS</td> <td>Base Station</td> </tr> <tr> <td>BSC</td> <td>Base Station Controller</td> </tr> <tr> <td>CCTV</td> <td>Closed-Circuit Television</td> </tr> <tr> <td>CFAR</td> <td>Constant False Alarm Rate</td> </tr> <tr> <td>COG</td> <td>Course Over Ground</td> </tr> <tr> <td>COLREGs</td> <td>International Regulations for Preventing Collisions at Sea</td> </tr> <tr> <td>COTS</td> <td>Commercial Off the Shelf</td> </tr> <tr> <td>CPA</td> <td>Closest Point of Approach</td> </tr> <tr> <td>CSR</td> <td>Corporate Social Responsibility</td> </tr> <tr> <td>DB</td> <td>Database</td> </tr> <tr> <td>DGNSS</td> <td>Differential Global Navigation Satellite Systems</td> </tr> <tr> <td>DGPS</td> <td>Differential Global Positioning System</td> </tr> <tr> <td>DSC</td> <td>Digital Selective Calling</td> </tr> <tr> <td>ECDIS</td> <td>Electronic Chart Display & Information System</td> </tr> <tr> <td>ENC</td> <td>Electronic Navigational Chart</td> </tr> <tr> <td>EOS</td> <td>Electro Optical Systems</td> </tr> <tr> <td>ERP</td> <td>Enterprise Resource Planning</td> </tr> <tr> <td>ESRI</td> <td>Environmental Systems Research Institute</td> </tr> <tr> <td>ETA</td> <td>Estimated Time of Arrival</td> </tr> </tbody> </table>		Terms	Explanation	AFC	Automatic Frequency Control	AIS	Automatic Identification System	AISBS	Automatic Identification System Base Station	API	Application Programming Interface	ASTERIX	All-Purpose Structured Euro-control Surveillance Information Exchange	A to N	Aid to Navigation	ATP	Acceptance Tests Procedure	BITE	Built-In Test Equipment	BPS	Bit Per Second	BS	Base Station	BSC	Base Station Controller	CCTV	Closed-Circuit Television	CFAR	Constant False Alarm Rate	COG	Course Over Ground	COLREGs	International Regulations for Preventing Collisions at Sea	COTS	Commercial Off the Shelf	CPA	Closest Point of Approach	CSR	Corporate Social Responsibility	DB	Database	DGNSS	Differential Global Navigation Satellite Systems	DGPS	Differential Global Positioning System	DSC	Digital Selective Calling	ECDIS	Electronic Chart Display & Information System	ENC	Electronic Navigational Chart	EOS	Electro Optical Systems	ERP	Enterprise Resource Planning	ESRI	Environmental Systems Research Institute	ETA	Estimated Time of Arrival
Terms	Explanation																																																											
AFC	Automatic Frequency Control																																																											
AIS	Automatic Identification System																																																											
AISBS	Automatic Identification System Base Station																																																											
API	Application Programming Interface																																																											
ASTERIX	All-Purpose Structured Euro-control Surveillance Information Exchange																																																											
A to N	Aid to Navigation																																																											
ATP	Acceptance Tests Procedure																																																											
BITE	Built-In Test Equipment																																																											
BPS	Bit Per Second																																																											
BS	Base Station																																																											
BSC	Base Station Controller																																																											
CCTV	Closed-Circuit Television																																																											
CFAR	Constant False Alarm Rate																																																											
COG	Course Over Ground																																																											
COLREGs	International Regulations for Preventing Collisions at Sea																																																											
COTS	Commercial Off the Shelf																																																											
CPA	Closest Point of Approach																																																											
CSR	Corporate Social Responsibility																																																											
DB	Database																																																											
DGNSS	Differential Global Navigation Satellite Systems																																																											
DGPS	Differential Global Positioning System																																																											
DSC	Digital Selective Calling																																																											
ECDIS	Electronic Chart Display & Information System																																																											
ENC	Electronic Navigational Chart																																																											
EOS	Electro Optical Systems																																																											
ERP	Enterprise Resource Planning																																																											
ESRI	Environmental Systems Research Institute																																																											
ETA	Estimated Time of Arrival																																																											

ETSI	European Telecommunications Standards Institute	
FAT	Factory Acceptance Tests	
FTC	Fast Time Constraint	
GeoTIFF	Geo referencing Information Embedded within a TIFF file	
GIS	Geographic Information system	
GMDSS	Global Maritime Distress Safety System	
GNSS	Global Navigation Satellite System	
GPS	Global Positioning System	
GPU	Graphical Processing Unit	
GUI	Graphical User Interface	
HA	High Availability	
HF	High Frequency	
HMI	Human Machine Interface	
HP	Horizontally Polarized	
HTTP	Hypertext Transfer Protocol	
HTTPS	HTTP (Hypertext Transfer Protocol) plus SSL (Secure Socket Layer)	
HVAC	Heating, Ventilation, and Air Conditioning	
HW	Hardware	
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities	
IEC	International Electro-technical Commission	
IENC	Inland Electronic Navigational Chart	
IHO	International Hydrographic Organization	
IMO	International Maritime Organization	
INS	Information Service	
IR	Infra-Red	
ISPS	International Ship and Port facility Security	
ITU	International Telecommunication Union	
ITU-R	International Telecommunication Union (ITU) responsible for radio communication	
IVEF	Open Inter VTS Exchange Format	
KPT	Karachi Port Trust	
KVM	Keyboard Video Mouse	
LAN	Local Area Network	
MMSI	Maritime Mobile Service Agency	
MTBF	Mean time Between Failure	
NAS	Navigational Assistance Service	

NM	Nautical Mile	
NMEA	National Marine Electronics Association	
NOA	Notice of Arrival	
NTP	Network Time Protocol	
NTP	Network Time Protocol	
OCG	Open Geospatial Consortium	
OJT	On-the-Job Training	
PD	Probability of Detection	
PDU	Power Distribution Unit	
PER	Packet Error Rate	
PFA	Probability of False Alarm	
PIP	Picture In Picture	
PSS	Physical Shore Station	
PTT	Push To Talk	
RAID	Redundant Array of Independent Disks	
RDF	Radio Direction Finder	
ROT	Rate Of Turn	
RTSP	Real Time Streaming Protocol	
S-57	ENC Chart Representation format	
S-63	International Hydrographic Organization (IHO) standard for encrypting, securing and compressing electronic navigational chart (ENC) data	
SAR	Search And Rescue	
SAT	Site Acceptance Tests	
SINAD	Signal-to-Noise And Distortion ratio	
SLA	Service Level Agreement	
SLR	Side lobes Remover	
SMCP	Standard Marine Communication Phrases	
SOG	Speed Over Ground	
SQL	Structured Query Language	
SSD	Solid State Drive	
SSL	Secure Socket Layer	
SSO	Single Sign On	
SSR	Secondary scatters remover	
SSS	System/Sub-system Specification	
STC	Sensitivity Time Control	
TCP/IP	Transmission Control Protocol/internet Protocol	
TCPA	Time to Closest Point of Approach	

TLS	Transport Layer Security	
TOS	Traffic Organization Service	
TSS	Traffic Separation Scheme	
UPS	Uninterruptable	
UTC	Universal Time Coordinated	
VDL	VHF Data Link	
VHF	Very High Frequency	
VoIP	Voice over IP	
VPN	Virtual Private Network	
VSWR	Voltage Standing Wave Ratio	
VTMS	Vessel Traffic Management System	
VTs	Vessel Traffic System	
VTsO	Vessel Traffic Services Operator	
WGS-84	World Geodesic System – 84	

B. Business Functions and Performance Requirement

01. Business Requirements to Be Met by the Information System

The Contractor shall be responsible for the complete procurement, development, and deployment of equipment and sub-systems, including design, supply, installation, commissioning, and testing of the entire system, interfacing equipment and civil / construction works (if required). Quantities for each item must be specified in the proposal, as detailed in the BOQ (Bill of Quotations). All materials used must meet the highest standards. This system encompasses a range of sensors, electronic systems, and software crucial for safe and secure system operation. The Contractor shall be responsible for providing the final design, documents, equipment, software packages, license, materials, labor, and services necessary for a fully functional VTMS, including, but not limited to the following sub-systems:

- i. VTMS Software Suite
- ii. X-Band Radar sub-system (Coastal Surveillance Radar)
- iii. Marine VHF Radio Sub-system
- iv. AIS sub-system
- v. CCTV sub-system
- vi. Operators Workstations & Screens

- vii. Wall Monitors LEDs
- viii. Voice Recording and Replay Sub-system.
- ix. Server-side equipment (for data Processing and storage)
- x. Required peripherals such as Radio, Radar antennas and connectors
- xi. Radar and Radio antenna masts
- xii. Electrical Wiring equipment (as required)
- xiii. Mechanical Installation materials (as required)
- xiv. Ergonomic furniture (designed for comfortable VTS operation environment)
- xv. Integrate with existing Port Systems, including CCTV Cameras, ERP, iPOS and related Applications / Systems. Fiber optics cable and microwave links are used for transmitting camera feed to control room. All existing systems are currently operational.**

The proposed system should comply with the following relevant international standards not limited to:

S. NO.	DOCUMENT LINK	NUMBER /	TITLE / DESCRIPTION
1	IMO		International Convention for the Safety of Life at Sea (SOLAS) (Chapter V – 01/07/02)
2	IMO		IMO Resolution A.857 (20) Guidelines for Vessel Traffic Services (Replaced by IMO Resolution A.1158 (32) Guidelines for Vessel Traffic Service.
3	IMO		IMO SN. I/Circ.243/Rev.2 GUIDELINES FOR THE PRESENTATION OF NAVIGATION-RELATED SYMBOLS, TERMS AND ABBREVIATIONS
4	IALA Standard S 1040		S 1040 Vessel Traffic Services (Edition 2.0)
5	IALA Recommendation R 0119		R 0119 Establishment of VTS.(Edition 4.2)
6	IALA Recommendation R 0125		R 0125 The Use and Presentation of Symbology at a VTS Center.
7	IALA Recommendation R 0127		R 0127 (V127) VTS Operation (Edition 3.2)

8	IALA Recommendation O- 130	R 0130 (O-130) Categorization and Availability Objectives for Short Range Aids to Navigation (Ed.3.1)
9	IALA Recommendation R 1013	R 1013 Auditing and Assessing Vessel Traffic Services (Edition 1.1)
10	IALA Recommendation R 1014	R 0125 VTS Portrayal (Edition 4.0)
11	IALA Recommendation R 1012	R 1012 VTS communications (Edition 1.2)
12	IALA Recommendation R 0128	R 0128 VTS Systems and Equipment (Edition 5)
13	IALA Recommendation O-143	Provision of Virtual Aids for Navigation (Ed. 1.1)
14	IALA NavGuide	Marine Aids to Navigation Manual (9 th Edition)
15	IALA Guideline 1081	Provision of Virtual Aids to Navigation (Ed.2.1)
16	IALA Recommendation A-126	Use of AIS in Marine Aids to Navigation Services(Ed 2.0)
17	IALA Recommendation V-119	The Implementation of VTS (Ed 2)
18	IALA Standard S1020	Marine Aids to Navigation Design and Delivery (Ed 2.0)
19	IALA Recommendation V-128	Operational and Technical Performance of VTS Systems (Ed 4)
20	IALA Recommendation A-124	AIS Service (Ed 2.2)
21	IALA Recommendation V-145	Inter-VTS Exchange Format (IVEF) Service (Ed 1.1)
22	IALA Guideline G 1110	Use of Decision support Tools For VTS Personnel
23	IALA Guideline G 1111	Establishing Functional and Performance requirements for VTS system and Equipment (Ed 2.0)
24	IALA Guideline G 1111-1	Producing Requirements for the Core VTS System (Edition 1.0)
25	IALA Guideline G 1111-2	Producing Requirements for Voice Communications. (Edition 1.0)
26	IALA Guideline G 1111-3	Producing Requirements for RADAR.(Edition 1.0)
27	IALA Guideline G 1111-4	Producing Requirements for AIS (Edition 1.0)
28	IALA Guideline G 1111-5	Producing Requirements for Environment Monitoring Sensors (Edition 1.0)
29	IALA Guideline G 1111-6	Producing Requirements for Electro Optical Systems (Edition 1.0)

	30	IALA Guideline G 1111-7	Producing Requirements for Radio Direction Finders (Edition 1.0)
	31	IALA Guideline G 1111-8	Producing Requirements for Long Range Sensors (Edition 1.0)
	32	IALA Guideline G 1111-9	Producing Requirements for Acceptance of VTS Systems (Edition 1.0)
	33	IALA Guideline G 1130	Technical Aspects of Information Exchange Between VTS and Allied or other Services.
	34	IALA Guideline 1141	Operational Procedures for Delivering Vessel Traffic Services (Ed 3.0)
	35	ITU-R M.493	Digital selective-calling system for use in the maritime mobile service
	36	ITU-R M.541	Operational procedures for the use of digital selective-calling equipment in the maritime mobile service
	37	ITU-R M. 1371-5	Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band.
	38	IEC 62320-1	International Standard (Ed 2.0 (2015-01))
	39	COLREGS	Convention on the International Regulations for preventing collisions at sea 1972 (Consolidated Ed, 2018)
	40	IHO	International Hydrographic Organization Standards for Hydrographic Surveys (Complying with IMO / IHO standards S-63 and S-57 of ENC with update)
02.	<p>Functional Performance Requirements of the Information System</p> <p>The VTMS shall encompass several critical functionalities and features, including:</p> <ul style="list-style-type: none"> • The VTMS shall provide real-time situational awareness of maritime traffic in the covered areas of the Port. • The VTMS shall facilitate quick and efficient responses to identified distress and dangerous situations. • The VTMS shall allow the definition of rules to identify possible dangerous situations automatically. These rules shall be applied to real-life traffic, and corresponding alarms shall be generated automatically. 		

- The VTMS shall be an integrated system that ensures efficient port processes, resource allocation, scalability, compliance for port operations, and optimization of berth and anchoring area occupancy and traffic planning.
- The VTMS shall record, store, and archive data for a predefined period to enable the full playback of the situation's dynamics.
- The VTMS shall be suitable for **continuous operation for 05 (five) years after completion of warranty period**. Any necessary migrations and upgrades of system hardware, firmware, and software during the design life to keep the VTMS in continuous operation shall be possible without complete shutdown.
- The VTMS shall help conduct SAR operations to quickly and efficiently respond to distress situations.
- VTMS shall display DSC distress signals with coordinates instantly on the map, along with pop-up information and related alerts. These distress signals shall also be highlighted in the DSC messages console. The system must specify the moment such a DSC message can be marked Inactive.
- The VTMS surveillance must be performed 24 / 365, and the equipment operation requires personnel for effective surveillance and decision making. Operators Workstations shall carry out this permanent surveillance at the control rooms. Fiber optics cable and microwave links are used for transmitting camera feed to control room.
- Throughout the system's operational lifespan, the VTS shall receive major software upgrades and patches without incurring additional charges. **12 months warranty is to be provided by the bidder. 03 years of SLA after warranty if SLA agreement is signed with the bidder. Support for software patches / updates is to be provided for lifespan of 6 years including warranty period.**
- The radio telephone, or voice management / communication system, shall be software-based, enabling the linkage of multiple radios to various operators' touch screen consoles. It should allow operators to control, turn on/off, and select channels for any of the connected radios. (Record without multiple voice effects.)
- The VTMS shall be capable of adding new Radar(s) (if required), operator workstations, or control centers during the system's operational life without incurring additional license charges.
- The VTMS shall implement content and control restrictions for operators based on their assigned roles.

	<ul style="list-style-type: none"> • The symbol displaying vessel tracking information shall comply with International Association of Lighthouse Authorities (IALA) document R1014 portrayal of VTS Information Data and IMO SN.1/Circ.243/Rev.209. • The VTMS shall ensure that its background image layer completely covers the VTMS area and must be an Electronic Navigation Chart (ENC) compliant with IHO S-52 PORTRAYAL, according to the 'Specifications for Chart Content and Display Aspects of ECDIS' (12). • The VTMS shall provide VTMS operators with the capability to transmit messages via AIS base stations to specific vessels either manually through a chart or tables of targets, navigational alarms, a dedicated AIS / DSC messaging console, or automatically by triggering specific alarms using the System Operator software. • The VTMS shall utilize the most user-friendly visual format within an intuitively clear user interface for displaying traffic data at the operator's workplaces. • The VTMS solution shall provide RESTful APIs or equivalent secure interfaces to enable data exchange with existing port infrastructure. All sub systems must expose well documented APIs for real time data querying, control and event notification. JSON / XML formats shall be supported. Fiber optics cable and microwave links are used for transmitting camera feed to control room • The user interface for the operator's workplaces shall use English for all UI components and generated messages. • The data flow to IPOS system from VTMS envisaged for VTMS system is attached.(ANNEXURE –A) • Presently, KPT possess in total 39 buoys out of which 16 buoys are with GSM SIM installed, and the remaining are in process. Integration required to link with VTS System as per the IALA transmission mode.
--	--

3.	<p><i>Related Information Technology Issues and Initiatives</i></p> <p>The flowing expandability requirements are designed to ensure the systems long-term.</p> <ul style="list-style-type: none"> • Industry Standard Interfaces shall be used for hardware and software to ensure later expandability of the system of any other brand / make / model. • The proposed VTS shall be the most current with the capability of handling future expansion with the addition of more and/or futuristic sensors, in the future.
----	---

• The system should provide the following interfaces with other systems for real-time target data exchange.

- o Inter VTS Exchange Format (IVEF) according to IALA recommendation V-145.
- o ASTERIX (ASTERIX cat 062 targets & cat 240 radar video).
- o ALS Formal (AIS messages 1,2,3,5 according to ITU-R 1371).
- o API for integration with external systems.

5.1 Availability and Redundancy Requirements

Availability of each sub-system due to equipment failures (excluding external causes) shall meet the specific criteria.

The following systems shall be available for 99.8% of the time during VTMS operation:

- a. Computer sub-system
- b. Radar sub-system
- c. Radio / VHF sub-system
- d. AIS sub-system
- e. At least one operator workstation, including ENC (Electronic Navigational Chart)
- f. CCTV Cameras
- g. Recording Backup System
- h. Dashboard

The redundant configuration of critical devices shall improve the operational availability of the system. Therefore, the following equipment shall be provided in redundant configuration:

- Radar Transceivers
- Radar Tracker / Processors
- Systems Power Supplies

Integration system with other Ports (if necessary)

C. Technical Specification

01.

General Technical Requirements

The following Technical Specification indicated at general requirements of the proposed system to be supplied, which must ensure the safety and reliability of the system for 24/7 operation. A Vessel Traffic Management System (VTMS) should be designed to seamlessly integrate with existing Port Systems, including AIS, CCTV Cameras, VHF, Tidal sensor, ERP, iPOS and related Applications like Berthing and Pilotage. This integration ensures efficient data exchange and coordinated operation, enhancing Safety and Security in the port environment.

All systems components, excluding IT equipment, shall comply with relevant IALA & IMO as well as ISO standards where applicable. Any variation in the technical specification of this Bid shall be mutually agreed upon with adequate technical justification for better system performance. VTS design shall be based on the following:

- a Modular, scalable and open architecture system structure for further requirements.
- b Real-time integrated system with Client-Server architecture.
- c Centralized monitoring of software and hardware components.
- d Graphical presentation of the current traffic situation.
- e Redundancy of system core components.
- f Collect feeds from the AIS Base Stations.
- g Collect feeds from the VHF Radio System.
- h Collect feeds from Radar.
- i KPT has a tidal sensor located between Oil Pier II and III which needs to be integrated with the VTMS. The specifications of the sensor are:
 - Brand & Model: Satron Sat link 3 GOES Data Logger and Transmitter
 - Communication interface protocol: Wi-Fi, USB-Host, USB Device, RS-232, Satellite, Cellular, Data Logger, IP Communication
- j Provide real time alerts and prompts to concerned quarters.
- k Provide integration capability for PTZ CCTV Camera.

- l Ensure seamless integration with the Radio Communication System.
- m Use, predominantly of the widely employed standard hard- and software.
- n Digital processing of data from all the System Sensors, including Analogue Sensors.
- o Use of Standard Digital Systems, Data Transmission Protocols.
- p Centralized processing and correction of the target data from many sources.
- q Automatic identification of the potentially dangerous situations and generation of appropriate alarms.
- r Display of various data to operators in the most user-friendly computer form with an intuitively clear interface.
- s Use of computer nautical charts [Electronic Nautical Chart (ENC) along with license software] facilities for a better presentation of navigational and other data.
- t Recording, storage, and archiving of the data for the further full playback of the situation dynamics within the selected period.
- u Support and use of a powerful VTS Information System, the capability to interact external databases (via API or other suitable methods).
- v Several levels of access rights and VTS controls for the operators.
- w Wall Mounted LED's.

Area of Operation:

The current infrastructure within the Karachi approach channel presents unique navigational challenges due to its oceanographic structure. Vessels heading into or out of the Port of Karachi must navigate through two major bends and make three significant heading changes during transit. In addition, the local ferries frequently transverse the Harbor & New channel, posing potential navigation challenges to transiting vessels. The Harbor & New Channel is characterized by narrow dimensions, spanning just 450 to 540 meters in width. Shallow coral reefs and sandbanks flank it at its entrance to the inner channel.

While traffic control measures for local traffic have effectively reduced collision risks at the Harbor & New channel, the challenging navigational conditions persist. Karachi's geographic coordinates place it at 24.8474°N 66.9932°E (KPT Headquarters) on the East coast of Pakistan. The Karachi approach channel stretches over 12 nautical miles, divided into the outer and inner channels. The inner channel offers sheltered waters with a width of 540 meters approx and a depth of 09 to 16 meters.

Most vessels calling at Karachi port fall into categories such as containers, bulk carriers, and tankers. However, the "Others" category includes pilot vessels, dredgers, and offshore supply vessels. In this complex navigational environment, ferries present a potential collision risk to transit vessels, particularly during peak operational periods when local traffic is at its heaviest, amidst these navigational complexities.

KPOC Tower: Located strategically at the Port of Karachi, this towering structure, standing at an impressive height of 33.3 meters, serves as a central hub for overseeing vessel traffic and safety within the area. It plays a multifaceted role in coordinating the movement of vessels through the challenging approach channel, monitoring navigational conditions, and providing critical information to vessels entering or departing from the Port.

The channel to the KPT from Fairway to Breakwater 4.58 Nautical miles, Breakwater to Southern Wharf 2.05 Nautical miles, Breakwater to Upper Harbour 4.53 Nautical miles, Sector-1 Approach Channel 4.26 Nautical miles, Tipu Sultan Channel 0.458 Nautical miles, South Wharf Basin 1.02 Nautical miles, Sector-2 (0.458 Nautical miles), Sector-3 (1.61 Nautical miles), Sector4 (1.511 Nautical miles), Sector 5 (0647 Nautical miles) long buoyed access directly from the open sea and a width of 180 to 640 meters approx. with outer access of about 12 Nautical Miles from breakwater to port limits.

Future Expansion for Enhanced Coverage

Provision of extra cameras or other hardware / software shall be provided / installed to improve visibility / monitoring across Port area.

Site Location

Project site for VTMS is as follows.

Main Site (KPOC Tower)

Coordinates: 24° 49'.08N 066° 58'.38E

Tower height: 33.3 meters.

The bidder shall be responsible for providing and installing suitable new steel structure besides KPOC tower along with an equipment room. **Proposed drawing of steel structure tower and equipment room is attached for guidance.**

Network and Communications Specifications

Operator Workstation

The Operator Workstation shall equip operators with situational awareness within the monitored aquatory by incorporating essential graphics, text, audio, and video data. Interactive features of the Operator Workstation should allow operators to create an adaptable environment, facilitating swift responses to changes within their zone of responsibility.

Real-time Monitoring

Real-time monitoring must hold the following functionalities:

- Displaying the WGS-84 Electronic Navigational Chart (ENC) according to the IHO S-52 portrayal standard in one or more separate panels
- Continuous live monitoring of positions and movements of all tracked targets on the ENC
- Capable of raising early collision warning with Vessels, Buoys/ Infrastructure & manual input of weather updates
- Displaying general information about all known targets in tabular form
- Displaying extended information about any chosen target depending on the target type
- ETA table for all targets approaching a selected arbitrary point
- Displaying distinguishable live radar video pictures for multiple radars on top of ENC
- Displaying system objects such as zones, drawings, bookmarks, routes, system
- Deployment sites, radars, cameras, sensors etc., on top of ENC
- Displaying text data concerning system objects in tabular form where necessary.
- Displaying alarm notifications according to the rules defined in the system.
- Displaying AIS messages in a dedicated panel.
- Displaying DSC messages in a dedicated panel.
- Displaying a list of cameras in tabular form.
- Playing live video for selected cameras in a separate panel.
- Displaying a list of radio devices in tabular form.
- Playing live radio for the selected channels.
- Monitoring operating status for system components (both software and hardware).

Interactive Functionality

The following interactive functionality must be implemented:

- Creating and laying out ENC panels according to the operator's demands.
- Panning and zooming ENC in each separate panel.
- Displaying geographical coordinates under the cursor.
- "Follow" tool for target of particular interest in separate ENC panel (ensure target visibility in the selected ENC panel while the target moves).
- Tool for real-time CPA / TCPA calculation for any pair of targets.
- ERBL tool attached to moving target (displaying course / speed vector).

- Ruler tool to measure the distance between points of interest, static objects or moving targets
- Automatic positioning of target labeling to avoid overlapping. □ Sorting and filtering targets in target table by target type, name, MMSI □ Creating zones, drawings, bookmarks, and routes.
- Defining alarm rules for zones and routes.
- Alarm acknowledging.
- Assigning targets to routes.
- Adjust radar video picture Color, gain, and afterglow period.
- Switch the radar on/off and change the radar pulse / mode.
- Composing and sending AIS messages.
- Composing and sending DSC messages.
- Setting radio channel / frequency for each receiver / transmitter.
- Broadcasting on a selected channel.
- Aiming the selected camera to a point on ENC, static object or moving target.
- Control camera PTZ functions, washer, wiper, lamp.
- "Slew to cue" camera tool.

Alarms

The standard VTMS system of alarms should automatically detect and track alarms for the following situations (but not limited to):

Alarm	Description	Requires
Collision Prediction	A potential collision between two tracks, one with a Collision Survey assignment, is predicted based on specified CPA and TCPA limits.	Warning / Alert
Channel Encounter	The minimum allowed distance between two tracks, one assigned to the navigation route, has been violated.	Track assignment
Deviation from Route	A track assigned to the navigation route is too far from the route center line.	Track assignment
Route Speed High	An assigned track exceeds the maximum Track Assignment allowed speed in that leg of the route.	Track assignment

Route Speed Low	An assigned track has a speed lower than the minimum speed limit in that leg of the route.	Track assignment
Domain Intruder	A second track is inside the domain area of an assigned track.	Track assignment
Dragging Anchor	An anchored track moves away from its position, exceeding the assigned dragging radius.	Track assignment
Grounding Prediction	A potential grounding of a watched track is predicted.	Track assignment
High Speed on Route	The speed of an assigned track exceeds Track assignment the specified speed limit.	Track assignment
The low Speed on the Route	The speed of an assigned track has fallen. Track assignment below the lowest speed defined.	Track assignment
Enter Area	A track is entering an area configured with an Entering attribute. The warning area text includes the configured warning name of the area.	Warning area
Inside Area	A track is within an area configured with an Inside attributing. The warning text Warning area includes the configured warning name of the area.	Warning area
Leave Area	A track is leaving an area configured with a Leaving attribute. The warning text Warning area includes the configured warning name of the area.	Warning area
High Speed in Zone	A track within an area exceeds the maximum speed defined for that area. Warning area The warning text includes the configured warning name of the area.	Warning area
Low Speed in Zone	The speed of a track within an area has fallen below the lowest speed defined for Warning area that area. The warning text includes the configured warning name of the area.	Warning area
Reporting Line Crossing	A track is crossing a reporting line Warning area configured with an alarm attribute.	Warning area

History of Observations Playback

The operator workstation shall allow playing back observation history starting from the moment defined by the operator in the past. ENC panels are part of an integrating system sharing data and its functionality.

The following requirements must be met:

- The operator can turn on playback in any one of the ENC panels.
- Playback operations should include: start, stop, pause, fast forward, rewind, and playback speed settings. Fast forward and rewind step sizes should be proportional to the playback speed.
- The content of the playback ENC panel should comply with the content of the live ENC panel showing the same region at the designated moment in the past.
- Traffic playback in the selected ENC panel should be synchronized with video / audio playback for selected cameras and radio sources.
- All autonomous functionality should work for all objects represented in the playback ENC panel.
- The following functionality should be available in the playback ENC panel:
 - o Ruler, CPA / TCPA, ERBL tools, change radar video Color, gain, and after glow.

Voice Dispatch, Voice Alert Message and Voice & DSC Recording

The voice management / Communication system shall provide voice communications capabilities between the VTMS control Center and the vessel being tracked. This allows for real-time communication, coordination and instructions.

The Voice dispatch system must allow operators to remotely Control the base stations by changing the channels to receive and transmit voice communication via the software Console independent from the VTS. Preference shall be given to the system based on the HMI with a touch screen. Apart from the voice dispatch console, the operator shall be able to access the DSC messages received by VHF radio. An additional window with nautical charts visualizing the target locations received by the AIS base station and/or retrieved from the DSC message will be considered a significant system feature.

All voice communications and received DSC messages must be recorded on the server to be accessible by users for retrieval, playback (voice), and retrieval of DSC messages. Voice Recording should be capable of transferring to other systems. (Record without multiply voice effect)

Transferring data from VTMS system to other storage systems will be handled by KPT.

System Requirements:

- Compatible with VHF base stations and DSC receivers
- Support 24/7 continuous operation
- Provide user authentication and secure access
- Provide event logging and system diagnostics
- Suitable for mission-critical VTS operations
- Storage Capacity: Minimum 30 days recording capacity
- Play Back: Search by time, channel, or event (playback and retrieval of DSC messages. Voice Recording is capable of transferring to other storage systems).
- Record without multiple voice effect

- Fair weather Trial Range; $\geq 40\text{NM}$

Software Specifications

The system and other allied softwares regarding VTMS shall be supplied / designed as per standard requirements and in compliance with the IMO / IALA specifications.

System Management, Administration, and Security Specifications

- The contractor shall commission the entire system (Radar & VTMS System) at KPOC as per design within the stipulated completion period. The concerned engineer will verify and witness the commissioning the system.
- After installation & Commissioning of the system, the Tests & Trials will be conducted for conforming to the manufacture guidelines, design and technical specification as per IALA's recommendation and IMO Guidelines / regulations based on real-time scenario of Karachi Port Harbor.

D. Testing and Quality Assurance Requirements

02. Pre-commissioning Tests

Factory Acceptance Test

The system shall be thoroughly tested before delivery. A comprehensive and detailed FAT procedure shall be prepared and issued by the Contractor at least one month before the start of the FAT.

At FAT, a functional test shall be witnessed by KPT or its nominated five (05) to seven (07) representative(s). The contractor shall arrange all travelling, boarding and lodging arrangements. The contractor shall also arrange a dedicated FAT, at radar & all other manufacture's premises. Upon completion of the full FAT test(s), the Contractor shall promptly fix any defects found during the test. Packing shall not commence until all FAT punch list items have been accepted.

The FAT will be conducted as per OEM Standards.

Note: Above Factory Acceptance Test will be performed by either a Port Authorized Representative or a third-party inspector or both.

Supporting Documentary Evidence / verification By IALA / IMO Compliance may be provided.

03. Operational Acceptance Tests

- i. Pursuant to GCC Clause 27 and related SCC clauses, the Supplier will perform the following tests on the System and its Subsystems following

Installation to determine whether the System and the Subsystems meet all the requirements mandated for Operational Acceptance.

1. The Entire System: After installation & Commissioning of the system, the Tests & Trials will be conducted for conforming to the manufacture guidelines, design and technical specification as per IALA's recommendation and IMO Guidelines / regulations based on real-time scenario of Karachi Port Harbor. The procuring agency will verify and witness the testing and commissioning of the system.



PROCURING AGENCY'S RESPONSIBILITIES:

The Procuring agency shall have the following additional responsibilities:

- a. Provision of required room space like equipment room / server Room and control room in the port's installation of the VTS equipment (in consultation with contractors requirement).
- b. Provision sites for the allocation of sensors as needed for the project.
- c. Provision of primary power supply.
- d. Air conditioning system for equipment room / server Room and operator rooms.
- e. Provision of all necessary Work-Permits and facilitation in entry / exit passes.
- f. Provision of internet service / access for web-based applications and remote access to the system through VPN services for support purposes.
- g. Provision of IT support for configuration of VPN Gateway / Firewall and Networks as per specific ICT requirements of KPT.
- h. Make the applications to relevant authorities in Pakistan for frequency and radio licenses in the name of KPT, including related royalty fee payments as user / owner of the system.
- i. Payment of Pakistan state fees related to usage of radio frequencies, and local state certification of equipment- type approvals, (if required)

PAYMENT TERMS:

The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:

- (i) Advance Payment: 10 percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract as mobilization advance upon submission of claim and a bank guarantee for equivalent amount. The advance bank guarantee shall be returned after the arrival of goods on site.
- (ii) On Completion of FAT: 15 percent of the Contract Price shall be paid within thirty (30) days of submission of claim supported by the certificate issued by the Manufacturer and validated by recognized 3rd party surveyor arranged by supplier.
- (iii) On Arrival of Goods on KPT Site: 30 percent of the Contract Price shall be paid within thirty (30) days of upon submission of claim supported by document verifying arrival report with detailed inventory by procuring agency.

(iv) On Installation, Commissioning and Testing: 25 percent of the contract price shall be paid within (30) days after successful completion of the commissioning and testing of the system.

(v) On 3rd Party Validation: 10 percent of the Contract Price shall be paid within thirty (30) days of receipt of the 3rd party validation certificate of the whole system issued by recognized third party surveyor arranged by supplier.

(vi) On Final Acceptance: 10 percent of the Contract Price shall be paid within forty-five (45) days after successful acceptance of the VTMS system by the procuring agency and on issuance of final approval certificate.

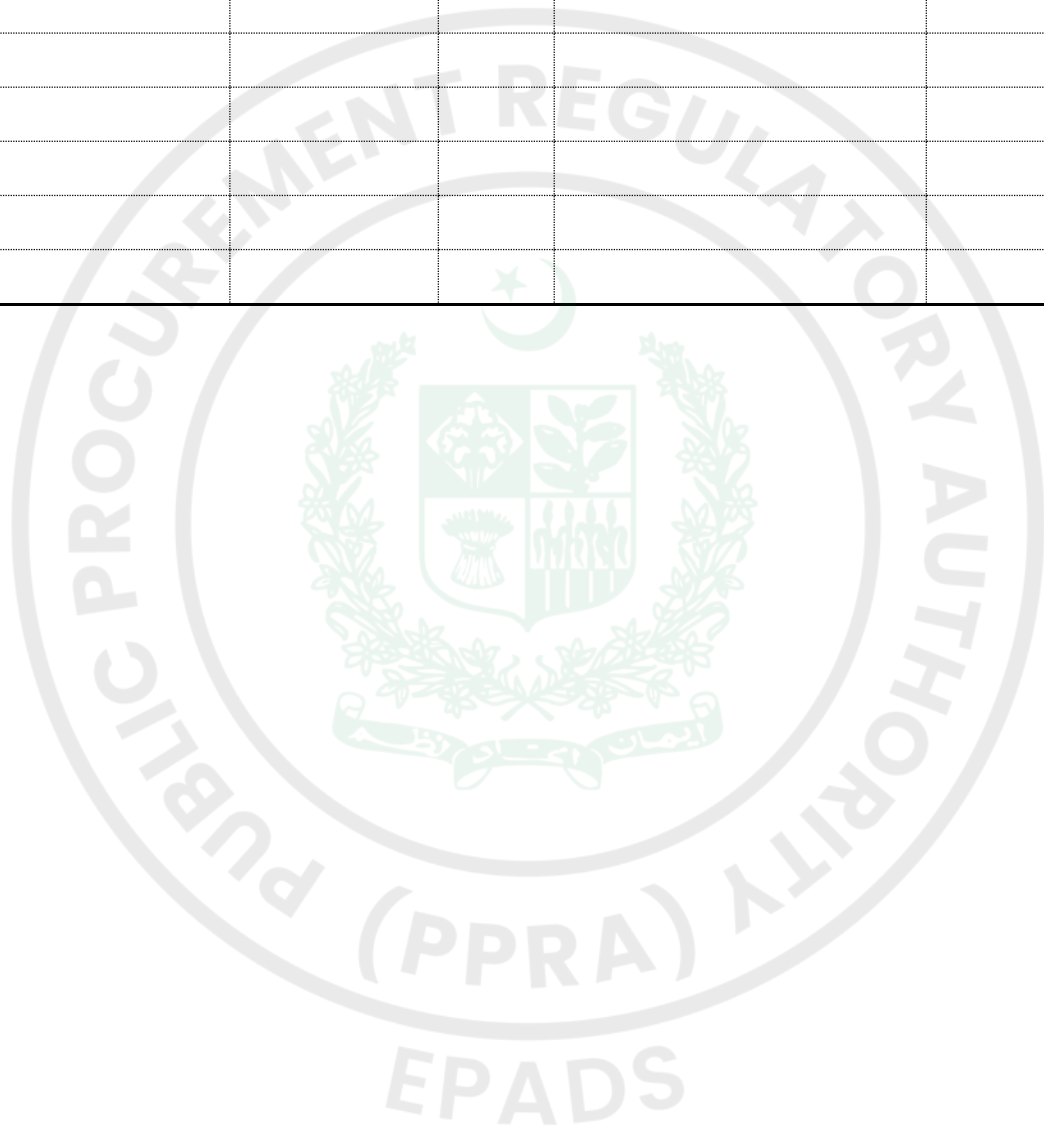
MISCELLANEOUS:

- The bidder will provide the License Key for Vessel Traffic Management Software and other Software to KPT during the lifecycle of the project. Ownership of the license keys will remain with KPT and all subscription - based accounts if any will be on KPT's account and official KPT email addresses.
- The Software license shall permit the Software to be used or copied for use or transferred to a replacement computer: provided the replacement computer falls within approximately the same class of machine and maintains approximately the same number of users, if a multi-user machine
- The Standard Software license shall be valid *throughout Karachi Harbor limit*
- The Supplier shall ensure that all hardware and software components of the system are of the latest stable and commercially supported versions at the time of delivery. Furthermore, the Supplier shall guarantee that the system will remain operational, non-obsolete, and fully supported — without requiring major upgrades or replacements — for a minimum period of ten (10) years from the date of commissioning. This includes the continued availability of maintenance services, security and functionality updates, and replacement parts, as applicable.
- The Warranty Period (N) shall begin from the date of Operational Acceptance of the System or Subsystem and extend for *12 months*.

Past Experience / Contracts

Contracts over *[insert amount]* during the last three years:

Procuring Agency	Value	Year	Goods/Services Supplied	Country of Destination



Historical Contract Non-Performance, and Pending Litigation and Litigation History

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

<input type="checkbox"/> Not debarred due to deviation from commitment of Bid Securing Declaration- <input type="checkbox"/> Not debarred due to non-performance			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and PKR equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
<input type="checkbox"/> Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), US\$ PKR Equivalent (exchange rate)

<i>[insert year]</i>	<i>[insert amount]</i>	<p>Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Status of dispute: <i>[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</i></p>	<i>[insert amount]</i>
<input type="checkbox"/> No consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4. <input type="checkbox"/> Consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4 as indicated below.			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), PKR Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	<p>Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Court/ arbitral award decision: <i>[Indicate if the award decision was against the Applicant or any member of a joint venture.]y]</i></p>	<i>[insert amount]</i>

Current Contract Commitments / Contracts in Progress Form

1. Name of Contract(s)
2. Procuring Agency Contact Information [insert address, telephone, fax, e-mail address]
3. Value of outstanding contracts [current PKR equivalent]
4. Estimated Delivery Date
5. Average monthly invoices over the last six months (PKR/mon.)

Financial Situation and Performance

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

1. Financial data

Type of Financial information in (currency)	Historic information for previous <i>[insert number]</i> years, <i>[insert in words]</i> (amount in currency, currency, exchange rate*, PKR equivalent)				
	Year 1	Year 2	Year 3		
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

* Refer ITA 14 for the exchange rate

3. Financial documents

The Applicant and in case of JV, members of JV shall provide copies of financial statements for *[number]* years pursuant Section III, Qualifications Criteria and Requirements. The financial statements shall:

- (a) reflect the financial situation of the Applicant or in case of JV member, and not an affiliated entity (such as parent company or group member).
 - (b) be independently audited or certified in accordance with local legislation.
 - (c) be complete, including all notes to the financial statements.
 - (d) correspond to accounting periods already completed and audited.
- Attached are copies of financial statements¹ for the *[number]* years required above; and complying with the requirements.

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Application, the reason for this should be justified.

Average Annual Turnover (Annual Sales Value)

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

Annual Turnover Data			
Year	Amount Currency	Exchange rate* (If applicable)	PKR equivalent
<i>[indicate calendar year]</i>	<i>[insert amount and indicate currency]</i>		
		Average Annual Turnover **	

* Refer ITA for date and source of exchange rate.

** Total PKR equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, ITA.