



BIDDING DOCUMENT

DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF INTEGRATED CENTRAL COMMAND AND CONTROL SOLUTION WITH IP BASED VIDEO SURVEILLANCE AT CPSTL OIL INSTALLATION, KOLONNAWA

TWO ENVELOPE SYSTEM

NATIONAL COMPETITIVE BIDDING

BID NO: KPR/13A/2018

The Chairman,
Departmental Procurement Committee,
C/o Manager Procurement,
Procurement Function,
Ceylon Petroleum Storage Terminals Limited,
Oil Installation,
Kolonnawa,
Wellampitiya,

AUGUST 2018

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Volume 1 A

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SECTION - I

INSTRUCTIONS TO BIDDERS

SECTION - I

INSTRUCTIONS TO BIDDERS

Instructions to Bidders applicable to this contract shall be those given in Section-1 of the Standard Bidding Document, Procurement of Works, Design and Build Contract, ICTAD Publication No. ICTAD/SBD/04, First Edition (Reprinted with amendments), May 2003, published by the Construction Industry Development Authority (CIDA), “Savsiripaya”, 123, Wijerama Mawatha, Colombo 07.

This publication will not be issued with the Bidding Document and the Bidder is advised to purchase it from CIDA.

Instructions to Bidders shall be read in conjunction with the Bidding Data provided under Section-V (Volume 1 B) of the Bidding Document.

Instructions to Bidders will not be part of the contract and will cease to have effect once the contract is signed.

SECTION - III

CONDITIONS OF CONTRACT

SECTION - III

CONDITIONS OF CONTRACT

Conditions of Contract applicable to this Contract shall be those given in Section-III of the Standard Bidding Document, Procurement of Works, Design and Build Contracts, ICTAD Publication No. ICTAD/SBD/04, First Edition (Reprinted with amendments), May 2003, published by the Construction Industry Development Authority (CIDA), “Savsiripaya”, 123, Wijerama Mawatha, Colombo 07.

This publication will not be issued with the Bidding Document and Bidder is advised to purchase it from CIDA.

Conditions of Contract shall be read in conjunction with Contract Data provided under Section-IV (Volume 1 B) of the Bidding Document, which shall take precedence over the conditions of contract.

Section –V
Standard Forms

Notes on Standard Forms:

- *Bidders shall submit the completed form of Bid security in compliance with the requirement of the bidding documents.*
- *Bidders should not complete the Form of Agreement at the time of preparation of bids. The successful bidder will be required to sign the Form of Agreement, after the award of contract. Any corrections or modifications to the accepted bid resulting from arithmetic corrections, acceptable deviations, or quantity variations in accordance with the requirements of the bidding documents should be incorporated into the Agreement.*
- *The Form of Performance Security, Form of Advance Payment Security and form of Retention Money Guarantee should not be completed by the bidders at the time of preparation of bids. The successful bidder will be required to provide these securities in compliance with the requirements herein or as acceptable to the Employer.*

FORM OF BID SECURITY

Where as,[*name of the bidder*] (hereinafter called and referred to as “the Bidder”) has submitted its Bid dated [date] for the “**Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa**” (hereinafter called and referred to as "the Bid").

KNOW ALL PEOPLE by these presents that WE[*name of organization*] having our registered office at(hereafter called and referred to as “the Guarantor”), are bound unto[*name of the Employer*] (hereinafter called and referred to as “the Employer”) in the sum of Sri Lankan Rupees/USDfor which payment well and truly to be made to the said Employer. The Guarantor binds itself, its successor, and assignees by these presents.

SEALED with the Common Seal of the said Guarantor this Day of 20.....

THE CONDITIONS of this obligation are:

- 1. If the Bidder withdraws its Bid during the period of bid validity specified in the bidding documents; or
- 2. If the Bidder refuses to accept the correction of errors in its Bid; or
- 3. If the Bidder, having been notified of the acceptance of its Bid by the Employer, during the period of bid validity, fails or refuses to:
 - (a) execute the Form of Contract Agreement; or
 - (b) furnish the Performance Security, in accordance with the Instruction to Bidders

We undertake to pay the Employer up to the above amount upon receipt of its first written demand, without the Employer having to substantiate its demand, provide that in its demand the Employer will note that the amount claimed by it is due to it, owing to the occurrence of one or more of the above conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including twenty-eight (28) days after the period of bid validity, and any demand in respect thereof should be received by us no later than the above date.

DATE..... SIGNATURE OF THE GUARANTOR.....

WITNESS..... SEAL

.....
(Signature, Name, and Address)

Notes on Form of Letter of Acceptance

The Letter of Acceptance will be the basis for formation of the Contract as described in Clause 31 of the Instructions to Bidders. This Form of Letter of Acceptance should be filled in and sent to the successful bidder only after evaluation of Bids and after obtaining approval from the relevant authority.

FORM OF LETTER OF ACCEPTANCE

[Letter head paper of the Employer]

.....[date]

To :

[name of the Contractor]

.....

[address of the Contractor]

This is to notify you that your bid dated for design, construction and remedying defects of the **Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa** (Contract No:.....) for the Contract price of Rupees *[amount in numbers and words]* as corrected in accordance with Instructions to Bidders and/or modified by a Memorandum of Understanding, is hereby accepted.

The adjudicator shall be

You are hereby instructed to proceed with the execution of the said Works in accordance with the Contract documents.

The Start Date shall be : *(fill the date as per Clause 8.1 of Conditions of Contract).*

The amount of Performance Security is : *(fill the date as per Clause 4.2 of Conditions of Contract).*

The deadline for submission of Performance Security is *(fill the date as per Clause 4.2 of Conditions of Contract).*

Authorized Signature :

Name and title of Signatory :

Name of Agency :

FORM OF CONTRACT AGREEMENT

This Agreement made the [day] of [month] 20..... [year], between Ceylon Petroleum Storage Terminals Limited, Oil Installation, Kolonnawa, Wellampitiya. (hereinafter called and referred to as "the Employer") of the one part, and[name and address of Contractor] (hereinafter called and referred to as "the Contractor"), of the other part :

Whereas the Employer desires that the Contractor design and execute **Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa** (Contract No:.....) (hereinafter called and referred to as "the Works") and the Employer has accepted the Bid by the Contractor for the design, execution and completion of such Works and remedying of any defects therein.

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract hereinafter referred to.
2. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to design, execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the design, execution and completion of the Works and remedying any 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 Agreement to be executed the day and year aforementioned in accordance with laws of Sri Lanka.

.....
Authorized signature of Contractor

.....
Authorized signature of Employer

SEAL

SEAL

In the presence of :
Witnesses :

1. Name and NIC/Passport No.
Signature.....
Address
2. Name and NIC/Passport No.
Signature.....
Address

**FORM OF PERFORMANCE GUARANTEE
(Unconditional)**

NUMBER : DATE :
SUM GUARANTEED :

To: [name of Employer] (hereinafter called and referred to as “the Employer”)
..... [address of Employer]

Whereas [name and address of Contractor] (hereinafter called and referred to as “the Contractor”) has undertaken, in pursuance of contract No. dated to execute **Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa** (hereinafter called and referred to as "the Contract");

And Whereas it has been stipulated by the Employer in the said Contract that the Contractor shall furnish the Employer with a Guarantee issued by a recognized organization for the sum specified therein as security for compliance with its obligations in accordance with the Contract.

And Whereas we have agreed to give the Contractor such a Guarantee;

Now Therefore we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Sri Lankan Rupees[amount of guarantee]..... [amount in words], such sum being payable in the type and proportions of currencies in which the Contract Price is payable, and we undertake to pay the Employer, upon the Employer’s first written demand and without cavil or objection, any sum or sums within the said amount as aforesaid without the Employer’s needing to prove or to show grounds or reasons for the Employer’s demand for the sum specified therein.

We hereby waive the necessity of the Employer’s demanding the said debt from the contractor before presenting us with the demand.

We further agree that no change or addition to or modification of the terms of the Contract or of the Works to be performed thereunder or of the Contract documents which may be made between the Employer and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice or any such change, addition or modification.

This guarantee shall be valid until the date of issue of the Performance Certificate.

Signature and the Seal of the Guarantor :

Name of the Organization :

Address :

Date :

Witness :

FORM OF GUARANTEE FOR MOBILISATION ADVANCE PAYMENT

NUMBER : DATE :
SUM GUARANTEED :

To: *[name of Employer]* (hereinafter called and referred to as “the Employer”)
..... *[address of Employer]*

Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa

In accordance with the provisions of the Conditions of Contract, Sub-Clause 14.2 (Advance Payment) of the above mentioned contract *[name and address of Contractor]* (hereinafter called and referred to as “the Contractor”) shall deposit with the Employer a guarantee acceptable to the Employer to guarantee his proper and faithful performance under the said Contract in and amount of *[amount of guarantee]* *[amount in words]*

We, the *[name and the address of the organization]*, as instructed by the contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the Employer on his first demand without whatsoever right of cavil and objection on our part and without the Employer’s needing to prove or to show grounds or reasons for the Employer’s demand for the sums specified therein and without his first claim to the Contractor, in the amount not exceeding Rupees *[amount of guarantee]* *[amount in words]* such amount to be reduced periodically by the amounts recovered by the Employer from the proceeds of the contract.

We further agree that no change or addition to or modification of the terms of the Contract or of the Works to be performed thereunder or of the Contract document which may be made between the Employer and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice or any such change, addition or modification.

No drawings may be made by the Employer under this guarantee until we have received notice in writing from the Employer that an advance payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

This guarantee shall remain valid and in full effect from the date of the advance payment received by the Contractor under the Contract until the Employer receives full repayment of the same amount from the Contractor.

Signature and the Seal of the Guarantor :

Name of the Organization :

Address :

Date :

Witness :

FROM OF RETENTION MONEY GUARANTEE

NUMBER : DATE :
SUM GUARANTEED :

To: [name of Employer] (hereinafter called and referred to as “the Employer”)
..... [address of Employer]

Whereas, it has been stipulated by the Employer in clause 14.7 of the Contract that he would release to the contractor the full sum mentioned under the contract in pursuance of clause 14.7, on the contractor furnishing an unconditional guarantee acceptable to the Employer to the full value of the retention money, valid up to 28 days beyond the end of the Defect Notification Period.

We [name and address of Guarantor]
as instructed by the Contractor, unconditionally and irrevocably, guarantee to pay the Employer upon the Employer’s first written demand and without cavil or objection, any sum of sums within the said amount as aforesaid without the Employer’s needing to prove or to show grounds or reasons for the Employer’s demand for the sums specified therein and the said amount of Rupees [amount of guarantee] [amount in words] in the event the contractor fails to carry out his obligations to rectify defects which he is responsible to rectify under the contract.

This guarantee shall be valid up to [date]

Signature and the Seal of the Guarantor :

Name of the Organization :

Address :

Date :

Witness :

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Volume 1 B

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CEYLON PETROLEUM STORAGE TERMINALS LIMITED

Invitation for Bids

**DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF IP BASED
INTEGRATED CENTRAL COMMAND AND CONTROL SOLUTION WITH VIDEO
SURVEILLANCE AT CPSTL OIL INSTALLATION KOLONNAWA**

Contract No:KPR/13A/2018

1. The Chairman, Department Procurement Committee (DPC) on behalf of the Ceylon Petroleum Storage Terminals Limited (CPSTL), Oil Installation, Kolonnawa, Wellampitiya, Sri Lanka invites sealed bids from eligible and qualified bidders for the “**Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa**” bears total estimated cost of LKR Ninety Five Million.
2. Bids shall be submitted on the forms obtainable from **Manager Procurement, Ceylon Petroleum Storage Terminals Limited, Procurement Function, New Building, Oil Installation, Kolonnawa, Wellampitiya up to 04.09.2018** from 0900 hrs. up to 1430 hrs. on any working day upon payment of a non refundable fee of LKR 12,500.00 (This bidding document could be collected on free of charge, those who have previously purchased the bidding document reference no. KPR/13/2018).
3. Bidding will be conducted through **National Competitive Bidding** Procedure.

The eligible bidders shall comply with the following qualification criteria.

The successful bidder shall not have been blacklisted and shall meet the following requirements.

- (a) Qualification requirements to qualify for contract award include
 - i. Average annual volume of construction work performed in last five years shall be at least LKR 214 million.
 - ii. The minimum amount of liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, until the project is taken over by the CPSTL, shall be not less than LKR 47.5 million.
 - iii. Should have experience as a contractor in the design & construction of a nature and complexity similar to the Works (Design, Supply, Installation and Commissioning of IP Based Integrated Central Command and Control Solution with Video Surveillance integrated with RFID applications, linked with existing SAP ERP system). At least one (01) similar project during last five (05) years.
- (b) **ICTAD (CIDA) registration (preferred qualification criteria) as follows;**

Specialty	Grade
Extra Low Voltage Installations (Data, Telecommunication and Security Systems, Public address systems, Pipe music systems (ELV)	EM1
Electrical Installations (Low Voltage) (EI-LV)	EM4

4. You may obtain further information, inspect and acquire the bidding documents from **Manager Procurement of the Ceylon Petroleum Storage Terminals Limited, (Tele Phone+94 112572156, 5750764 and Tele Fax: +94 11 2572155 and Email: procure@cpstl.lk).**
5. Bidding documents may be inspected free of charge during any working days from 0900 hrs to 1500 hrs at the office of **The Manager Procurement, Ceylon Petroleum Storage Terminals Limited, (Tele Phone+94 112572156, 5750764 and Tele Fax: +94 11 2572155 and Email: procure@cpstl.lk).** However, the bidders can inspect the above bidding document (excluding drawings) from CPSTL website; www.cpstl.lk.
6. Bids shall be valid up to **05.12.2018.**
7. All bids must be accompanied by a bid security of LKR 1,500,000.00 (Sri Lanka Rupees One Million and Five Hundred Thousand Only). Bid Security shall be valid up to **02.01.2019.**
8. Sealed Bids may be delivered with duplicate to **The Chairman, Department Procurement Committee (DPC), C/O Manager Procurement, Ceylon Petroleum Storage Terminals Limited, Procurement Function, New Building, Oil Installation, Kolonnawa, Wellampitiya.**
9. The construction period is **240 Calendar Days.**
10. The deadline for submission of bids will be **1430 hrs. on 05.09.2018** and will be opened soon after the closing.
11. Bidders or their authorized representatives are requested to be present at the opening of bids.
12. A pre-bid meeting will be held at 0930 hrs on **24.08.2018** at the office of Deputy General Manager (Engineering & Support Services) Oil Installation, Kolonnawa, Welampitiya. Site visit shall be arranged after the pre-bid meeting.
13. Any person who act as an agent or sub-agent, representative or nominee for or on behalf of a Principal, shall register himself ad per public Contracts Act No 3 of 1987 and the Certificate of Registration (FORM PCA 03) issued by the Registrar of Public Contracts of Sri Lanka **in terms of section 11 of the said Act** shall be submitted along with the bid.

**The Chairman, Department Procurement Committee (DPC)
C/O Manager Procurement,
Ceylon Petroleum Storage Terminals Limited,
Procurement Function, New Building,
Oil Installation, Kolonnawa, Wellampitiya,**

**Telephone : +94 11 2572156, +94 11 5750764
Facimile: +94112572155 E-mail: procure@cpstl.lk**

Section II

Bidding Data

BIDDING DATA

Item	Sub- Clause	Entry						
Employer's Name and Address	1.1 & 9.1	<p>The Employer is</p> <p>Name : Ceylon Petroleum Storage Terminals Limited</p> <p>Address: Oil Installation, Kolonnawa, Wellampitiya.</p>						
Scope of Works	1.1	<p>Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance integrated with RFID applications, linked with existing SAP ERP system as per the section VI – Employer’s requirement</p> <p>Located at Oil Installation, Kolonnawa, Wellampitiya.</p>						
Time for Completion	1.2	The Time for Completion for the whole of Works shall be 240 days .						
Delay damages for the Works	1.2	<p>The delay damages for the whole of the Works shall be 0.15% of the initial Contract Price per Day.</p> <p>The maximum amount of delay damages for the whole of the Works shall be 10 % of the Initial Contract Price.</p>						
Defects Notification Period	1.2	Defects Notification Period is 365 Calendar Days from Employer’s Taking over.						
Source of Funds	2.1	The source of funds is Ceylon Petroleum Storage Terminals Limited.						
CIDA (ICTAD) registration	3.1	Preferred Qualification						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Specialty</th> <th style="text-align: left;">Grade</th> </tr> </thead> <tbody> <tr> <td>Extra Low Voltage Installations (Data, Telecommunication and Security Systems, Public address systems, Pipe music systems (ELV)</td> <td>EM1</td> </tr> <tr> <td>Electrical Installations (Low Voltage) (EI-LV)</td> <td>EM4</td> </tr> </tbody> </table>	Specialty	Grade	Extra Low Voltage Installations (Data, Telecommunication and Security Systems, Public address systems, Pipe music systems (ELV)	EM1	Electrical Installations (Low Voltage) (EI-LV)	EM4
Specialty	Grade							
Extra Low Voltage Installations (Data, Telecommunication and Security Systems, Public address systems, Pipe music systems (ELV)	EM1							
Electrical Installations (Low Voltage) (EI-LV)	EM4							
Eligible bidders	3	<p>The bidder (Company/ Joint Venture consortium/ Group of Companies) shall provide the following information with the bid. Failing to furnish such information may result the rejection of the bid by the employer.</p> <p>(i) The name and address</p> <p>(ii) The year of registration of the business:</p> <ul style="list-style-type: none"> • Authorized agent in Sri Lanka, should register with the 						

Registrar of companies and shall produce a valid copy (legally attested copy) of the certificate of **incorporation** issued by the Registrar of companies Sri Lanka together with the bid.

- Any person who act as an agent or sub-agent, representative or nominee for or on behalf of a Principal, shall register himself ad per public Contracts Act No 3 of 1987 and the Certificate of Registration (FORM PCA 03) issued by the Registrar of Public Contracts of Sri Lanka **in terms of section 11 of the said Act** shall be submitted along with the bid.

(iii) A certified copy of the financial audited accounts of the bidder for the Three financial years immediately preceding the date of submission of the Bids audited by an independent external auditor in accordance with Sri Lanka auditing standards together with the auditor’s report confirming that the accounts were prepared in accordance with the Sri Lanka accounting standard; and

	3.2	Not Applicable
Qualification Information	3.1,	The following information shall be provided in Section VIII:
	4.1	<ul style="list-style-type: none"> • ICTAD registration (if any) <ul style="list-style-type: none"> Registration number _____ Grade _____ Specialty _____ • VAT registration number _____ • Attach construction program • Attach legal status (Sole proprietor, Partnership, Company etc.) • Attach authentication for signatory • Total monetary value of construction work performed for each of the last five years. • Experience in works of a similar nature and size for each of the last five years, • Construction equipment • Staffing • Attach Work plan and methods;
Average annual volume of construction work performed in last five years	4.3(a)	Average annual volume of construction work performed in last five years shall be at least Sri Lankan Rupees Two Hundred and Fourteen Million (LKR 214 Million).

Experience as prime contractor 4.3(b) Should have experience as a contractor in the design & construction of a nature and complexity similar to the Works (Design, Supply, Installation and Commissioning of IP Based Integrated Central Command and Control Solution with Video Surveillance integrated with RFID applications, linked with existing SAP ERP system). At least one (01) project in for bidder/manufacturer during last five (05) years.

Essential equipment 4.3(c) Proposals for the timely acquisition (own, lease, hire, etc.) of the following minimum required essential equipment shall be entered in Schedule A6 of Section VIII “Schedules”.

Qualification and experience of proposed design team members 4.3(e), 4.3(f) Project design and implementation team of bidder/manufacturer shall consist at least one in each of following engineering disciplines having participated in similar capacity project in full time for design and implementation within last Three years.

Designation	Minimum Positions Required	Minimum Qualifications and Experience Required
Project Manager	1No	Chartered Engineer with Post Graduate qualifications in Project Management with 05 years past experience in Project Management
Team Leader	1No	Systems Engineer with 05 years post qualified experience in PSIM systems installation, testing commissioning and operation.
Software Engineer	1 No	Software engineer with 05 years post qualified experience in installation and testing of application software
Network Engineer	1 No	Network engineer with 05 years post qualified experience in installation and testing of network systems and related software
Hardware Engineer	1 No	Hardware engineer with 05 years post qualified experience in installation and testing and configuration of computer systems
Electronics Engineer	1 No	Electronics engineer with 05 years post qualified experience in installation and testing and configuration IPCCTV systems, RFID and Biometric ACS
Electrical Engineer	1 No	Electrical engineer with 05 years post qualified experience in installation and testing and commissioning of electrical/ air-conditioning systems
Quantity Surveyor	1 No	B.Sc. Quantity Surveyor with 05 years post qualified experience in Quantity

		Surveying
Accountant	1 No	Chartered Accountant with 10 years post qualified experience in preparation of management accounts in similar projects

Liquid assets and/or credit facilities required	4.3(g)	The minimum amount of liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments, which may be made under the Contract, until the project is taken over by the CPSTL, shall be not less than Sri Lanka Rupees Forty Seven Million and Five Hundred Thousand (LKR 47.5 Million) .
Bid price	13.3	VAT components shall not be included in the rates. The amount written in the Form of Bid shall be without VAT. However VAT component shall be shown separately at the end of the price schedule summary.
Contract is subjected to price adjustment for fluctuation of prices	13.4	The Contract is not subject to price adjustment in accordance with Clause 13.7 of the Conditions of Contract.
Currency of bid	14.1	The Bid shall be quoted in Sri Lankan Rupees (LKR).
Bid Validity period	15.1	The Bids shall be valid up to 05.12.2018 .
Amount of Bid security	16.1	The Amount of Bid Security LKR 1,500,000.00 (Sri Lanka Rupees One Million Five Hundred Thousand Only)
Validity of Bid Security	16.2	The Bid Security shall be valid up to 02.01.2019 .
Pre-Bid meeting	17.1	Pre Bid meeting will be held At the office of Deputy General Manager (Engineering & Support Services), Oil Installation, Kolonnawa, Wellampitiya. Site visit shall be arranged after the pre-bid meeting. Date 24.08.2018 Time 0930 hrs . All the clarifications pertaining to the bidding documents shall be sent in writing to the Manager Procurement on or before 21.08.2018 (03 days prior to the date of the Pre-Bid meeting)
Sealing and marking of Bids	19.2	The following information also shall be included in the inner covers of envelope marked as "Envelope 1-Preliminary Information":

- (i) Schedule, "Annual turn-over Information";
- (ii) Schedule, "Adequacy of Working capital";
- (iii) Schedule, "Construction experience in last five years
- (iv) Schedule, "Major items of construction equipment proposed",
- (v) Schedule, "Current Contract Commitments"

The following information also shall be included in the inner cover of envelope marked as "Envelope 2-Design/Technical Proposal":

- (i) Schedule, "Team composition and Task assignment",
- (ii) Curriculum Vitae of Key staff;
- (iii) Schedule, "Time Schedule for key staff";
- (iv) Work program (Design related activities);
- (v) Work program (Construction related activities);
- (vi) Spare Parts Availability Certificate as per Section VI; Employers Requirement
- (vii) Non-obsolescence Certificate as per Section VI; Employers Requirement

19.4 The following information also shall be included in the inner cover of envelope marked as "Envelope 3-Financial Proposal":

- (i) Daywork rates schedule
- (ii) Schedule, "Overhead and profit percentage for Provisional Sum activities";

19.5(a) The Employer's address for the purpose of Bid submission is

**The Chairman, Department Procurement Committee (DPC),
C/O Manager Procurement,
Ceylon Petroleum Storage Terminals Limited,
Procurement Function, New Building,
Oil Installation, Kolonnawa, Wellampitiya,**

19.5(b) Contract name : Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa

Contract No. KPR/13A/2018

Deadline for submission of Bids

20.1

Address for submission of Bids

**The Chairman, Department Procurement Committee (DPC),
C/O Manager Procurement,
Ceylon Petroleum Storage Terminals Limited,
Procurement Function, New Building,
Oil Installation, Kolonnawa, Wellampitiya,**

The deadline for submission of Bids shall be

Date : 05.09.2018 Time : 1400 hrs.

The Time, Date and Location for bid opening is :

Date : 05.09.2018 Time : 1400 hrs.

Location :

**Office of Manager Procurement,
Ceylon Petroleum Storage Terminals Limited,
Procurement Function, New Building,
Oil Installation, Kolonnawa,
Wellampitiya,**

**Evaluation
and
comparison
of Bids**

27.0 For evaluation and comparison of Bids **Option B** is selected.

The following procedure will be used to apply the preference for extended warranty.

Substantially responsive bids will be classified in to the following groups.

Group	A	B	C
Warranty Period	36 Months	48 Months	60 Months or above
Preference percentage	Nil	2.5%	05%

For the purpose of evaluation and comparison of bids only, an amount equal to the respective preference percentage of the evaluated bid prices of the respective bids will be deducted from the relevant evaluated bid prices of bids classified in groups B and C.

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Evaluation and comparison of Bids	27.10	DT% = 20% P% = 80%
Correction of errors	(28.1)c	Sub-Clause 28.1(c) not modified.
Correction of errors	(28.1)d	Sub-Clause 28.1(d) is applicable.
Amount of Performance Security	32.1	The standard form of Performance Security acceptable to the Employer shall be a Bank Guarantee from an approved commercial bank operating in Sri Lanka with the authority of a License issued by the Monetary Board (Central Bank of Sri Lanka), acceptable to CPSTL The amount of Performance Security is 10% of the Initial Contract Price.
Percentage of retention	34.1	The retention from each payment shall be 10%. The limit of retention shall be 5% of the Initial Contract Price.
Minimum amount of Interim Payment Certificates	34.2	LKR 10,000,000.00 (Sri Lanka Rupees Ten Million)
Adjudicator proposed by Employer	(35.1)	The Adjudicator proposed by Employer is Institute for Construction Training and Development ICTAD / (CIDA) . Fees and types of reimbursable expenses to be paid to the Adjudicator shall be on a case to case basis and shall be shared equally by the Contractor and the Employer.

Section IV
Contract Data

CONTRACT DATA

**Sub-Clause
1.1.2.2**

The Employer is

Name : Ceylon Petroleum Storage Terminals Limited

Address: Oil Installation,
Kolonnawa,
Wellampitiya,

**Sub-Clause
1.1.2.4**

Engineer's Name & Address

Name: Deputy General Manager (Engineering & Support Services)

Address: Ceylon Petroleum Storage Terminals Limited,
Engineering Function,
Oil Installation, Kolonnawa, Wellampitiya,

Sub-Clause 3.1

Engineer's Duties and Authority

The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions.

- (a) consenting to the subletting of any part of the Works under Sub-Clause 4.4 (b),
- (b) approving an extension of the Time for Completion, and/or any additional payment under Sub-Clause 19.1 (*Contractor's Claim*) issuing variation under Sub-Clause 13.1 (*Right to vary Employer's Requirement*), except in an emergency situation, as reasonably determined by the Engineer.
- (c) approving additional payment under Sub-Clause 13.3

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibilities under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13.3 and shall notify the Contractor accordingly, with a copy to the Employer.

Sub-Clause 4.1

Key Personnel

Schedule of Key Personnel :

Names with qualifications and experience to be written :

- (a) Design
.....
.....
- (b) Contract Administration
.....
- (c) Accounting
.....
.....

Sub-Clause 4.2 Performance Security

The Performance Security shall be 10% of the Initial Contract Price.

The Standard Form of Performance Security acceptable to the Employer shall be a Bank Guarantee from an approved commercial bank operating in Sri Lanka with the authority of a License issued by the Monetary Board (Central Bank of Sri Lanka), acceptable to CPSTL.

Sub-Clause 5.2 Contractor’s Documents

Contractor shall submit following documents.

Spare Parts Availability Certificate: A certificate to the effect that, all spare parts for the laboratory equipment offered will be manufactured and be available for import for a minimum period of Ten (10) years from the date of submission of the bid.

Non-obsolescence Certificate: Certificate from manufacture that all the ICCCS system equipment including all accessories, offered are currently in manufacture and should not be obsolete within Ten (10) years.

Sub-Clause 8.1 Commencement of Work 8.1

Start Date:

The Start Date shall be 14 days from the issue of the Letter of Acceptance.

Sub-Clause 8.2 Time for Completion

The Time for Completion for the whole of Works shall be **240** Calendar days.

Sub- Clause 8.7 Delay Damages

The Delay Damages for the whole of the Works shall be 0.1% of the Initial Contract Price per day.

The maximum amount of Delay Damages for the whole of the Works shall be 10% of the Initial Contract Price.

Sub-Clause 11.1 Defects Notification Period

Defects Notification Period is **365** days from Commissioning of the Works.

Sub-Clause 13.7 Adjustments for Changes in Cost

Contract **is not subjected** to price adjustment for fluctuation of prices.

Sub-Clause 14.1 Contract Price

The Sub-Clause 14.1 shall be read incorporation with the following:

The Works shall be paid according to work done as per the price proposal.

Sub-Clause 14.3 Retention Money

(c)

The retention from each payment shall be 10% of the Interim Payment certificate.

The limit of retention shall be 5% of the Initial Contract Price.

Sub-Clause 14.4 Issue of Interim Payment Certificates

Minimum amount of Interim Payment Certificates shall be LKR 10,000,000.00 (Sri Lanka Rupees Ten Million)

Sub-Clause 18.2 (b) Employer's Property

Insurance cover to the amount of LKR 40 Million for the entire period of construction work. The contractor shall take special measures to safeguard the adjacent storage tanks and allied facilities at the site.

Sub-Clause 18.4 Professional Indemnity Insurance

This Amount of professional indemnity insurance cover shall be for LKR 5,000,000.00 (Sri Lanka Rupees Five Million).

Sub-Clause 19.2 & 19.4 Failure to Agree Dispute Adjudicator

The appointing entity for appointing the Adjudicator is the **Construction Industry Development Authority (CIDA)**.

Section VI
Employer's Requirement

ABBREVIATIONS

Shall add the below abbreviations considering the nature of this project.

3D - 3 Dimensional

AMC - Annual Maintenance Contract

API - Application Program Interface

ASTM - American Society for Testing and Materials

ATEX - European Directives for Equipment for potentially explosive atmospheres

B/W - Black and White

BS - British Standards

CCD - Charge-Coupled Device

CEB - Ceylon Electricity Board

CIDA - Construction Industry Development Authority

CMOS - Complementary Metal-Oxide-Semiconductor

CPSTL - Ceylon Petroleum Storage Terminals Limited

CSCCS – Central Security Command and Control Station

DPC - Departmental Procurement Committee

DVR - Digital Video Recorder

EIA - Electronic Industries Alliance

EICC - Electronic Industry Citizenship Coalition

EN - European Standards

FPS - Frames Per Second

H.264 - MPEG-4 Part 10

HD - High Definition

HDPE - High Density Poly Ethylene

ICTAD - Institute of Construction Training And Development

IEC - International Electrotechnical Commission

IECEX - International Electrotechnical Commission Scheme for Certification to
Standards Relating to Equipment for Use in Explosive Atmospheres

IEEE - Institute of Electronic and Electrical Engineers

IET - Institute of Engineering Technology

IK - Protection against mechanical Impact

IP - Internet Protocol

IP - Ingress Protection

IPBSS - Internet Protocol Based Surveillance System

ICCCS – Integrated Central Command & Control Solution

ISO - International Organization for Standardization

JPEG - Joint Photographic Experts Group

LED - Light Emitting Diode

MPEG - Moving Picture Experts Group
MTBF - Mean Time Between Failures
CE - European Conformity
FCC - Federal Communications Commission
ICT - Information and communication technology
UL - Underwriters Laboratories
BLC - Backlight Compensation
WDR - Wide Dynamic Range
DNR - Digital Noise Reduction
RAID - Redundant Array of Independent Disks
LAID – Linear Array of Idle Disks
SFS – Sequential Filling System
PSIM – Physical Security Information Management
ACS – Access Control System
FAS – Fire Alarm System
BMS – Building Management System
SCADA - Supervisory control and data acquisition
FMS – Fleet Management System
FTMS – Fuel Tank Monitoring System
BLE - Bluetooth Low Energy
CU - Control Unit
FA - Fire Alarm.
NFC - Near field technology
PIN - Personal Identification Number
PPD - Portable Programmer Device
S/W - Software
SAC - Standalone Access Control
SMS - Security Management System
VN - Virtual Network
WR - Wall Reader
ANSI - American National Standard Institute
RFID - Radio Frequency Identification
LAN - Local Area Network

Design, Supply, Installation and Commissioning of IP Based Integrated Central Command and Control Solution with Video Surveillance at CPSTL Oil Installation Kolonnawa

1. Executive Summary

This document should be read in conjunction with any contract in place, other project specifications, the security layout drawings and equipment schedules. If there is any discrepancy or conflict between these documents then the most onerous requirement should prevail unless requested and confirmed in writing by CPSTL.

It should be noted that the equipment specifications are based on current practice, market research and interpretation of the CPSTL requirement. If there is any reference to or inference to a particular product or manufacturer, it should be taken that an equal equivalent can be used so long as it meets the requirements of the specification and is approved by CPSTL Technical Committee.

1.1. Related Documents

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Section 6 Specification Sections, apply to this Section. All security sections apply to this section as described in this document.

1.2. Introduction

CPSTL Integrated Command, Control and Communication (C3I) solution will be fully implemented in Phases. Phase 1 of the project will be described in this document. The project will cover supply, installation, configuration, testing and commissioning of two sub systems and CPSTL Central Command and Control station at CPSTL, Oil Installation, Kolonnawa. Proposed Physical Security Information Management (PSIM) software shall be an open platform system with unlimited scalability with complete system integration capabilities with BMS, SCADA, FAS, ACS, PIDs/MIDs, IDS, FMS, FTMS, PA/Communication Systems etc as and when needed during future phases. PSIM shall consider as the top layer application to integrate all required systems belong to CPSTL Kolonnawa with the capability of integration with existing SAP system for seamless HR operation and CPSLT Ops operations purposes. (NOTE: the software integration with SAP system may take place in a future phase of the project. During next phases of the project it shall be capable of connecting all CPSTL Facilities to the central command and control to support Operations, Distribution, Engineering, HR Admin and IT operations of each facility with their own requirements and set Standard Operating Procedures (SOPs). The main purpose of developing such centralized solution is to centralize the decentralized CPSTL facilities around the country to achieve greater efficiency and reduce CAPEX and OPEX cost of current security & safety and other relevant operations by increasing the quality of service, support hardworking staff by simplifying operations, Create well Secured workplace, increase H&S at CPSTL facilities and CPSTL transport, minimize wastage, reduce response time and Automate business workflows to ensure smooth operation with minimum human intervention. This document describes the scope of work involved in Phase 1 project implementation according to described specifications sections. Project Scope is divided in to below verticals considering the current requirements of CPSTL under Phase 1 project.

1. Central Control and Command
2. Integrations
3. Network Infrastructure
4. IPCCTV
5. ACS – Access Control System
6. Attendance System

7. Data Storage
8. Power Distribution for Listed Systems

1.3. Scope of Supply by CPSTL

1.3.1. CPSTL shall assist the contractor in identifying suitable camera mounting locations, possible cable paths for excavation and cable laying

1.3.2. CPSTL shall release operational areas such as pump houses, filling gantries access roads and tank yards etc for “Integrated Central Command and Control Solution” (ICCCS) installation work in a manner such that minimum disturbance to the operational activities of CPSTL.

1.3.3. Construction Utilities

1.3.3.1. Electricity and drinking water that would be supplied to the contractor to undertake this work would be charged from the contractor per meter readings/ estimate. The perspective contractor is required to indicate his requirements of power from the CPSTL in his offer for evaluation purposes. Or the contractor shall arrange his own source of electricity and water

1.3.3.2. The maximum available electrical power supply available to the contractor is 45kVA, 400V AC, 4 wire (TPN), 50Hz and will be subjected to following 05 conditions.

- (a) Electrical power supply will be provided by CPSTL on the request of the Contractor and charge according to the applicable tariff system, or the Contractor shall have to arrange his own power source.
- (b) The Electrical Section of CPSTL will provide terminating point to feeding cables through a suitable circuit isolating and interrupting devices such as a circuit breaker or a switch fuse at convenient location, within 150m from the work site. This switch gears will remain the property of CPSTL and contractor has no access to it.
- (c) The maximum load that the CPSTL electrical section can feed will be 63A, 3 Phases.
- (d) Power supply will be energized after inspection by the Electrical Engineer of CPSTL provided all requirements in clause 6.2.9 are satisfied.
- (e) CPSTL will reserve the right to disconnect the power supply to the contractor without prior notice, if any of the foresaid conditions are violated.

1.3.3.3. CPSTL will provide necessary documentation support to obtain required permission from Sri Lanka Railways for excavation and laying of underground cable sleeves across the rail way tracks. It is contractor’s responsibility to obtain the permissions from Sri Lanka Railways.

1.4. Contractor's Scope of Supply

Central Command & Control, PSIM Software & Servers, IP Surveillance Cameras, ACS, Biometric Figure print system with associated software and Hardware, Video Analytics, Licensing Modules, Integration Modules, IPCCTV Storage, NTP Server, System Health Monitoring System, Indoor/Outdoor Access Switches, Fiber Optic and UTP cables, POE Extenders, Monitoring stations, UPSs, Construction equipment, materials, consumables and other documents as follows.

1.4.1. Supply of construction equipment required for civil works such as Backhoes, welding machines, air compressors, crane trucks, concrete mixtures and tools where necessary.

- 1.4.2. Supply of all testing and installation equipment such as UTP and Fiber optic cable testers, and other instruments to perform necessary inspection and testing.
- 1.4.3. Supply of steel tape armored multi core fiber optic cables as per given specifications.
- 1.4.4. Supply of Category 6 U/UTP Ethernet cables. As per given specifications
- 1.4.5. Supply of Cameras as per given specifications.
- 1.4.6. Supply of Explosion Proof type cameras as per given specifications.
- 1.4.7. Supply of monitoring and controlling workstations as per given specifications.
- 1.4.8. Supply of Industrial grade LED monitors for viewing as per given specifications.
- 1.4.9. Supply of Open API Based PSIM Solution as per given specifications.
- 1.4.10. Supply of Video storage system as per given specifications.
- 1.4.11. Supply of UPS units as per given specifications.
- 1.4.12. Supply of Joystick Control Panels for monitoring and control stations as per given specifications.
- 1.4.13. Supply of poles for mounting cameras as per given specifications.
- 1.4.14. Supply of mounting brackets for mounting monitors/displays.
- 1.4.15. Supply of Access Control System as per given specifications.
- 1.4.16. Supply of access switches, POE Extenders, fiber optic to UTP media converters and mounting racks as per the system requirements
- 1.4.17. Supply of switchgears and cables etc required for providing power supply for cameras, Access switches, work stations, monitors and UPS units
- 1.4.18. Supply of workstation tables and chairs for monitoring and controlling
- 1.4.19. Supply of PVC pipes to install fiber optic and Ethernet cables in the field.
- 1.4.20. Supply of surge protection system to protect cameras, access switches, media converters, NAS storage equipment, work stations, monitors and UPS units from surge voltages in both power and data lines.
- 1.4.21. Supply of earth grounding system as per specifications.
- 1.4.22. Supply of construction materials to construct manholes along the cable routes. Supply of sand for back filling, cable tiles and warning tapes.
- 1.4.23. Setting up of Central Command and Control Room
- 1.4.24. Successful bidder shall submit insurance cover as per "Schedule" under Section - 05 of this bidding document.
- 1.4.25. Construction Utilities.
 - 1.4.25.1. Contractor shall use his own feeder cables and temporary power distribution board sufficiently rated to power the equipment and machinery used at site. conforming to CEB regulations in consultation I supervision of Electrical Engineer of CPSTL
 - 1.4.25.2. Contractor's power distribution board should consist of adequate over current and earth leakage protective devices for safety of men and machinery.
 - 1.4.25.3. Contractor shall install the feeder cables from the metering point up to the temporary power distribution board as per the instruction & approval of the CPSTL Electrical Engineer.
 - 1.4.25.4. It is the responsibility of the contractor to maintain his switch gear and cable network in good condition, so as to provide, complete safety to men and machinery.
 - 1.4.25.5. The whole electrical installation of the contractor should conform to IET wiring regulations (17thEdition) published by the Institution of Engineering and Technology (IET), London.
- 1.4.26. Excavation across the roads to install the cable sleeves must be planned that there will be minimum interruption to the operational activities. Temporary means of transportation to heavy vehicles over the excavated trenches shall be provided using thick steel plates.

- 1.4.27. Excavation may include demolishing and removing any loose rock, hard strata, tree roots, brick or rubble walls, concrete floors and other encountered artificial obstacles.
- 1.4.28. Contractor shall remove all surplus excavated materials, spoil and level the site properly clean and evenly graded before the commissioning and handing over. The removed material shall be placed at a dump site and contractor shall level the dumpsite accordingly.
- 1.4.29. Contractor shall make good and finish the affected infrastructure to the original state, after completion of the underground cable installation work, in order to issue the take over certificate.
- 1.4.30. Installation of the cables and equipment shall be arranged that there will be minimum disturbance to the operations. Contractor may have to arrange work during non-operational hours.

1.5. Contractor's Scope of Work

- 1.5.1. Contractor shall submit a comprehensive proposal with the bid to cater the requirements mentioned in scope of work and specifications. The scope of work and specifications listed are the minimum requirements expected. Contractor shall include in his proposal, the systems, equipment, instruments and methodologies which he deems that shall incorporate to improve the quality and effectiveness of the Integrated Central Command and Control Solution (ICCCS) system.
- 1.5.2. Contractor shall specify the reference standards followed for the design
- 1.5.3. Contractor shall decommission and remove the existing CCTV system installed at Oil Installation Kolonnawa, All the removed items shall be separately categorized, packed in corrugated carton boxes, labeled and transport to the main stores Kolonnawa.
- 1.5.4. Inspection of the proposed camera locations, access switch locations and Control and Monitoring work station locations.
- 1.5.5. Identification of the cable routes for the cameras, access switches and control and monitoring stations
- 1.5.6. Identification of locations to install cable sleeves.
- 1.5.7. Identification of power supply switchgear mounting locations and cable routes.
- 1.5.8. Make and manufacture of Cameras, Video Storage equipment, Access switches. Media Converters, Fiber optic cables, UTP cables, UPS units, Surge protection units, switchgears, power Cables and other accessories to be submitted with the bid. (All equipment to be in accordance with the relevant IEC or British standard)
- 1.5.9. Test certificates and certificates of conformity with BS/EN/IEC standards for all the cables and equipment shall be submitted to the approval of the engineer before delivering to the site.
- 1.5.10. After Installation of Fiber and Category 6 Cable each and every cable run should certified industry recognized tester to complied with EIA/TIA or ISO Standards
- 1.5.11. Construction drawings of cable sleeves and mounting poles shall be submitted to the approval of the engineer before proceeding with the construction work. Contractor shall obtain approval of Sri Lanka Railways (SLR) before commencing constructions affecting SLR facilities in a timely manner.
- 1.5.12. Supply and Install Cable Network
 - 1.5.12.1. Contractor shall draft a final cable network layout indicating the Fiber Optic cable routes, UTP Ethernet cable routes, POE Extender locations and power cable routes. Contractor shall ensure maximum utility of the existing fiber optic cable duct

in his proposal. A sketch of the existing cable ducts can be referred during the site visit.

- 1.5.12.2. Contractor shall obtain approval for the final cable network layout prior to commencing the installation.
- 1.5.12.3. All the cable in the field shall be installed underground cable ducting.
- 1.5.12.4. Where necessary, the ducting shall be, a 4” diameter, Type 1000 PVC pipe buried at a suitable depth.
- 1.5.12.5. Contractor shall use existing man holes for maintenance access of the cable.
- 1.5.12.6. A sand bedding of 100mm thick from the top surface of the PVC pipe shall be provided.
- 1.5.12.7. Concrete cable tiles marked as “ICCCS cables” shall be laid on top of the sand bedding.
- 1.5.12.8. A black and yellow warning tape shall be laid on top of the cable tile.
- 1.5.12.9. The trenches shall be back filled and compacted to the finished surface of the pavement using hand compactor.
- 1.5.12.10. Contractor shall make good of the damaged pavements, concrete yards and roads due to excavation.
- 1.5.12.11. All the outdoor cables shall be armored type.
- 1.5.12.12. Steel conduits shall be used at outdoor locations where un-armored cables are required to be used.
- 1.5.12.13. Fiber Optic cable installation shall be done by qualified personnel only.
- 1.5.12.14. The cable duct shall be designed with necessary bending radii to install Fiber Optic Cables.
- 1.5.12.15. Contractor shall make necessary arrangements to protect the Fiber Optic cables while in storage and using at site.
- 1.5.12.16. Petroleum based waste may present in the environment and the supplied Fiber Optic cables shall be able to withstand satisfactorily in such conditions.
- 1.5.12.17. Cables inside the buildings except gantries and pump houses and similar industrial installations shall be routed through white color PVC casings.
- 1.5.12.18. Cables inside the gantries and pump houses shall be routed through Steel conduits.
- 1.5.12.19. Contractor shall measure the required cable length in the site before start laying
- 1.5.12.20. No cable joints are allowed. The data cable network to field devices (from Access switchers) shall be tested for 100Mbps (100Base-T Full Duplex) speed using a certification tester that the system is installed complying with latest TIA and ISO standards for a Category 6 network. All test readings shall be recorded and handed over to Engineer.

1.5.13. Supply and Install IP Surveillances Cameras.

- 1.5.13.1. Contractor shall provide a schedule of cameras to be used at proposed locations in IP Surveillance layout drawing, with their specifications. The specifications shall satisfy the minimum requirements mentioned in the bidding documents. The proposed cameras shall be able to provide a clear view of the locations mentioned in the camera layout in all weather conditions during day time and night time. The provided drawing can be used as a guide for the proposal.
- 1.5.13.2. Installation shall be done after obtaining the approval for the schedule of cameras.

- 1.5.13.3. Contractor shall design supply and install suitable mounting poles and brackets for IP Surveillance cameras.
- 1.5.13.4. Contractor shall install, test and commission the IP Surveillance cameras.

1.5.14. Supply and Install Video Storage System.

- 1.5.14.1. Contractor shall design, supply and install, test and commission a Video Storage system
- 1.5.14.2. Assisted Storage which is capable of retaining a recording of 90 days with 15 FPS at 1080p minimum resolution for all General cameras and 30 FPS at 1080p resolution for all ANPR & Facial Identification cameras with continues recording.
- 1.5.14.3. Outdoor cameras shall consider high activity cameras and Image quality shall be select as medium. Indoor cameras shall be considered medium activity cameras. ANPR and Facial Identification cameras shall have high image quality. High compression is not allowed for all cameras and H.264 compression method can be applied with Low compression on ANPR & Facial Identification cameras and Medium compression shall be used for all other cameras.
- 1.5.14.4. Bidders must propose a storage solution which can cater to meet both the performance requirements of live video data, and scalability requirements of long term video archival. The storage solution should have a good balance between economics of scale and performance.
- 1.5.14.5. Bidders shall submit video storage calculation based on the above storage calculation guidelines and total storage shall have 25% additional for future use. Storage calculation shall be attached with the technical bid document.
- 1.5.14.6. Bidders shall provide Video Storage solution with their specifications. The specifications shall satisfy the minimum requirements mentioned in the bidding documents.
- 1.5.14.7. Contractor shall supply and install, test and commission all the software's Firm wares and user license to operate the system.

1.5.15. Supply and Install Client Viewing Stations.

Contractor shall design, supply and install, test and commission Client viewing stations (Workstation) as per below specified locations and Functionality.

- 1.5.15.1. Central Security Control and Command Station at Security Manager Building
 - 1.5.15.1.1. Two (02) Operator Workstations shall be with complete access to all integrated systems to receive alarms and response to alarm actions as per set SOPs by security department. Each station should have (3) Three screens and (1) One joystick control panel per operator workstation. (Ref. Specs)
 - 1.5.15.1.2. Full access rights to Video wall controller. Operator screen shall have integrated dash board to access video wall directly. Video wall icon should be display on the operator screen to have instant access to control video wall.
 - 1.5.15.1.3. Operator workstations should not have any access to systems administrator. However, the system shall have full rights to escalate alarms to next authority level or forward such alarms to response teams as per set SOPs by Security Department. Should not have access to generated incident files or to make any uploads or downloads to or from the systems.
 - 1.5.15.1.4. Operator workstation screen shall be recorded during an event and the recorded video shall be tagged with the incident file. The video clip during

the actions taken by each operator shall be available with relevant incident file for post incident analysis, KPI evaluations and training purposes. The system shall be accessed as an inbuilt solution with PSIM and separate access to another system or solution will not be acceptable.

- 1.5.15.1.5. Bidder shall submit system diagram of the above control room workstation solution along with the workstation hardware specifications and screen recording system specifications. The specifications shall satisfy the minimum requirements mentioned in the bidding documents. Installation shall require prior approval and the contractor shall submit shop drawings to the CPSTL Engineer.
- 1.5.15.2. Supervisor workstations – (01)
 - 1.5.15.2.1. Supervisor workstation shall have all rights to access systems administrator log in. Each station shall have full rights to access generated incident files or to make any uploads or downloads to or from the systems. All audit trials and event management info shall be available at these stations. Each station should have (2) Two screens. (Ref. Specs)
 - 1.5.15.2.2. Supervisor stations shall receive all escalated alarms automatically. Alarm escalation can be done manually by an operator to get assistance or the system generated escalation can be done using Set SOPs.
 - 1.5.15.2.3. Supervisor stations locations will be defined by the Security Manager of CPSTL and shall be connected to the system via Local Area Network.
 - 1.5.15.2.4. Bidder shall submit hardware specifications according to the minimum specifications provided in this document. Installation shall require prior approval and the contractor shall submit shop drawings to the CPSTL Engineer.
- 1.5.15.3. Security Zone office view stations – (02)
 - 1.5.15.3.1. Security Zone office view stations shall have access to each zone activities and alarms only. Such alarms shall be reflected at the CSCCS (Central Security Control and Command Station) at the same time. Each station should have (1) One screen. (Ref. Specs)
 - 1.5.15.3.2. Zonal office view station shall have capability to receive escalated response request alarms from CSCCS operators and CSCCS Supervisor stations. System shall be capable of working as alarm response unit as per set SOPs.
 - 1.5.15.3.3. Bidder shall submit hardware specifications according to the minimum specifications provided in this document. Installation shall require prior approval and the contractor shall submit shop drawings to the CPSTL Engineer.
- 1.5.15.4. VIP View stations – (02)
 - 1.5.15.4.1. VIP view stations shall have access rights to all systems and admin logging. Each station should have (1) one Large screen. (Ref. Specs)
 - 1.5.15.4.2. Workstation shall be considered as monitoring stations without any alarm events. However, the system should be able to access all alarm logs, Incident files with full access to all systems. Each station shall have full rights to access generated incident files or to make any uploads or downloads to or from the systems. All audit trials and event management info shall be available at these stations.
 - 1.5.15.4.3. VIP View stations locations are at CPSTL MD office and CPSTL Engineering DGM office. Installation shall require prior approval and the contractor shall submit shop drawings to the CPSTL Engineer.

1.5.15.5. HR and Operation Stations – (04)

- 1.5.15.5.1. These stations considered as access control and visitor management stations. (3) Stations considered at Reception Building and (1) Station for HR office. Each station should have (1) One Screen. (Ref. Specs)
- 1.5.15.5.2. No Surveillance privileges shall be granted for such stations as it's only used as enrolment stations for ACS.
- 1.5.15.5.3. ACS Enrolment kits shall be available at all stations for efficient enrolment purposes.
- 1.5.15.5.4. Visitor management approval process shall be implemented on the system based on the SOPs set by CPSTL Management. Contractor shall provide guidelines for the SOPs
- 1.5.15.5.5. Staff enrolment process shall be defined by HR Department and shall comply with their requirements and set SOPs. Contractor shall provide guidelines for the SOPs
- 1.5.15.5.6. Bidder shall submit system diagram of the above HR & Operation stations solution along with the hardware specifications. The specifications shall satisfy the minimum requirements mentioned in the bidding documents. Installation shall require prior approval and the contractor shall submit shop drawings to the CPSTL Engineer.

1.5.16. Setting up of Central Security Control & Command Station.

- 1.5.16.1. A control room shall be setup to host the CPSTL Central Security Control & Command Station (CSCCS) fully equipped with video wall solution and specified workstations as per provided specifications in this document. The location will be inside the security manager's Office, Oil installation, Kolonnawa.
- 1.5.16.2. Internal Electrical, Air Conditioning, Data, telephone and IP Surveillance system shall be designed, supplied and installed, tested and commissioned by the contractor.
- 1.5.16.3. The design shall incorporate Fully functional video wall solution along with Two (02) Fully functional security operator workstations as per minimum specification requirements given in this document.
- 1.5.16.4. Required civil works, Cable management and Earthing requirement should address with the Control room design.
- 1.5.16.5. Contractor shall provide 3D Layout drawing with proposal to validate interior view of control room.

1.5.17. Preparation of Central Security servers and data storage.

- 1.5.17.1. All required servers, software, Storage Equipment, Core Network Equipment, Network rack and UPS shall be located at a designated area at CPSTL. System must be supplied with Admin workstation for maintenance and operational use.
- 1.5.17.2. Storage health monitoring and network monitoring station shall be installed at designated area suggested by the CPSTL Engineer.
- 1.5.17.3. Core Network infrastructure architecture diagram shall be submitted by the contractor for prior approval before installation. All Network infrastructure components / Equipment specifications shall be produced along with the design. The specifications shall satisfy the minimum requirements mentioned in the bidding documents.

1.5.18. Access Switches and Fiber Optic Media Converters.

- 1.5.18.1. Contractor shall design for supply and install, test and commission required access switches and Fiber Optic to UTP media converters required for the IP Surveillance network.
- 1.5.18.2. Contractor shall supply and install the required mounting racks, enclosures, patch panels, cable management systems and power supply system for the proposed access switches and media converters.
- 1.5.18.3. Considering new technology approach, cost deduction of CAPEX and risk of running Medium Voltage (MV), IP POE Extenders are allowed to use where necessary. Such solutions shall have minimum 5 Years warranty and contractor shall submit specifications of the products used for prior approval.

1.5.19. UPS units

- 1.5.19.1. Contractor shall select, supply and install, test and commission required UPS units to power the Servers, Video storage, Work Stations, video wall, Access switches and Cameras / end IP Devices.
- 1.5.19.2. Contractor shall supply and install the required power supply system for UPS units.

1.5.20. Surge Protection System

- 1.5.20.1. Contractor shall design for supply and install, test and commission required surge protection system.
- 1.5.20.2. The surge protection system shall cover all the equipment for lightning and high voltage surges coming through power supply network and Data network.
- 1.5.20.3. Contractor shall design supply and install earth grounding system.

1.5.21. Biometric Finger Print Attendance System, Access Control System (ACS) with RFID and Proximity Card Detection Based Vehicle Management System for Road Tankers

1.5.21.1. INTRODUCTION:

This Architecture and Engineering specification (A&E Specs.) provides detailed information on the access control Software and hardware

1.5.21.2. Scope of supply and work

1.5.21.2.1.1. Biometric Finger Print Attendance System.

- 1.5.21.2.1.2. Biometric authentication readers shall be installed in 45 locations around CPSTL Kolonnawa Facility. Each department shall have minimum one reader to mark attendance of staff. The number of readers connected to the system shall be expandable.

1.5.21.2.1.3.

The proposal shall include a turnkey Time Attendance with Biometric finger print. T&A application shall have provision to integrate with the existing CPSTL SAP system later stage.

Mandatory features:

- Should support at least 3100 employees
- Should support multiple organizations/departments across various geographical locations
- Should be able to define multiple sites for each organization/department
- Each site should be able to have its own shift patterns
- Should be able to perform month-end revalidation of Leave Data before pushing absentees external Payroll system.
- Should be able to “graphically roster” the allocated employees in terms of the shifts defined.
- Should be able to provide Global Employee option, allowing a person to work in more than one site.
- Should be able to handle Contractor Staff by allocating in the similar way.
- Temporary Staff & Contractual Staff’s Work Completion Reports needs to be visible at the end of every month.
- Employee on Annual Leave should not be visible, but an alert report should be available for future planning purpose. (At least for Rostering Purpose)
- The Attendance System should be able to capture the data through fingerprint/ face with inbuilt camera.
- Should support manual or auto compilation of attendance in order to pair it in terms of Number of Hours Worked.
- Should be able to provision Night Shift and Auto Error Correction Features should be prioritized during System Compilation process.
- Error Correction Module should focus on displaying all Mis-punches, and list of people having shifted mismatches. Should be able to correct these errors.
- Should be able to push the final attendance into SAP system, in a specified format provided by CPSTL IT team.
- Should support Supervisor and Foreman Wise Categorization of Attendance. (Every Worker should be linked to a Supervisor, and Site or Project).
- Should be able to customize Output/Reports at least for a period of one year.
- Proposed Biometric Attendance System shall have capability to integrate with proposed PSIM for security operations requirements. In case of access denied, Black list detection alarm event should be tagged with the proposed IP based surveillance system to capture the video outputs from relevant Built in camera of the Finger print detection unit. These alarms shall generate incident ticket at the CSCCS for further actions based on set SOPs by Security Department.
- Accurate and automatic capture and transfer of real time attendance data to time attendance application and shall be capable of uploading approved data by the respective department head to the existing payroll system. The system shall be capable of recording the attendance details of employees from respective department. Bidder shall propose the suitable methodology for this process in his technical bid as per given guidelines and minimum specification requirements of this document.

- The system should have separate password protected logging facility for each operator user (Department) level with assigned functionalities and its sub functionalities to view and getting reports of their employees.
- Designed system shall be capable of scale up with multiple connected remote This requirement will be applied during future phases and bidders shall comply with the given specification requirements.
- Full-Proof security and prevent un-authorized access.
- In case of a network failure each Reader should grant access after verification without any fail and shall have inbuilt audit trials for 5000 events in any given time and shall transfer all stored data back to central server once network restored.
- The system shall be programmable for shift timings with required grace timings.
- Existing Local Area Network (LAN) shall be used for the proposed system.
- Remote Administration facility for finger print readers in terms of Setting Date, Time, Data storage information etc.
- Black Listing facility.
- Finger Print Readers' health information at Central Server Screen in terms of Connectivity and working status of readers.
- Raw data so acquired to be saved daily in a file, well protected so that no manipulation is possible.
- Upon collection of raw data it should be able to split it in identical groups defined by CPSTL. Provision shall be provided for 30 nos of such groups and user terminals with required hardware and software shall be provided at each location to access data through existing LAN.
- Software should be in Graphical User Interface (GUI) in user friendly environment.
- Generating of Reports as per CPSTL requirement.

1.5.21.2.1.4. Access Control System (ACS) with RFID

1.5.21.2.1.5. Design, Supply, installation, Testing and commissioning of Sate of the Art RFID based Access Control System at Kolonnawa Terminal, Where, a proximity contactless smart card shall be used as CPSTL Corporate credentials for identification throughout CPSTL facilities around the country. The solution shall be highly reliable, scalable, economical and state of the art built covering all operational sectors of CPSTL operations.

Requirements of RFID Credentials

- 1.5.21.2.1.6. CPSTL Employees ID Badges at Kolonnawa = 1,800
- 1.5.21.2.1.7. RFID Visitors Passes = 200

1.5.21.3. **RFID ACS for Official Movements Detection.**

- 1.5.21.3.1. RFID ACS for Official Movement detection shall be done at 2nd Barrier Security office entrance at Kolonnawa.
- 1.5.21.3.2. The purpose of RFID ACS for Official Movement detection is to detect the official movement of the employees after reporting to duty.
- 1.5.21.3.3. System shall consist of 06 detectors (03 for registering exits, 03 for registering entries) with indication lights and audible alarms for security purposes to indicate access granted or denied. Each detector shall be able to capture the image of the card holder for recording purpose.
- 1.5.21.3.4. Proposed RFID ACS shall have capability to integrate with proposed PSIM for security operations requirements. In case of access denied, Black list detection alarm event should be tagged with the proposed IP based surveillance system to capture the video outputs from relevant Built in camera of detection unit. These alarms shall generate incident ticket at the CSCCS for further actions based on set SOPs by Security Department.

1.5.21.3.4.1. **Visitor Management**

RFID ACS for Visitor Management shall be fully equipped with Visitor Management module. System shall have visitor enrolment capability as per set SOPs by CPSTL. Visitor key shall be available as below formats.

- i. Smart Card Badge – Shall be obtained from Reception building as per visitor approval received by Security Department. Visitor shall produce identification document and copy of the relevant pass approval to obtain visitor Badge. Visitors will have limited access rights based on visitor pass approval. Enrolment shall be done through Pass section at Reception building.
- ii. Vehicle passes – Vehicle passes shall be obtained by Pass section as per primary pass approval document. Vehicle plate number shall be registered under visitor badge.

1.5.21.3.4.2. Contract Staff / Contractors / Sub-Contractors / Customer Management These user levels considered as short term or contract uses. Such enrolment shall be in line with the contract period. Once user signed CPSTL contact, such user can obtain passes from Pass section. Smart Card shall be automatically cancelled after completing the contract period.

- 1.5.21.3.5. RFID ACS detection shall be done at ground floor entrance to the terminal wicket gate at 1st Barrier Security office entrance at Kolonnawa.
- 1.5.21.3.6. The purpose of RFID ACS for Visitor Management detection is to detect the movement of the visitors after registering.
- 1.5.21.3.7. System shall consist of 04 detectors (02 for registering exits, 02 for registering entries) with indication lights and audible alarms for security purposes to indicate access granted or denied. Each detector shall be able to capture the image of the card holder for recording purpose.
- 1.5.21.3.8. Proposed RFID ACS Visitor Management shall have capability to integrate with proposed PSIM for security operations requirements. In case of access denied, Black list detection alarm event should be tagged with the proposed IP based surveillance system to capture the video outputs from relevant Built

in camera of detection unit. These alarms shall generate incident ticket at the CSCCS for further actions based on set SOPs by Security Department.

1.5.21.3.8.1. Color coding and Category Letter of Credentials (Access ID Badge)

Color coding category shall be printed on card to identify the user physically. Color code and Alphabet letters shall represent differentiate Credential users based on Department, Employee category and work zone for staff. Similar coding method shall be used to identify Contract staff, Contractors, Sub-contractors and Visitors. Such grouping tables will be provided by CPSTL during the project mobilization stage to the successful bidder. Bidder shall consider all cost implications for such RFID Badge printing.

1.5.21.3.8.2. **Proximity Card Detection Based Vehicle Management System for Road Tankers.**

This proposal shall include an Access Management System for Road Tankers using a Proximity Card Reader System. Proximity detection enabled ID Card for Tankers shall be issued after registering the Tankers Licenses plate as per contract period for private Tankers. CPSTL own Tankers shall have same ID Card registered under each Tanker. This is to mark entry time and exit time of each Tanker. Tanker ID Card shall be contactless Magnetic reader Proximity Card.

1.5.21.3.8.2.1. System shall support a minimum number of road tanker fleet of 800.

1.5.21.3.8.2.2. Proximity card detection units shall be provided at following locations.

- a) Arrival Vehicle Inspection Ramp Security Office Near 1st Barrier – Entry Detection
- b) Arrival Vehicle Inspection Gantry Near 2nd Barrier – Entry Detection
- c) Exit Gate Security Office Near the Laboratory – Exit Detection
- d) Gajabapura Security Office - Entry Detection
- e) Gajabapura Security Office - Exit Detection

1.5.21.3.8.2.3. In case of denied access, the system shall generate alarm in respective zone security office and CSCCS and the incident ticket shall be incorporate of the following.

- a) Video Footage clip of the incident
- b) ANPR details comes from ANPR system

1.5.21.3.8.2.4. The system shall consist of all the required software and hardware to support the integration

- 1.5.21.4. Integration of the attendance system with the existing SAP system, Implementation of the RFID based ACS at Muthurajawela Terminal and Bulk Depots shall be completed in second stage-
- 1.5.21.5. Contractor shall design the above system properly and submit a complete proposal along with the technical bid as per minimum specification requirements mentioned in this document.
- 1.5.21.6. Contractor shall carryout testing and commissioning of the complete system
- 1.5.21.7. Contractor shall provide training for CPSTL staff to on trouble-shooting, maintenance and operation of the system. The training shall cover the engineering training and operator training for the system offered.
- 1.5.21.8. Contactor shall enter comprehensive annual maintenance agreement including required manufacture recommended spares, with CPSTL after the warranty period is expired. The charges for such maintenance agreement shall be provided.
- 1.5.21.9. **Minimum Technical Specifications for Biometric Finger Print Attendance System, Access Control System (ACS) with RFID**

The technical specifications listed below are a guide to the bidder to design the system proposed. Bidder shall not be limited to the specifications mentioned. The proposed system shall be acceptable with the quality and features expected in the minimum technical specifications.

1.5.21.9.1. Biometric Wall Mounted Finger Print Scanner

Wall readers with Biometric capabilities shall be used at individual departments for staff attendance marking purpose.

Wall readers with RFID detection will be used at 1st Barrier and 2nd Barrier security offices to identify the official movements and visitor movements respectively

Biometric Reader/Enrollment Device Specifications

#	Item Description	Minimum Requirement
1	Finger Print Type	Single Flat
2	Resolution	500dpi / 256 Gray minimum
3	Speed	10Fps minimum
4	Communication	USB
5	Operating Power	USB Bus Power
6	Log Capacity	60,000 or Better
7	RFID Card Interface	13.56MHz/ Mifare/Desfire
8	Certification	CE, FCC
9	Country of Origin	UK / US / EU / Japan

RFID Reader specifications

#	Item Description	Minimum Requirement
1	CPU	High performing ARM 400MHz, 32bit CPU or better
2	Memory	128MB RAM + 32MB SD Memory
3	LCD Display	2.8" Colour LCD or Better
4	Communication	TCP/IP, Wiegand in/out, RS485, RS232
5	Maximum User Capacity	20,000 or Better
6	Log Capacity	60,000 or Better
7	RFID Card Interface	125KHz EM/13.56MHz/ Mifare/Desfire/Felica/HID Prox/HID iClass
8	Certification	KC, FCC, RoHS
9	Ingress Protection	IP 65 or Better
10	Power	Power over Ethernet
11	Country of Origin	UK / US / EU / Japan

USB Enrollment Reader shall be used at the HR department or assigned location by CPSTL for staff enrolment process. Provision shall be available to enroll staff at each Department readers as well.

1.5.21.10. **Web-Based OSS Software:**

System Management Software (SMS) software shall be a web-based software that facilitates the set-up, routine use and monitoring, as well as any updating and changing of access rights. Single software that support OFFLINE, Wireless & ONLINE wired access control system and compatible for seamless software integration with PSIM

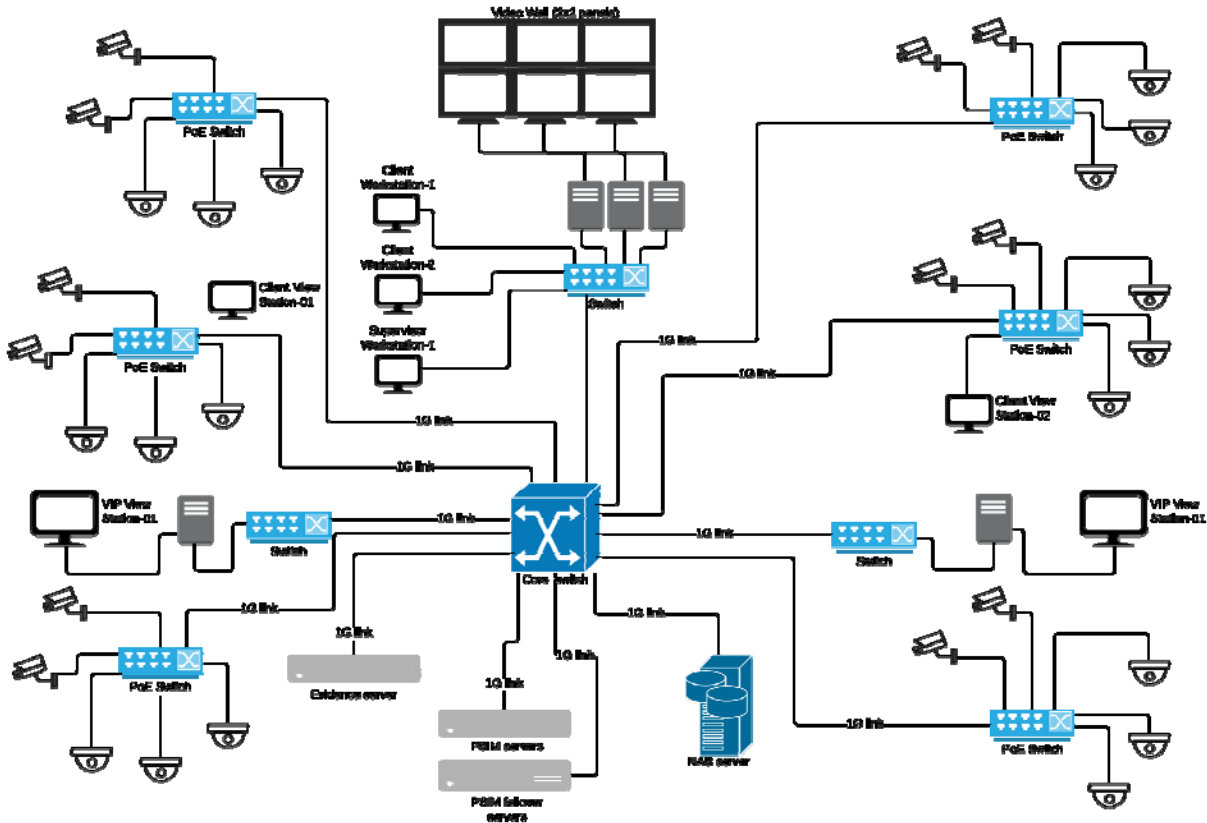
1.5.21.11. **Access Control Workstation PC Hardware and software.**

Provide at least one server in the Security Room or server room, located in the main Building. Each operator workstation shall incorporate the following features supplied as a complete system with minimum 12-month manufacturer warranty on all components, and minimum specifications as follow:

#	Item Description	Minimum Requirement
1	CPU	Intel i3 3.0 GHz processor or better
2	Memory	4Gb RAM
3	Display	17" flat panel LCD monitor
4	Ethernet	10/100/1000 BaseT LAN port
5	Operating System	Windows XP or better or Linux stable release
6	HDD	160Gb fixed HDD
7	Video RAM	64Mb video card (integrated)
8	USB ports	2 x USB2.0 ports or better
9	Keyboard	104 keyboard
10	Mouse	Optical mouse
11	Optical drive	CD-R/RW drive/burner
12	Database	SQL 2008 version or above
13	Anti-virus software	To be specified.
14	Additional software	All required application software to be mentioned
15	Power Supply	230V 50Hz Power supply
16	Printer	A4 colour printer

1.6. Minimum Technical Specifications IP Based Integrated Central Command & Control system

The technical specifications listed below are a guide to the bidder to design the system proposed. Bidder shall not be limited to the specifications mentioned. The proposed system shall be acceptable with the quality expected in the minimum technical specifications.



CPSTL IP Based Integrated Central Command & Control shall be based on the above concept diagram. IP Base Surveillance network shall be designed by the bidder considering the concept designed and the network bandwidth. Provided specifications diagrams are the guidelines for the bidders. Bidder shall provide the network diagrams with the technical bid documents along with the relevant specifications of listed components including compliance statement.

1.6.1. Outdoor Speed Dome PTZ IP Camera

#	Item Description	Minimum Required Specifications
1	Camera Type	True IP, High Performance, Day & Night Color Weather Proof Dome PTZ Camera
2	Imaging Device	1/2.8" CMOS Progressive Scan or better
3	Resolution	1920x1080 HDTV 1080p or Better
4	Min. Illumination	Color: 0.5Lux, B/W: 0.05Lux or Better
5	Focal Length (Zoom Ratio)	Minimum 4.5 ~ 135mm (Optical 30x) or Better
6	Focus Control	Auto / Manual / One shot AF
7	Auto Tracking	Yes
8	Backlight Compensation	Auto / Manual
9	White Balance	Auto/Manual
10	Wide Dynamic Range	120dB or better
11	Digital Noise Reduction	Bidder to Specify
12	Digital Image Stabilization	On/Off
13	Defog	Auto / Manual / Off
14	Video & Audio Analytics	As Specified in the Annexure
15	Shutter Speed	Minimum / Maximum (1 ~ 1/10,000sec) or better
16	Alarm Triggers	Alarm input, Motion detection, Video analytics, Network disconnect
17	Alarm Events	Bidder to Specify
18	Video Streaming	H.264 (MPEG-4 part 10/AVC), MJPEG - Multiple streaming minimum 3 profiles or Better
19	Frame Rate	H.264: Max. 25fps at all resolutions or Better
20	Edge Storage & Direct to storage streaming	Micro SD/SDHC/SDXC slot minimum 32 GB or Better - Continuous recording NAS (Network Attached Storage)
21	Application Programming Interface	ONVIF profile S/G, Open Application platform or better
22	Operating Temperature / Humidity	-35°C to +55°C Less than 90% RH PoE+
23	Ethernet / Power	RJ-45 (10/100 BASE-T) / 24V AC ±10%, PoE+ (IEEE802.3at, Class4)
24	Ingress Protection / Vandal Resistance	IP66, IP67, NEMA4X / IK10 or better
25	Certificates	Certificates conforming to relevant latest EN/UL/IEC/CE/FCC
26	MTBF (Meantime Between Failure)	90,000 hours or better
27	Warranty	3 Years or Better
28	Country of Origin/Manufacture	European, USA, UK, Japan

1.6.2. Explosion Proof Fixed IP Camera

#	Item Description	Minimum Required Specifications
1	Camera Type	True IP, High Performance, Day & Night Color Explosion Proof Dome Camera
2	Imaging Device	1/2.8" CMOS Progressive Scan
3	Resolution	1920x1080 HDTV 1080p or Better
4	Min. Illumination	Color: 0.1 Lux B/W: 0.02 Lux or better
5	Focal Length (Zoom Ratio)	4.3 ~ 129mm (Optical 30x) & Digital zoom 12x or better
6	Focus Control	Auto / Manual
7	Backlight Compensation	off / on
8	White Balance	Auto / Manual
9	Wide Dynamic Range	90dB or better
10	Digital Noise Reduction	Bidder to Specify
11	Digital Image Stabilization	Bidder to Specify
12	Defog	Auto / Manual / Off
13	Video & Audio Analytics	As Specified in the Annexure
14	Shutter Speed	Minimum / Maximum (1 ~ 1/10,000sec) or better
15	Alarm Triggers	Motion detection, Tampering, Face detection, Video analytics, Alarm input, Network disconnection
16	Alarm Events	Bidder to Specify
17	Video Streaming	H.264 (MPEG-4 part 10/AVC), MJPEG - Multiple streaming Up to 3 profiles or Better
18	Frame Rate	H.264 : Max. 25ps at all resolutions or Better
19	Edge Storage & Direct to storage streaming	Continuous recording NAS (Network Attached Storage)
20	Application Programming Interface	ONVIF profile S/G, Open Application platform or better
21	Operating Temperature / Humidity	-35°C ~ +60°C (-40°F ~ +140°F) / Less than 90% RH
22	Power Consumption	24V AC : Max. 28W (24V AC heater on)
23	Ethernet	RJ-45 (10/100 BASE-T)
24	Ingress Protection / Vandal Resistance	IP67, NEMA4X / IK10
25	Explosion Certification	ATEX (II 2 GD Ex d IIC T6 Gb, Ex tb IIIC T85°C Db) /IECEX or approved equivalent.
26	Certificates	Certificates conforming to relevant latest EN/UL/IEC/CE/FCC/ATEX/IECEX
27	MTBF (Meantime Between Failure)	90,000 hours or better
28	Warranty	3 Years or Better
29	Country of Origin/ Manufacture	European, USA, UK, Japan

1.6.3. Fixed Lens Indoor & Outdoor Dome Camera

#	Item Description	Minimum Required Specifications
1	Camera Type	True IP, High Performance, Day & Night Color Indoor/Outdoor Fixed Camera
2	Imaging Device	1/2.8" CMOS Progressive Scan
3	Resolution	1920x1080 HDTV 1080p or Better
4	Min. Illumination	Color: 0.5Lux, B/W: 0.05Lux or Better
5	Focal Length (Zoom Ratio)	2.4mm fixed or better
6	Focus Control	Manual / 12x Digital PTZ or better
7	Backlight Compensation	off / on
8	White Balance	Auto / Manual
9	Wide Dynamic Range	120dB or better
10	Digital Noise Reduction	Bidder to Specify
11	Defog	Off / Auto / Manual
12	Video & Audio Analytics	As Specified in the Annexure
13	Shutter Speed	Minimum / Maximum /Anti flicker (1 ~ 1/10,000sec) or better
14	Alarm Triggers	Alarm input, Motion detection, Video & Audio analytics, Network disconnect
15	Alarm Events	Bidder to Specify
16	Video Streaming	H.264 (MPEG-4 part 10/AVC), MJPEG - Multiple streaming minimum 3 profiles or Better
17	Frame Rate	H.265 / H.264 : Max. 30fps at all resolutions, MJPEG : Max. 30fps or Better
18	Edge Storage & Direct to storage streaming	SD/SDHC/SDXC slots 32Gb or Better - Continuous recording direct to NAS (Network Attached Storage)
19	Application Programming Interface	ONVIF profile S/G, Open Application platform or better
20	Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH or better
23	Ingress Protection / Vandal Resistance	IP67 / IK10
24	Certificates	Certificates conforming to relevant latest EN/UL/IEC/CE/FCC
25	MTBF (Meantime Between Failure)	90,000 hours or better
26	Warranty	3 Years or Better
27	Country of Origin/Manufacture	European, USA, UK, Japan

1.6.4. ANPR Bullet Outdoor Camera

#	Item Description	Minimum Required Specifications
1	Camera Type	True IP, High Performance, Day & Night Color Indoor/Outdoor Fixed Camera
2	Imaging Device	1/2.8" 2M CMOS
3	Resolution	1920x1080 HDTV 1080p or Better
4	Min. Illumination	Color:0.5 Lux, B/W:0Lux (IR LED on)
5	IR Viewable Length	Minimum 30m or above
6	Focal Length (Zoom Ratio)	6 ~ 12mm (Optical 12X) or better as per ANPR requirements
7	Focus Control	Auto / Manual / One shot AF
8	Backlight Compensation	off / on
9	White Balance	Auto / Manual
10	Wide Dynamic Range	120dB or better
11	Digital Noise Reduction	Bidder to Specify
12	Digital Image Stabilization	Bidder to Specify
13	Defog	Off / Auto / Manual
14	Video & Audio Analytics	As Specified in the Annexure
15	Shutter Speed	Minimum / Maximum /Anti flicker (1 ~ 1/10,000sec) or better
16	Alarm Triggers	Alarm input, Motion detection, Video & Audio analytics, Network disconnect
17	Alarm Events	Bidder to Specify
18	Video Streaming	H.264 (MPEG-4 part 10/AVC), MJPEG - Multiple streaming minimum 3 profiles or Better
19	Frame Rate	H.264 : Max. 60fps at all resolutions, MJPEG : Max. 30fps at all resolutions
20	Edge Storage & Direct to storage streaming	SD / SDHC / SDXC Slot minimum 32GB or better - Continuous Recording direct NAS (Network Attached Storage),
21	API	ONVIF profile S/G, Open Application platform or better
22	Operating Temperature / Humidity	-35°C ~ +55°C (-40°F ~ +131°F) / Less than 90% RH
23	Power	24V AC, 12V DC, PoE (IEEE802.3af Class3)
24	Ingress Protection / Vandal Resistance	IP67, NEMA 4X / IK10 or better
25	Certificates	Certificates conforming to relevant latest EN/UL/IEC/CE/FCC
26	MTBF	90,000 hours or better
27	Warranty	3 Years or Better
28	Country of Origin/Manufacture	European, USA, UK, Japan

1.6.5. Typical Camera Poles for External Camera

#	Item Description	Minimum Requirement
1	Height	As per the location should varies from 3.5M to 6M Height
2	Surge Protection	should install to minimize the lightning related damages
3	Pole Diameter	110mm minimum hot dipped galvanized for ASTM A123/A123M or better
4	Pole Mounting Box	Pole mounting bracket and tie raps
	Mounting based	Pre-Cast or fabricated Should be minimum 1m below the ground level
	Earthing	The camera pole shall be properly earthed to below 3 Ohms

1.6.6. Power Over Ethernet Switches/Injectors/Extenders

#	Item Description	Minimum Required Specifications
1	Type	Power Over Ethernet Switch
2	I/O ports and slots	Number of POE Ports and slots shall be decided by the bidder to support the number of cameras to be connected including 25% spare slots. The ports shall be 10/100MBPS as required by the field devices and cameras. Each network switch shall have dual uplink 1000Mbps SFP ports for Redundant Fiber network. Number of access switches shall be decided to satisfy above requirement and field conditions.
3	Configuration of Ports	The I/O ports shall support fiber optic or Category 6 UTP medias as per the design requirements. Suitable media convertors or POE Extenders shall be used if required.
4	Pole Mounting Box	Pole mounting bracket and tie raps
5	Maximum Frames per Second	30 Frames Per Second
6	UPS Power	AC 230V, 50Hz
7	Warranty	3 Years Manufacturer's Warranty and Support
8	Certificates	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
9	Brand & Model	Should be brand from a reputed company with local presence.

1.6.7. Video Stream Management & Physical Security Information Management Software (PSIM)

By considering cost effectiveness, Low Maintenance and reliability with low level of failure possibilities state of the art direct to storage architecture can be considered as the most suitable solution. Eliminating server based stream management, direct architecture shall provide camera level management with live recording stream direct to storage and live monitoring stream direct to PSIM software platform. PSIM shall provide client based management and PSIM servers shall be capable of handling alarm management and response management.

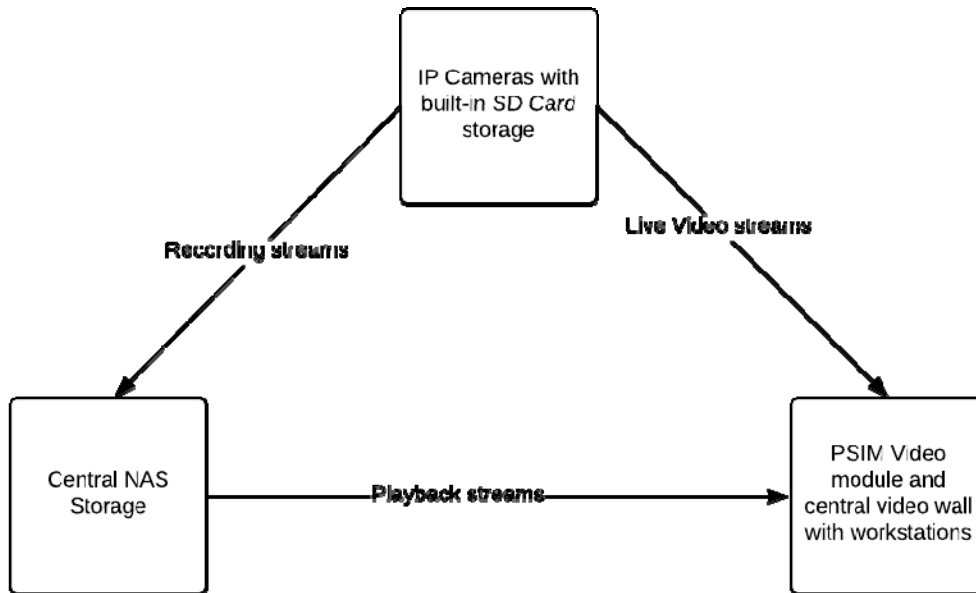
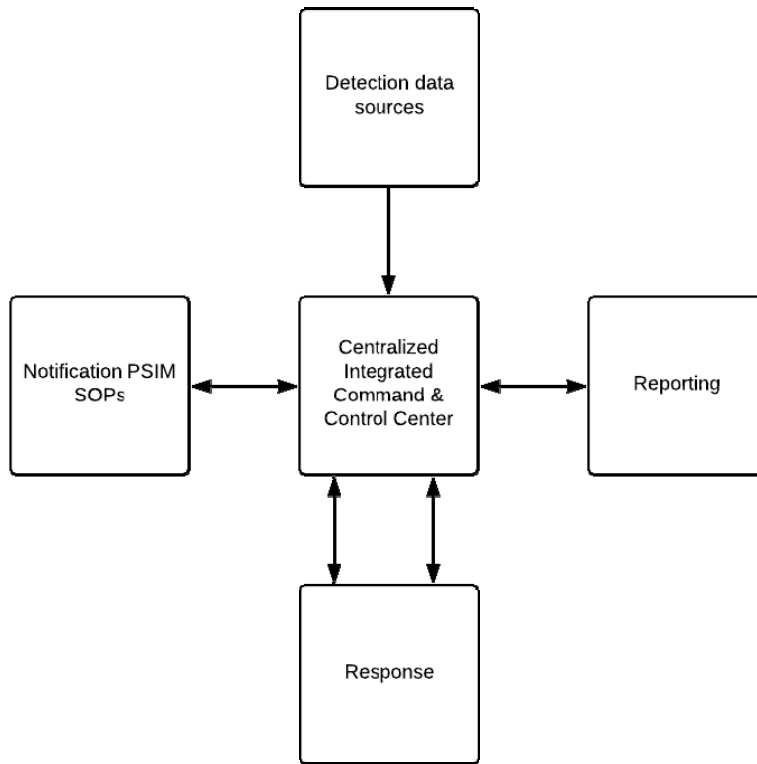


Diagram of server less Architecture

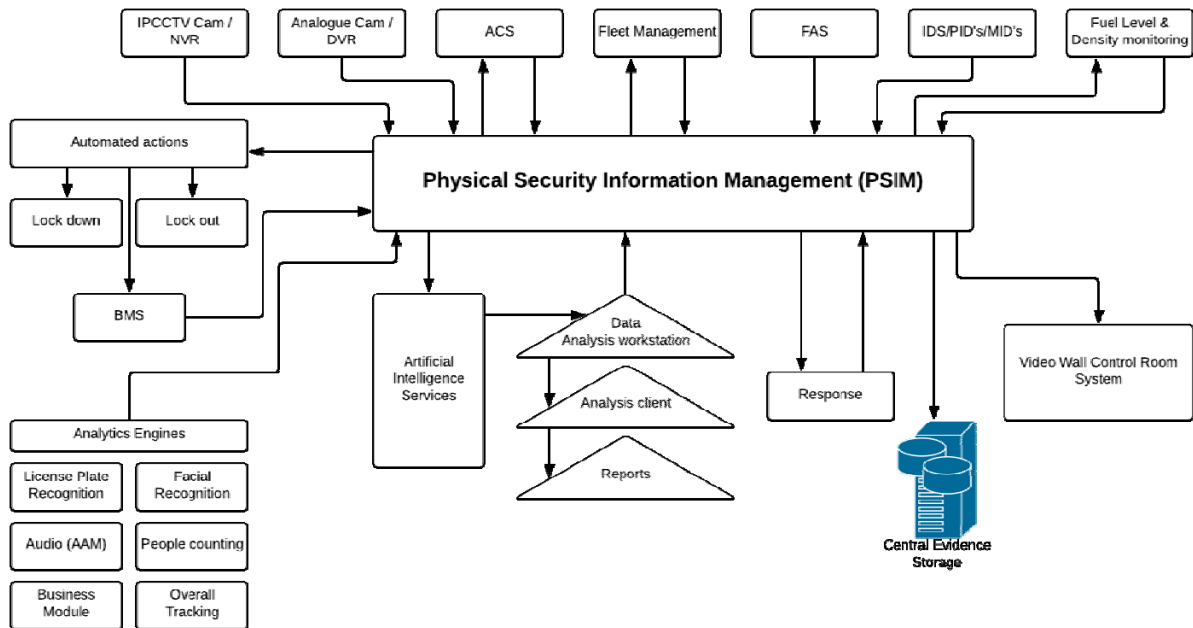
- 1.6.7.1. Each IP Camera shall be equipped with minimum 32GB SD card for EDGE recording purpose in case of network failure. Proposed EDGE storage capacity shall be sufficient enough to record 1080p @ 15fps video for minimum 48hrs. Bidders shall propose suitable SD card capacity based on storage calculations and shall attached such calculations with technical bid document.
- 1.6.7.2. Proposed cameras shall be capable of managing video streams at camera level and the bidders shall provide utility software licenses if required to activate such processing at camera level. This process shall not limit the maximum streaming profile capacity of cameras.
- 1.6.7.3. Proposed utility software shall have basic VMS function which can be installed in any laptop or PC only for video monitoring purpose if required by CPSTL. Such software shall be equipped with below functions.
 - i. Live monitoring with single and split screens up to 9 cameras per screen.
 - ii. Playback function, pause, stop, fast-forward, rewind, play next or previous file from multiple channels and multiple storages.
 - iii. Such VMS function incorporates easy to use time-bar system.
 - iv. Post-recording Digital Pan-Tilt-Zoom supported, including 360 view de-warping.
 - v. Easy Drag and drop Camera Streams into the Playback window shall enable the Media Time based data and display the available Recorded Media. Easy Use the Media Buttons should locate Video without fail.

1.6.7.4. Physical Security Information Management (PSIM) Software.



Concept of PSIM is to centralize all systems in to one control command center with fully integrated features where all systems can work as one solution for fast and efficient response and incident management. PSIM solutions are based on Four pillars and one central core as showing on the above diagram. The propose PSIM shall be modular based system with no individual device licensing based and all licenses provided with PSIM shall be perpetual. This will reduce considerable cost on the system. For future saving, the system shall be shared with other CPSTL entities without any recurring cost. The system shall work as central command and control for all CPSTL entities and shared with different departments as per their operational requirements.

- A) The core operator system interface will be an open platform PSIM application system that is structured around a series of software modules that can act independently or together in a uniformed manner to deliver all the requirements to the Security Control Room.
- B) The PSIM application system shall be an efficient, scalable, easy to use, video command and control management system. The system shall seamlessly integrate with multiple manufacturer's analogue equipment & digital IP equipment, IPCCTV, IDS, PIDs/MIDs, FAS, ACS, FMS, Fuel Level & Density Monitoring, BMS, SCADA, Communication Systems etc to enable a fully featured operator software platform.
- C) PSIM System Architecture
Single server based and SQL data based solution with workstation level operation. This solution shall cater multiple users at CPSTL with pre-defined access rights per users. Such system shall be capable of handling multiple cause and effects based on set SOPs and KPIs.



Concept Diagram of PSIM Application

- D) The PSIM application system shall have a Client/Server infrastructure and will utilize three screen operator layouts, as per the enclosed layout diagram.
- E) Hardware shall be connected to the GUI via standard TCP/IP LAN connections. The LAN connection shall be via a Network Switch. All hardware supplied will be via internationally recognized suppliers and represent best of breed capability.
- F) The requirement for the PSIM application system is a key component of the control room delivery and will provide the centralized modular, unified and intuitive user system.
- G) As the open platform PSIM application system is the centralized mission critical element of the system there are several essential components that the system must currently have developed, deployed and proven on exiting sites with the ability for the client to visit and discuss these applications with the existing provider (if required)
- H) The ability to develop these interfaces in unacceptable and solutions proposed without fully developed, deployed and proven interfaces on exiting sites and/or that are non or partially compliant to full specification issued will be disqualified from the tender process.
- I) The proposed system should provide direct integration with IP cameras specified in this project and recording devices using the manufacturers Software Development Kit (SDK) to ensure that all available functionality is available and supported for the devices.
- J) Incident Management, KPI and Reporting functionality should be integral to the core security management application and separate installable software entities are not acceptable.

- K) The integrated PSIM system and its associated integral incident management should not have any limitations regarding system users or administrators/managers
- L) The integrated PSIM software manufacturer should demonstrate that a technology partnership is in place with any camera, any system and recording manufacturer(s) where integration is required to ensure end to end compatibility and support of the complete solution.
- M) The integrated PSIM software manufacturer should provide details regarding the development resource available to ensure that all development is performed in-house and not ‘outsourced’ for future risk mitigation.
- N) The integrated PSIM software manufacturer should provide details regarding the amount of technical engineering/support resource available including geographic coverage to ensure adequate technical support coverage is available.
- O) The integrated PSIM system shall provide the ability to add Video Clips to an active incident where the camera was not automatically selected as part of an incident and the system shall provide the ability to burn video footage directly from an active incident record.
- P) The integrated PSIM system shall provide the ability to seamless connect to Proposed Access control system in this document. This will be a mandatory requirement and any major development is not acceptable.
- Q) The integrated PSIM system shall provide the ability to seamless connect to Alarm management and Intruder detection systems (inbuilt into core system software) not limited to IDS and PIDs for future integrations.
- R) The integrated PSIM system shall provide the ability to seamless connect to Asset management and tracking systems (inbuilt into core system software) for future integrations. The system shall incorporate with Fuel Level and Density monitoring where necessary during future phases.
- S) The proposed PSIM system shall provide the ability to seamless connect to Building management system (BMS) integration during future phases to connect the systems such as energy, lighting, lifts, HVAC to enable the connectivity, evaluation and reporting and provide a live system dash board.
- T) The integrated PSIM system shall provide the ability to seamless connect to a Check call system (Lone Worker) inbuilt into core system software. This is to monitor remote security staff for their safety.
- U) The integrated PSIM system shall provide the ability to seamless connect to an Energy management system integration to enable the connectivity, evaluation and reporting on rooms, building floors, whole building and multiple buildings and provide a live system dash board (inbuilt into core system software) during future expansion phases.
- V) The integrated PSIM system shall provide the ability to seamless connect to Fire management systems during future development phases.

- W) The proposed PSIM system shall provide the ability to seamless connect to GPS and 3G live device tracking systems including interfaces to MapInfo, Ordnance Survey and Google Earth (inbuilt into core system software)
- X) The integrated PSIM system shall provide the ability to seamless connect to Intercom and VoIP systems.
- Y) The system shall provide the ability to seamless connect to Incident management system including full auditing to cover all aspects of the Data Protection Act 1998 along with performance indicators and in-house check reporting and provide a live system dash board
 - Full incident management functions detailed below
- Z) The system shall provide the ability to seamless connect to Key management systems (inbuilt into core system software)
 - Full key management functions detailed below
- AA) The system shall provide the ability to seamless connect to Lone worker systems (inbuilt into core system software)
 - Full lone worker functions detailed below
- BB) The proposed system shall include hardware and software required to seamlessly connect to RFID system and Existing SAP for Time Attendance purpose. The software integration with SAP system may take place during a future phase of the project.
- CC) The system shall provide the ability to seamless connect to Vehicle tracking systems including integration to TOM TOM works during future phases.
 - Full vehicle functions detailed below
- DD) The integrated PSIM system shall provide the ability to seamless connect to Visitor management systems (inbuilt into core system software)
 - Full visitor functions detailed below

1.6.7.5. IT Infrastructure Requirements for PSIM Implementation

i. IT INFRASTRUCTURE

- a) Server platforms: Microsoft Windows Server 2012R2 or above
- b) Client platforms: Microsoft Windows 7 or above
- c) Browser technology: Microsoft Internet Explorer 10
- d) Application Database: Microsoft SQL Server 2012 R2 or above
- e) Database Access: Any ODBC compliant database
- f) Email servers: SMTP

ii. Network Infrastructure

The open platform integrated PSIM application system shall utilize the capability of the designed network infrastructure by the bidder, taking full advantage of networks that provide:

- a) Support for over 1000 multicast video streams
- b) UDP and TCP protocol support.
- c) Fully managed, redundant layer three network capable of IGMP V1, 2 and 3 covering core and edge switching.
- d) Virtual LAN capability.
- e) Quality of Service marking support (Differentiated Service Code Points).

- f) Gigabit backbone.
- g) The onsite LAN network shall not be based on point to point SDH (synchronous digital hierarchy), MPLS (multi-protocol layered switching) or ATM (asynchronous transfer mode). It must be based on IP end to end.
- h) Any network-connected equipment shall operate at 10/100 Mbps with the exception of the servers and workstations which shall operate at 10/100/1000 Mbps.

1.6.7.6. PSIM hardware specifications.

1.6.7.6.1. Minimum Server Specifications PSIM Base server (active-standby mode):

#	Item Description	Minimum Required Specifications
1	Processor Type	Intel Xeon Processors or Better
2	RAM	32GB Memory Per CPU or better
3	Mounting Type	Rack mountable
4	Minimum Storage Capacity	4 x 4Tb Hard Disk Drives
5	RAID Controller	RAID Controller Card (Raid 5 or 10 Compatible)
6	DVD-ROM	16X DVD-ROM Drive
7	Power Supplies	High Power Redundant Power Supplies. 230V 50Hz UPS Power
8	Network	Redundant 1G (1000 Base-T) Network ports
9	Microsoft SQL Server	2012R2 Standard or above, plus required Cals. or above
10	Windows Server	2012 R2 SP1, Standard Edition or above, plus required Cals or above
11	Brand & Model	Should be a brand from a reputed company with local presence.
12	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
13	Manufacturer Warranty	3 Years Manufacturer's Warranty and Support

1.6.7.6.2. Minimum Server Specifications PSIM Evidence Locker (Incident Management) server (active-standby mode).

#	Item Description	Minimum Required Specifications
1	Processor Type	Intel Xeon Processors or Better
2	RAM	32GB Memory Per CPU or better
3	Mounting Type	Rack mountable
4	Minimum Storage Capacity	4 x 4Tb Hard Disk Drives
5	RAID Controller	RAID Controller Card (Raid 5 or 10 Compatible)
6	Power Supply	High Power Redundant Power Supply. 230V 50Hz UPS Power
7	Network	Redundant 1G (1000 Base-T) Network ports
8	Windows Server	2012 R2 SP1, Standard Edition or above, plus required Cals or above
9	Brand & Model	Should be brand from a reputed company with local presence.
10	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
11	Manufacturer Warranty	3 Years Manufacturer's Warranty and Support

1.6.7.7. PSIM Functionality

A) Digital Recording Systems.

The open platform integrated PSIM application shall be able to control, playback, retrieve video from any industry recognized digital recording systems. It will enable integration to multiple manufacturers systems for recording and playback of media which will be completed in the same format using one single interface.

B) The open platform integrated security application system shall be able to control recording systems and Live feeds directly from Cameras and NAS system.

C) Evidence Storage

- i. An evidence storage shall be provided that can be maintained and managed by a System Administrator with automatic notifications been sent to the corresponding users with correct priority levels.
- ii. The storage of the media will be placed on the native hardware platform within the scheme and accept downloads from Network Attached Storage system directly. The media will be accessible by multiple authorized workstations either via Review, Operator or Supervisor stations.

D) Evidence Server

Evidence Server shall be the server contain incident reporting files as per actions taken by operators, Security Response teams etc as per set SOPs. Each incident ticket will create an incident log file with relevant event and action information as below.

- i. Incident trigger information with date, time and location.
- ii. Tagged video footage at the time of reported event or Operator can tagged any video footage relevant to the incident while investigating.
- iii. Recorded actions by the operator along with Operator screen recording footage tagged with the incident file. Operator screen will get recorded in to a Mini NAS system as mentioned in below diagram and shall tagged with the incident file for future investigation, KPI Evaluation and Training purposes.

iv. NAS System Specifications (for evidence storage)

#	Item Description	Minimum Required Specifications
	GENERAL	
01	Storage array type	Networked attached sequential disk array
02	Drive bays	8 x 2.5” SATA (disk trays included)
03	Interface	Minimum two Gigabit Ethernet ports
04	Data throughput	Effective throughput of 400Mbit/sec or better
	SYSTEM	
05	Operating System	Should be embedded Linux/Unix for better performance
06	Time synchronization	Via NTP (recommended)
07	System integration	Embedded Software for video recording integrated with PSIM
08	Configuration	Over the LAN via Management application.
	CAPACITY	
09	Drive bays Maximum capacity (with 5TB disks)	Raw – 40TB, Effective – minimum of 35TB. (Mirrored overlapping pair mode)

	POWER	
10	Power supply	12V DC, 3A external PSU
11	Power consumption	16 watts
	PHYSICAL/ENVIRONMENTAL	
12	Drive Failure Rate/year	0.74%
13	Operating temperature	5°C to 50°C (41°F to 122°F)
14	Relative humidity	Up to 85%, non-condensing.
15	Compliance Certification	CE, FCC, RoHS.
16	Country of Origin	UK / US / EU / Japan
17	Country of Manufacture / Assembled	Bidder to specify
18	Manufacturer Warranty	5 Year including provided hard drives

1.6.7.8. PSIM Features and Operations

The open platform integrated PSIM application system Client Application control screen will contain the following functionality; all functionality shall be offered in a modular format:

I. Events Panel.

A fixed area (configurable on setup) that displays all event driven information such as, but not limited to, alarm inputs, access control notifications and hardware failures.

II. Mapping and Navigation Panel.

A mapping area panel depicting either and/or multiple sources such as GIS, CAD, jpeg or bitmap images and web based maps such as Google Maps. The maps support multi layer drill down functionality with hyperlinks for intuitive navigation across the maps. The mapping function will support zoom functions either by clicking a selected area or via arrows.

Map icons shall include, but not be limited to, the selection of cameras, doors, registers, alarm points, bollards, barriers etc.

III. Camera Selection Panel

Camera selection can be presented in numerous formats from Zone/Scheme to Area/Street; via camera number, camera name or by selection on the map. Camera selection can be limited in the User Profile list.

IV. Incident Panel.

A list of live and recently recorded incidents shall be available for instant selection by operators.

V. Join Incident

Placed on the open platform integrated security application system is the ability to join a live incident that another operator has created and is involved in. By joining the incident all footage and actions are tagged onto the same incident.

VI. Monitor Layout Panel

Available at all times is the current configuration of the operator’s screens, these can be changed to suit each operator and tied to their profile.

VII. Functional Icons

A fixed area shall be allocated for the selection of commonly used icons, these can include, but not limited to, bollards, barriers and doors. The System Administrator shall be able to assign functions and devices.

- VIII. Maintenance/Fault Logging
The ability to log a fault or maintenance visit, with warnings presented to the operators via an Organizer screen. Reports are created to show faulty items of equipment, time taken to fix etc. Automatic emails are generated and distributed to predefined lists.
- IX. Full Incident Management
View, Add, Edit and Deletion of Incident provided via correct Access Rights. Logging of information on Incident Category, Call Source, Activity Type, Description, Actions Taken, People Involved, Responses (such as Police, Fire or Ambulance), Tasks, Daily Log Entry, Mapping Hot Spot, Result and Media/Cameras Used.
Report generation for all aspects of the form shall be provided.
- X. Video Replay/Retrieval
Replay and review of footage shall be allowed from any workstation, given the correct privileges. Regardless of manufacturer the replay will be done in the same format enabling downloads from all sub systems and NAS Recording.
- XI. Media Management and Tracking
The burning of disks and replication of media shall be tracked and noted within the system to provide a full audit trail.
- XII. Visitor Log
Logging of visitors within the control room can be done with the capture of digital signatures.
- XIII. Mapping Hot Spot Analysis
Cluster mapping analysis shall be provided to allow the graphical representation of hotspots over a custom data set. Information overlay onto the mapping system shall include, but not be limited to, incident data, camera data and person data.
- XIV. Repeat Visitors log
A full repeat visitor database shall be included in the client application to provide easy access and identifying of known visitors. Data to include description, pictures, incident details, vehicles and associates.
- XV. Contact Directory
Phone book including contact to companies, people and key holders.
- XVI. Macros and Tours
Patrols of cameras, video wall layouts and other macro defined operations shall be catered for.
- XVII. Setup and System Settings

Data and user parameters are accessed and set within the System Administrator Section. Areas include, but not limited to, password setup, user profile, system lookups, camera patrol setup and hardware setup.

- XVIII. Full Camera/Recording Equipment Details
Camera setup will allow the selection via the client control screen, denote make, manufacturer, fault history and connection. Recording devices shall share common fields such as make, connectivity, frame rate recording and location.
- XIX. Spot Monitor and Display Wall Control
The monitor wall shall be controlled via the monitor wall panel. This shall enable the selection of pre-programmed display layouts; also allowing the selection of cameras to the wall via the operator desk. The selection of screen layouts shall be available with automated camera routing to provide desired camera images, mapping and data display scenarios.
- XX. User Creation/Profile and Priority Levels
Creation of users will include profile, username, password and priority level.
- XXI. Priority Levels
Priority Levels will be set to equipment notifications, alarm inputs and user levels. The level range will go from 1 to 1,000 with 1 being the high level. Levels are set to:
Alarm (fire, intruder, access control etc) inputs
Operator levels
- XXII. Joystick Controller
Selections of joystick controllers are provided. All are ergonomically designed for comfort and ease of operation; highly rugged, accommodate left and right handed users, contact less, industrial grade, variable speed pan and tilt control.
- XXIII. Audit/Database Searching
Full auditing provided to cover all aspects of the Data Protection Act 1998 along with performance indicators and in-house check reporting.
- XXIV. Incident Reporting
The system shall include over 250 search and report options covering all facets of the system; user generated reports shall also be included.
- A) The system shall trigger an incident report via an operator action, this shall be an action usually activated by the operator selecting an incident button either; on-screen, via a keyboard button or via a joystick button. When the incident button is triggered, the system shall start to record the operator's actions; the system automatically starts an incident report and completes which cameras have been used, the location on the camera and sub categories' into zone/scheme/area/street and time of incident.
 - B) The open platform PSIM security application system shall allow two or more operators to work on the same incident, at the same time. A second operator shall simply click a virtual button on their screen to join the incident.
 - C) When the incident button is triggered the footage of operator screen shall automatically recorded and tagged the system presents to the operator pre and post event footage to attached NAS (NVR).

- D) The open platform integrated PSIM security application shall decode multiple video channels from many sources, and display these on video walls or spot monitors. They also shall allow instant playback access to archived video, and this shall be replayed alongside live video feeds.
- E) The system shall have over 150 graphically enriched reports that can be scheduled to run automatically and emailed out to recipients. Plus, advanced search and reporting tools, shall allow the clients to build their own reports. Additionally, the open platform integrated security application provider shall also provide assistance and a custom report writing service.
- F) Reports can be scheduled to run automatically and emailed out to recipients.

1.6.7.9. Incident Reporting Key System Features

Automated interface to CCTV User Group KPI

- I. Incident management
 - A) User definable categories
 - B) Automatically generate SMS alerts for important categories
- II. Operator activity capture and analysis
 - Includes automated camera patrol tracking
- III. Repeat visitor or suspect profiling
 - A) Advanced search facilities
 - B) ASBO (Anti-Social Behavior Orders) records including boundary shown on map
- IV. All the requirements of the data protection act including
 - A) Observation requests
 - B) Internal and external viewing records
 - C) Movement records
 - D) Destruction records
 - E) Media movement management
 - F) Visitor log
 - G) Electronic signature capture
 - H) Electronic non-disclosure agreement capture
 - I) Video print record
 - J) Camera & equipment records
 - K) Fault & maintenance history
 - L) Re-deployable camera use audit trail
 - M) Easy to use
 - N) Simple windows interface
 - O) Network ready
 - P) Encrypted evidential audit trail
 - Q) Extensive analysis
 - R) For example by camera, operator, location (shall be able to split down to 4 different levels of geo- roll up)
 - S) Map based analysis showing hotspots
 - T) Colour graphs
 - U) Extensive pre-configured reports
 - V) Fault & maintenance management
 - W) Predictive maintenance visit scheduling
 - X) Supplier performance management
 - Y) Critical fault tracking

- Z) Control room activity diary/organizer with ‘pop up’ reminders
Subject Access Request (SAR) management with critical date reminders
Intelligence gathering via SMS public interface
- AA) Lone worker ‘down’ alarm

1.6.7.10. To support future system growth and expansion the system must as minimum support the following additional functions.

Alarm Handling

- A) The open platform integrated PSIM security application shall enable connectivity to intruder alarms, PIR detectors, PIDs, void property systems, Fuel Level and Density analytics engines, BMS, SCADA, Crisis Management, PA/Communication systems, climate control technology, asset tracking / Fleet Management systems, lone worker panic alarms, automated traffic bollards, help points and access control systems.
- B) The system shall integrate CCTV monitoring functions to allow visual verification to reduce false alarm scenarios.
The open platform integrated security application system shall pre-priorities alarms, according to different criteria. Also, the alarm stack is presented to the operator in an easy-to-understand format, clearly and efficiently, as part of the integrated solution.
- C) The open platform integrated PSIM security application shall include a response planning section and a comprehensive opening / closing schedule. On accepting an alarm, the system presents to the operator pre and post event CCTV footage with streams from the appropriately located group of cameras associated with the alarm.

1.6.8. CPSTL Central Video Data Storage System

1.6.8.1. System Type

The System shall be a (NAS) network attached hard disk array specifically designed for video surveillance storage. The System shall be designed specifically to increase the reliability of hard disks by mitigating the factors which typically cause them to fail and shall thus enable the use of very low-cost drives. Further, the System shall be designed specifically to be ideal for very high capacity (using the largest disks available) and for very long file retention times (switching off disks not being accessed) and for extremely low power consumption.

The System shall require no specific IT storage system skills to configure and operate and shall require little or no maintenance in normal operation.

1.6.8.2. Disk Type

The System shall be capable of using any type of SATA hard drive of any capacity, including the latest very high capacity archive-style SMR (Shingled Magnetic Recording) drives of 8TB and above, without compromising performance.

1.6.8.3. Zero Data Loss On Writing Disk Failure

No data shall be lost during the writing process in the event of a disk failure. All writing processes shall be mirrored, thus the System shall have data redundancy during the

writing process. The System shall be configurable to respond to the event of a writing disk failure in one of two ways :

- a) To immediately step to the next pair of disks in the sequence and re-commence writing (buffering data until writing re-commences on the new pair)
- b) To complete writing to the remaining space on the current drive, and only then to step to the next pair of disks in the sequence.

1.6.8.4. Simple Disk Management

The system shall provide simple and straightforward disk management, including the extraction of recorded disks, insertion of new disks, replacement of recorded disks, and expansion of capacity both by insertion of additional disks if free slots are available and by upgrade of individual disk capacities (swapping lower capacity disks for higher-capacity disks). All of these operations shall not require disk configuration, rebuild or anything other than simple disk extraction and insertion.

1.6.8.5. Windows Readable Partition For Player Software

As a user-configurable feature, each disk used in the System shall optionally include some form of player software which can be used in the event of a disk being removed from the system and connected to a PC via a USB drive cradle or similar.

The System shall have a portion of solid-state memory to which player software can be written via the software management tool. The system shall automatically generate a very small Windows-readable partition on each disk inserted into the System and shall automatically write the player software into this partition if the player software is present in the System. This shall result in the player being accessible for execution from, or installation to, the Windows system to which the disk has been connected. The player software shall contain the necessary features to read the Filing system and thus to play back the recordings, if and only if the correct credentials are presented.

1.6.8.6. Indication Of Disk Failure

In the event of a disk failure, a red LED shall illuminate over the drive bay containing the failed disk, allowing simple identification of the disk to be replaced. As a user-configurable option, a relay output shall be triggered in the event of a disk failure.

1.6.8.7. Power Consumption and Power supply

In normal operation, the System power consumption shall be less than 60 watts, irrespective of the number and type of hard disk drives fitted. The system power supply shall be a dual-module, dual 300 watt hot swappable PSU type and shall be capable of running all the disks all the time, should this be required. Even in this mode, the power consumption shall be less than 120 watts. Detailed specifications are provided in Power Specifications.

Upon start-up, to avoid an initial high spike in power supply current, disks will be started up and checked in series, rather than in parallel. The same start-up-in-turn process will happen in normal operation when the system receives a command to switch on all disks for search purposes. Whilst the power supply shall be capable of powering all disks at once, this technique shall avoid stress on the PSU and increase the lifetime of the PSU components.

Low power consumption is considered to reduce the cost of UPS, Cooling, Infrastructure and OPEX.

1.6.8.8. Embedded Playback Software

- a) The System permits the removal of recorded disks. The video, audio and other data recorded on these removed disks shall be playable when the disks are connected to a Windows PC (Win 7 or later) through a USB connection, assuming the third party VMS supports this level of integration, by providing a compatible Media Player Application in an executable or installable form.
- b) The Management system shall provide a means of uploading such a Media Player Application to the System. The System shall store this file or these files in on-board non-volatile memory. The System shall automatically copy the Media Player Application files to a Windows-readable disk partition on every disk written to by the System. Thus every disk recorded by the system shall include a copy of the Media Player Application (if available) and therefore playable when the disk is connected to a Windows PC.
- c) The System Manufacturer shall provide a suitable Media Player Application for certain types of VMS files. A suitable USB disk docking station compatible with disks removed from the storage array shall be available as an optional extra.

1.6.8.9. Video Storage Technical Specification

#	Item Description	Minimum Required Specifications
	GENERAL	
01	Storage array type	Networked attached sequential disk array
02	Drive bays	15 x 3.5" (lockable drive trays included)
03	Interface	Dual Gigabit Ethernet
04	Data throughput	800Mbit/sec (unlimited scalability with multiple units)
	SYSTEM	
05	Operating System	Embedded Linux on solid state memory.
06	Time synchronization	Via NTP (recommended)
07	System integration	Direct from 3rd party client application (SDK & network protocols available).
08	Configuration	Over LAN via Storage Management application.
09	Management	By front panel, or over LAN via Storage Management application.
	CAPACITY	
11	Disk Capacity	SATA disks of any capacity and any makes and models. (Max is 12TB, likely to increase)
12	Array capacity	Maximum array capacity - 180TB (with 12TB) Effective capacity - 168TB Effective capacity - Mirrored Pair - 90TB
	ALARMS	
13	Alarm relays	4 software configurable e.g. disk fail, disk inserted, disk extracted, etc.
14	Alarm inputs	4 software configurable e.g. UPS active, power down, etc.
	POWER	
15	Power supply type	Dual hot-swap PSU

16	Power supply rating	110-240V AC Input (Auto sensing)
17	Power consumption	90 watts typical maximum or Better (PSU rated at 320W)
	PHYSICAL/ENVIRONMENTAL	
18	Drive Failure Rate/year	Minimum 0.80% or Better
20	Operating temperature	5C to 50C (41F to 122F)
21	Relative humidity	Up to 85%, non-condensing.
22	Compliance Certification	CE, FCC, RoHS.
23	Country of Origin	UK / US / EU / Japan
24	Country of Manufacture	Bidder to Specify
25	Manufacturer Warranty	5 Years including provided hard drives

1.6.9. System Health Monitoring

System health monitoring tool shall be available with the integration of PSIM. Specially for IPCCTV Solution. Considering the network complicity and load at the head end, a monitoring system shall be provided at IT Department to form live system monitoring.

1.6.9.1. Hardware and software solution shall be provided by the bidder for system health monitoring.

1.6.9.2. Proposed solution shall be capable to monitor Storage devices & attached IP Cameras including but not limited to the below requirement.

- A) Storage monitoring up to the core level of hard drives.
- B) Network Throughput monitoring
- C) System shall be capable of monitoring minimum up to 40 storage devices grid display.
- D) Filed drives, Filing Drives, retrieving drives, writing drives shall be indicate using a colour code.
- E) System shall generate alarm in case of power failure, Drive Failure, Network disconnection etc.
- F) IP Camera network monitoring, Camera status, Camera IP Status monitoring, Camera disconnection and Camera Bandwidth.

1.6.9.3. System shall equip with minimum 2 x 32” monitor and 2 x NUC PC. Monitor shall be wall mounted in a suitable place at IT Department specified by CPSTL Engineer.

1.6.9.4. System warranty minimum 3 Years.

1.6.10. Video Wall Solution

The Video wall controller shall utilize standard supplied hardware from recognized suppliers and represent best of breed capability. The management of the Monitor wall shall be done via ‘built in PSIM software modules allowing the creation, manipulation and management of multiple layouts.

Standard Monitor Wall configurations shall be, but not limited to:

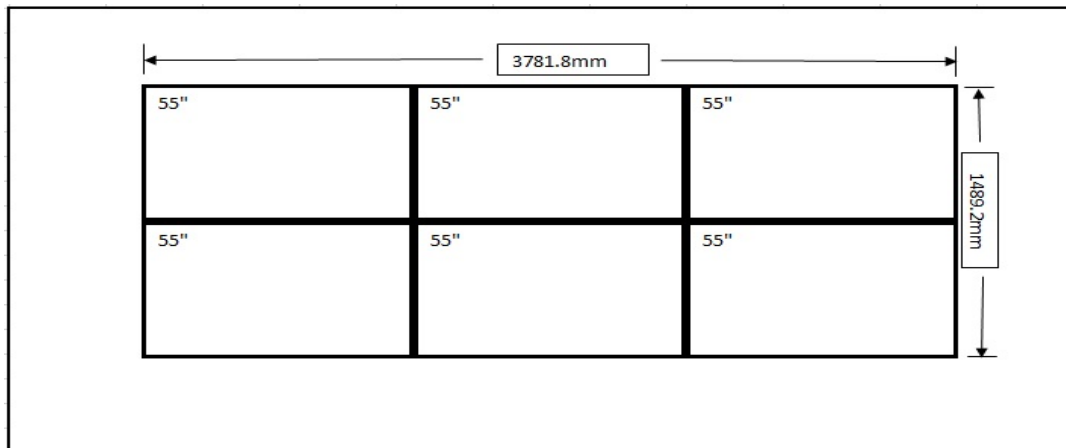
- a) Single image
- b) A quad
- c) 9 images
- d) 12 images
- e) 16 images

1.6.10.1. Video wall controllers specification.

#	Item Description	Minimum Required Specifications
1	Processor Type	One Intel Xeon/i7 High End Processor (Ideally 6 Cores)
2	CPU RAM Capacity	16GB Memory or above
3	Mounting Type	Desk Top Standard
4	Minimum Storage Capacity	2Tb Hard drive
5	Graphics	2 x 2Gb Nvidia or ATi graphics or above
6	DVD-ROM	DVD+/-RW Drive
7	Audio : Integrated sound card	Integrated sound card
8	Network	1G (1000 Base-T) Network ports
9	Operating System	Windows 7 Professional (64Bit OS) or above
10	Power supply	230V 50Hz UPS Power
11	Brand & Model	Should be brand from a reputed company with local presence.
12	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
13	Manufacturer Warranty	3 Years Manufacturer’s Warranty and Support

1.6.10.2. Video Wall Structure

- a) Video wall installation shall be with easy push and eject bracket solution allowing easy maintenance capabilities.
- b) Control room glass window shall be removed and use brick filling to fill the space approximately 2.5m x 4m.
- c) Video wall structure shall be mounted to the brick wall to secure the installation of video wall.
- d) Cable management shall be behind the video wall structure.
- e) Space between video wall monitors shall be Narrow Bezel 3.8mm (gap between panels)
- f) Video wall panel structure shall be as per below diagram.



1.6.10.3. Video wall Panel Specification

#	Item Description	Minimum Required Specifications
	DISPLAY	
1	Screen Diagonal	54.6"
3	Aspect Ratio	16:9
4	Resolution	3840x2160
5	Luminance	Max: 300 cd/m ²
6	Contrast Ratio	4000:1
7	Maximum Colors	16.7M
8	Response Time	8.5ms
9	Vision angles	178H/178V
10	Display Format	480p,576p, 720p, 1080p, 2160p
	FEATURES	
11	OSD Language	English, Frence, Spanish, Korean
12	Picture size	16:9 / 4:3
13	HDMI	2.0
	SYSTEM	
14	Video System	PAL/SECAM
15	input/output terminal	OUT*1, AV IN*1, YPBPR IN*1, HDMI*4, USB*1, mini LINE OUT*1
	POWER	
16	Operational Power consumption	≤155W
17	Stand by Power consumption	≤0.5W
18	AC Input	100~240V
	DIMENSIONS	
19	Height	737mm
20	Width	1253mm
	WARRANTY / CERTIFICATIONS	
21	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
22	Manufacturer Warranty	3 Years Manufacturer's Warranty and Support

- A) Six (06) Panels shall be used for the video wall complete with required cables.
 B) Same panels shall be used with wall mount bracket at VIP Monitoring stations.

1.6.11. Workstation / Client View Satiations / Operator Stations / Supervisor Stations technical specifications

#	Item Description	Minimum Required Specifications
1	Processor Type	One Intel Xeon/i7 High End Processor (Ideally 6 Cores)
2	CPU Capacity	16GB Memory or above
3	Mounting Type	Desk Top standard
4	Minimum Storage Capacity	2Tb Hard drive
5	Graphics	2 x 2Gb Nvidia or ATi graphics or above
6	DVD-ROM	DVD+/-RW Drive
7	Audio : Integrated sound card	Integrated sound card
8	Network	1G (1000 Base-T) Network ports
9	Operating System	Windows 7 Professional (64Bit OS) or above
10	Power supply	230V 50Hz UPS Power

11	Brand & Model	Should be brand from a reputed company with local presence.
12	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
13	Manufacturer Warranty	3 Years Manufacturer's Warranty and Support

1.6.12. Workstation / Client View Stations / Operator Stations / Supervisor Stations
Monitor specifications

#	Item Description	Minimum Required Specifications
1	Monitor Type	LED 22" Full HD or Better
2	Resolution	1080p (1920 x 1080)
3	Mounting Type	Triple Monitor Bow Kit / Dual Monitor Bow Kit
4	Contrast Ratio	1000:1 (typical); 50,000:1 (dynamic)
5	Aspect Ratio	Widescreen (16:10)
6	Power supply	230V 50Hz UPS Power
7	Brand & Model	Should be brand from a reputed company with local presence.
8	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
9	Manufacturer Warranty	3 Years Manufacturer's Warranty and Support

1.6.13. Joystick Controllers

#	Item Description	Minimum Required Specifications
1	Control Equipment Type	Network Camera
2	Interface	Ethernet (Network camera) USB 1ea (Upgrade, Config import/export, Image snapshot) RS-485/422 (Analog Camera ,DVR) 1ea, RS-485/422 (Cascade among controllers) 1ea
3	Interface Protocol Ethernet USB RS-485/422	SUNAPI Dedicated SRD, Pelco-D/P, Panasonic, Vicon, AD, Honeywell, Bosch, Axis, Elmo, GE, Samsung- T/E
4	Baud Rate (RS-485/422)	2400 ~ 57,600bps
5	Network Protocol	TCP, HTTP, DHCP, IPv4
6	LCD Display	5" TFT LCD
7	Joystick	3 Axis twist zoom
8	Camera Controls	Pan / Tilt / Zoom, Focus, Auto focus, Preset, Group, Tour, Swing, Trace, Auto tracking, Alarm off/on, Freeze
9	Video Wall	Camera-tile (Channel) mapping, Layout (Display division mode) change
10	Recorder Operations	Recording / Playback control, Alarm off, Menu
11	Device Management	Built-in device registration / Modification on LCD
12	User Management	Admin + 9 operators
13	Input Voltage Power supply	12V DC power adaptor shall be supplied. UPS Power

14	Power Consumption	Max. 6.4W
15	Brand & Model	Should be brand from a reputed company with local presence.
16	Certifications	Certificates conforming to relevant latest IEEE, EN/IEC/CE standards or equivalent
17	Manufacturer Warranty	3 Years Manufacturer's Warranty and Support

1.6.14. Uninterruptible power supply

#	Item Description	Minimum Required Specifications
1	Capacity	Bidder to mention
2	Technology	True online double conversion
3	230 V AC (Single Phase)	220- 240V AC
4	Input Frequency	50 Hz \pm 5%
5	Output Voltage	230V AC
6	Output Frequency	50 Hz
7	Output Voltage Regulation	\pm 1%
8	Wave Form	Pure Sine wave
9	Batteries	Maintenance Free Batteries
10	Min. Backup Time at Full load	20 minutes
11	Bypass System	Automatic and Manual bypass
12	Alarm	Audible alarms for faults warnings
13	Certificate	ISO 9001
14	Warranty	3 Year manufacturer's warranty & support
15	Brand & Model	Should be brand from a reputed company with local presence.

1.6.15. Data Cable and Connecting Accessories

1.6.15.1. Fiber Optics Cable

#	Item Description	Minimum Requirement
1	Classification	9/125 μ m/OS2 Type or better
2	Number of Strands	12 Fiber/Loose Tube Armored/ Gel-free cable subunits
3	Temperature	Outdoor type fiber cable shall be capable of withstanding, without degradation in performance, Temperatures in the range 0°C to 70°C.
4	Safety and regulations	The cable shall comply with all safety and fire regulations
5	Jacket	UV stabilized cable jacket/ Aerial, lashed/Buried/ High density polyethylene (HDPE)Environment applications/ 24h Water Penetration
6	Application Support	1Gbps/10Gbps/40Gbps
7	Testing	The single-mode fibers shall be tested at both 1310 nm and 1550 nm wavelengths as per EIA/TIA 568 C.3 standards All tests shall be performed using laser light sources
8	Pulling tension load	Pulling tension shall be 222N with the full load.

		Maximum bending radius 10 x Outer Diameter.
9	Maximum attenuation	less than 0.5 dB/km(at 1310 nm),less than 0.4 dB/km(at 1550nm)
10	Standards and Certification	ANSI/ICEA S-104-696/EN 187105/Telcordia GR-20 /Telcordia GR-409 Cable Qualification Standards
12	Brand & Model	Should be a brand from a reputed company. All data cables and accessories should be from the same manufacturer with at least 25 years of manufacture warranty

1.6.15.2. UTP Cable

#	Item Description	Minimum Requirement
1	Cable Type	Shielded 4 twisted pair CAT6 cable (U/UTP), 8 conductor, solid stranding, 23 AWG bare copper and riser insulated wire
2	Applications	Shall support IEEE 802.3:10BASE-T, IEEE 802.3u:100BASE-T, IEEE 802.3ab: 1000BASE-T
3	Cable Construction	Cables shall be of round construction
4	Electrical Performance	Electrical Performance guaranteed to meet or exceed ANSI/TIA- 568-C.2 Category 6 and ISO/IEC Category 6/Class E specifications. Product shall have a standard certification number.
5	Information on Cable Jacket	Cable length, brand, model and standard shall be print on outer jacket meter by meter
6	Brand & Model	Should be a brand from a reputed company. All data cables and accessories should be from the same manufacturer with at least 25 years of manufacture warranty

1.6.15.3. Connector/Patch Panels/ Patch Leads and Other passive network connecting accessories

#	Item Description	Minimum Requirement
1	Passive network connecting accessories	Bidder in his proposal shall consider all Fiber/Copper cables and Relevant connectivity items from Single OEM to archive 20 Year warranty for Cable Plant
2	Brand & Model	Should be brand from a reputed company. All data cables and accessories should be from the same manufacturer with at least 25 years of manufacture warranty

1.6.16. Equipment Mounting Enclosures

#	Item Description	Minimum Requirement
1	Equipment Mounting Enclosure	Bidder in his proposal shall consider for suitable enclosures and racks, which may require to mount all the required equipment. The enclosures shall comply for the necessary protection requirements at the proposed installation site.
2	Brand & Model	Should be brand from a reputed company. All data cables and accessories should be from the same manufacturer with at least 25 years of manufacture warranty

1.6.17. Power distribution system

#	Item Description	Minimum Requirement
1	Power Distribution System	Bidder shall in his proposal design for a suitable power distribution network to comply with the site conditions to power all the active components of the system.
2	Standard to be followed	BS7671: 2008 Amendment 3:2015
3	Brand & Model	All the switchgears, accessories and cables Should be brand from a reputed company

1.6.18. Lightning and Surge Protection System

#	Item Description	Minimum Requirement
1	Lightning and Surge Protection System	Bidder shall in his proposal design for a suitable lightning and surge protection system to comply with the site conditions, to protect all the active components from lightning and voltage surges inclusive of the earth grounding system
2	Standard to be followed	BS EN/IEC 62305
3	Brand & Model	All the switchgears, accessories and cables Should be brand from a reputed company

1.6.19. Video Analytics Requirement

1.6.19.1. Video Analytics shall be considered in designated cameras given in this document.

1.6.19.2. System Analytics are allowed to run at the EDGE (Camera level) with high accuracy.

1.6.19.3. Bidders shall propose suitable Analytics engines compatible with the system.

1.6.19.4. Video Analytics shall be integrated with Proposed PSIM system in order to trigger alarms at Central Security Command & Control Station (CSCCS). Further, CSCCS shall be able to control, program, configure, disable or enable such analytics remotely as per set access authorization levels.

1.6.19.5. Video Analytics shall be capable of producing real time alarms and these alarms shall be filtered by PSIM system to avoid any false alarms.

1.6.19.6. Such Analytical Meta Data shall be tagged with alarms at the PSIM system and shall use Video Analytics tags for quick live investigation purpose and post incident management purpose.

1.6.19.7. Video Analytics Functions required are stated below:

A) Facial Detection:

- I. EDGE Based facial detection system shall be used during Phase 1. Facial recognition shall not involve at this stage, but the bidder shall provide provision for such requirements in the future.
- I. In case of an event Facial Detection Meta Data shall be tagged with relevant incident for live incident analysis and Tagged meta data shall remain with the incident log file for post incident analysis purpose.
- II. Facial Identification cameras shall be installed in correct locations considering the light levels, angle of view, Pixel Density, installation height and direction. These parameters shall consider during the design and it will be bidders responsibility to achieve CPSTL requirements as mentioned in this document.

B) ANPR (Automatic Number Plate Recognition System):

- I. Proposed ANPR shall be EDGE based solution in order to avoid any failure points and to avoid additional cost implication on servers. ANPR Processing shall happen at the EDGE and transfer only the meta data along with video footage.
- II. In order to obtain the best performance of ANPR Cameras, following parameters shall be followed by the contractor.
 - a. Camera Vertical angle shall be less than 30°
 - b. Camera Horizontal angle shall no more 30°
 - c. Tilt angle shall be less than 5°
- III. Plate recognition accuracy shall be not less than 85%

IV. ANPR software Specifications

#	Item Description	Minimum Required Specifications
1	Recognition accuracy	85% or Better
2	ANPR detection speeds	Single Lane 130Km/h Double Lane 80Km/h
3	Black and White lists Capacity	up to 2000 entries each
4	License Plate Capturing Distance	Minimum 20m Day & Night
5	Features and Functions	Entry/exit timing Relay control Push notification List alerts Time spent notification Evidential storage Active monitoring / online alerting
6	Reporting & Analysis	Traffic density reports Average travel time Traffic speed analysis Traffic heat map Local / visitor analysis Never in / never out report lane control Parking violations (street) Suspicious vehicle patterns Speeding (average speed)
7	Export report formats	Excel/csv export
8	Integration	HTTP(s)
9	Country of Origin	European, USA, UK, Japan

- C) Other on-board Analytics required:
 Tampering, Loitering, Directional detection, Fog detection, Virtual line, Enter/Exit, (Dis) Appear, Audio detection, Sound classification. Such additional video analytics and its locations are listed in the Analytics schedule document.
- I. All required analytics shall be integrated with the PSIM system at the CSCCS.
 - II. Video Analytics alarms and actions shall be based on set SOPs at the CSCCS.
 - III. Video analytics alarms shall be filtered by PSIM in order to mitigate false alarm ratio due to environment factors.
 - IV. Suitable Analytics engines shall be proposed by the bidders to achieve CPSTL requirement.
 - V. These analytics shall work individually or as a group with multiple cameras or single cameras as defined by the set SOPs by Security Department.
 - VI. Analytics events shall be tagged with the associated video footage and meta data shall be generated at the EDGE (Camera level. This is to reduce the bandwidth, multiple hardware failure points (Servers) and mitigate the high cost of server based analytics licenses and hardware.
 - VII. PSIM system shall analyze associated meta data and shall tagged such analytics with relevant incident file. Such process shall reduce the network / Process latency and allow PSIM to response to any event instantly.

Summary of Video Analytics Requirement:

#	Item Description	Minimum Requirement
1	Video Analytical features	Bidder shall in his proposal consider to provide following analytical features with all the required software and operating license if any, Activity Detection Face Recognition Crowd Formation Unattended Object Camera Moved or Tampered Vehicle Number Plate Capturing (ANPR) The schedule for Video Analytics Requirement is attached in the Annex-I

1.6.19.8. Video Analytics Functions required are stated in Annex-I

1.6.20. NTP Server

Suitable network-attached GPS-based Network Time Protocol (NTP) server shall be provide to synchronize time among the devices attached to the CPSTL Physical Security Network. The proposed NTP Server shall have the following features and shall fulfill the below requirements of CPSTL. The proposed NTP Server shall be with low power consumption, designed for closed networks and installation in small spaces.

1.6.20.1. Mandatory Features

- GPS-based NTP server.
- Supports 100BASE-T/10BASE-T full duplex with auto-negotiation.
- Ethernet RJ45 connector.
- SMA antenna connection.
- Supports Ethernet CAT5 cable up to 100 m.
- Visual status indicator.
- Vertical or horizontal, shelf or wall-mountable.
- Less than 1.5 W power consumption.

1.6.20.2. Certifications & Environmental Directives

The NTP Server shall be designed and manufactured to the following standards.

- CE (EEA) and FCC (USA) certifications.
- Compliant with RoHS, WEEE and REACH regulations.
- Shall be comply to standard EMC directives defined for industrial electrical equipment.
- Shall be designed and manufactured under both ISO 9001:2008 and ISO 14001 standards for quality management and environmental principles

1.6.20.3. NTP Server specifications

#	Item Description	Minimum Requirement
1	Ethernet Connector Type	RJ45
2	Ethernet Cable Type	Straight-through or crossover CAT5 Auto-detection of cable type
3	Ethernet Rates Supported	100BASE-T/10BASE-T, full duplex with auto-negotiation
4	Antenna Connector	SMA male
5	Antenna Cable Length	5 m standard Up to 25 m (using 2 x 10 m extensions)
6	System Operating System	Embedded Linux on solid state memory for superior performance.
7	System Configuration and Management	In-built hosted web page via LAN
8	System Performance	Up to 1,200 NTP client requests per second
9	System Accuracy	±1 ms (GPS source ±0.1 μs).
10	External Indicators	Normal function. Fault detected. GPS signal not locked on.
11	Power Supply	POE Type – Class 1
12	Power Consumption	1.5 W maximum

13	Operating Voltage	10 – 40 V DC type and polarity auto-detected
14	Supply Current	150 mA maximum at 12 V
15	Regulatory Compliance	CE FCC RoHS REACH WEEE
16	Weight	No more than 125g
17	Operating Temperature	0°C to 75°C
18	Relative Humidity	95% non-condensing
19	Country of Origin	UK / US / EU / Japan
20	Manufacturer Warranty	Minimum 5 years

1.6.21. System Warranty, Post installation Support and Spare Parts& Training, Testing and Commissioning

#	Item Description	Minimum Requirement
1	System Warranty	<p>Bidder shall provide a minimum 03 year System warranty for hardware and software against manufacturing defects, workmanship and performance of the IPBCC system. Any defects, system breakdowns and performance failures shall be rectified and restored by the contractor under at his cost under the warranty period.</p> <p>Minimum 10 years installation warranty for the optical fiber and copper cables from the cable manufacturer shall be provided.</p> <p>The response time for any complain shall be less than 1 hour.</p> <p>Defect rectification shall be attended within 03 hours.</p> <p>If any repair work exceeds 24hrs duration, the faulted unit shall be replaced with a backup unit.</p>
2	Comprehensive Annual Maintenance Contract (AMC)	<p>Contractor shall enter into a Comprehensive Annual Maintenance Contract (AMC) with CPSTL upon expiration of the warranty period.</p> <p>The AMC shall cover all the service and breakdown repairs for the IPBCC system. The contractor shall maintain a stock of mandatory and operational spare parts under the AMC.</p> <p>The response time for any complain shall be less than 1 hour.</p> <p>Defect rectification shall be attended within 03 hours.</p> <p>If any repair work exceeds 24hrs duration, the faulted unit shall be replaced with a backup unit</p> <p>The price of the AMC shall be mentioned in the proposal</p>

3	Spare Parts	Bidder shall provide a list of mandatory and optional spare parts with their cost with the proposal
4	Spare Parts Availability Certificate	A certificate to the effect that, all spare parts for the laboratory equipment offered will be manufactured and be available for import for a minimum period of Ten (10) years from the date of submission of the bid.
5	Manufacturer's Authorization Letter	Bidder shall provide the manufacture's Authorization letters to represent the brand in Sri Lanka, for each of the critical components (such as Cameras, Servers, POE Switches, Storage system, Client viewing stations, UPS etc.) he has provided in the proposal
6	Non-obsolescence Certificate	Certificate from manufacture that all the ICCCS system equipment including all accessories, offered are currently in manufacture and should not be obsolete within Ten (10) years.
7	Engineering Training	Contractor shall provide Engineering Training for Six (06) Key Operational and Maintenance Managerial Personnel nominated by CPSTL on programming, maintenance and troubleshooting of the ICCCS system at the OEM facility
8	Operational and maintenance staff training	Contractor shall provide a training of operational and maintenance of the IPBCC system for the Operational and Maintenance staff of CPSTL at the site.
9	Testing and Commissioning	Bidder shall provide a testing and commissioning plan in his proposal clearly indicating all the parameters to be tested against the expected outcomes as per the relevant standards.

Section VII (a)
Form of Bid

FORM OF BID

NAME OF CONTRACT: Design, Supply, Installation and Commissioning of Integrated Central Command and Control Solution with IP Based Video Surveillance at CPSTL Oil Installation Kolonnawa

To: Ceylon Petroleum Storage Terminals Limited, Oil Installation, Kolonnawa, Wellampitiya.

We have examined the Conditions of Contract, Employer's Requirements, Schedules and Addenda Nos..... for the execution of the above-named Works. We accordingly offer to design, execute and complete the said Works and remedy any defects fit for the purposes, in conformity with the Bidding Documents and the enclosed Proposal, at the lump sum stated in the Form of Price Proposal included in a separate envelope and submitted with this bid, or other such sums as may be determined in accordance with the terms and conditions of the Contract.

We confirm that our bid includes this Preliminary Information, Financial Proposal, and Design/Technical Proposal sealed in three separate envelopes.

We agree to abide by this Bid until (insert date), and it shall remain binding upon us and may be accepted at any time before that date.

We confirm that, we (including all members of a joint venture and subcontractors) are not associated, directly or indirectly, with the consultant or any other entity in preparation of the design, specifications, and other documents for the Contract.

If this offer is accepted, we will provide the specified Performance Security, commence the Works as soon as reasonably practicable after the Commencement Date, and complete the Works in accordance with the above-named documents within the Time for Completion. We will ensure that the Works will be executed in conformity with the Contract.

Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us.

We understand that you are not to bound at accept the lowest offer or any other bid you may receive.

.....
Signature of the persons duly authorized to sign documents for and on behalf of

Address:.....
.....

Date:

Company Seal:

Section VIII (a)
Schedules (“A”-Schedules)

SCHEDULES

Schedule A1 - Preliminary Information

(enclose this Schedule in the envelope marked, "Envelope 1 - Preliminary Information")

(i) For joint venture, each joint venture partner shall furnish information separately

ITB clause reference	Description	Information (to be filled by the Bidder)	Remarks
3.1	CIDA Registration (if any)		Provide certified copies and label them as attachment to Clause 3.1
Registration number			
Specialty	Grade	(Yes/No)	
Extra Low Voltage Installations (Data, Telecommunication and Security Systems, Public address systems, Pipe music systems (ELV)	EM1		
Expiry Date			
Electrical Installations (Low Voltage) (EI-LV)	EM4		
Expiry Date			
4.1 (a)	Legal Status		
	If a Joint Venture, names and addresses of Joint venture partners	1. 2. 3.	Provide a certified copy of the Joint Venture Agreement.
	If a Joint Venture, name of the Lead Partner		
	For joint venture, each joint venture partner shall furnish Legal Status separately		

	Name (Lead partner)		Provide certified copies and label them as attachment to Clause 4.1 (a)
	Legal status		
	Place of registration		
	Principal place of business		
	Written power of attorney of the signatory to the Bid	Provide original or certified copy of the power of attorney attested by a Notary and label them as attachment to Clause 4.1 (a)	
	VAT Registration Number		
	Name (Partner 2)		Provide certified copies and label them as attachment of Clause 4.1 (a)
	Legal status		
	Place of registration		
	Principal place of business		
	Written power of attorney of the signatory to the Bid	Provide original or certified copy of the power of attorney attested by a Notary and label them as attachment to Clause 4.1 (a)	
	VAT Registration Number		
	Name (Partner 3)		Provide certified copies and label them as attachment of Clause 4.1 (a)
	Legal status		
	Place of registration		
	Principal place of business		
	Written power of attorney of the signatory to the Bid	Provide original or certified copy of the power of attorney attested by a Notary and label them as attachment to Clause 4.1 (a)	
	VAT Registration Number		

Schedule A2 - Annual Turn-over Information

(Similar Construction only - Last five years)

(Refer Clause 4.3 (a) of Bidding data and Clause 4.1 of Instructions to Bidders)

(enclose this Schedule in envelope marked, "Envelope 1 - Preliminary Information")

i. For joint venture, each joint venture partner shall furnish information separately

Year	Turn-over	Remarks
1		Attach audited reports and label them as attachment to Clause 4.1 (c) (i)
2		
3		
4		
5		

<p align="center">Schedule A3 - Adequacy of Working Capital (Refer Clause 4.3 (g) of Bidding data and Clause 4.1 of Instructions to Bidders)</p> <p align="center">(enclose this Schedule in envelope marked, "Envelope 1 - Preliminary Information")</p>		
Source of credit line	Amount	Remarks
		Provide documentary evidence and label them as attachment to Clause 4.1 (c) (ii)
Total		

Schedule A4 - Construction Experience in last five years

(To be attached certified copies of Letter of award, Purchase order and Certificate of Completion)
 (enclose this Schedule in envelope marked, "Envelope 1 - Preliminary Information")

- (i) If pre-qualification is done the bidders are required to include information subsequent to that submitted with the pre-qualification
- (ii) For joint ventures, each joint venture partner shall furnish information separately
- (iii) List similar works first

Year	Employer	Description of Works	Amount	Contractor's Responsibility (%)
		Total		

Schedule A5 - Design Experience in last five years

(To be attached certified copies of Letter of award , Purchase order and Certificate of Completion)

(enclose this Schedule in envelope marked, "Envelope 1 - Preliminary Information")

- (i) For joint ventures, each joint venture partner shall furnish information separately
- (ii) List similar works first

Year	Employer	Description of Works	Amount*	Responsibility (%)
		Total		

* Project Cost

Schedule A6 - Major Items of Construction Equipment Proposed
 (enclose this Schedule in envelope marked, "Envelope 1 - Preliminary Information")

Type	Capacity	Ownership of the Equipment (Owned by Bidder/ Hired)

Schedule FIN 1 – Current Contract Commitment (Refer Clause 4.3 (g) of Bidding data and Clause 4.1 of Instructions to Bidders) (enclose this Schedule in envelope marked, "Envelope 1 - Preliminary Information")							
No:	Name of contract/ Employer	Awarded sum & date	Construction period (Months)	Value of work completed up to		Value of balance work	
				Rs.	Cts	Rs.	Cts.

[Certified copies of Letter of award, Purchase order and last interim payment certificates should be attached]

CHECK LIST FOR BIDDERS

Envelop	Item	Yes (tick)	Reference
Envelop 1			
	Preliminary Information (Original & Copy)		
	Volume 1A of the Bidding Document		
	Invitation to Bid		
	Section II - Bidding Data		
	Section IV - contract Data		
	Section VI - Employer's Requirement		
	Power of attorney for the signatory of the bid		
	Duly filled and signed Form of Bid		
	Bid Security		
	Duly filled "A" Schedules - "General Information"		
	Other information listed in Bidding Data		
	Any other information, bidder may wish to include		
	Envelop 2		
Design / Technical Proposal (Original & Copy)			
Duly filled and signed Form of Design / Technical Proposal			
Duly filled "B" Schedules - "Comments and suggestions on employer's requirement" (if any)			
Contractor's Proposal			
Drawings (if any)			
Other information listed in Bidding Data			
Any other information, bidder may wish to include			
Envelop 3			
	Price Proposal (Original & Copy)		
	Duly filled and signed Form of Price Proposal		
	Duly filled "C" Schedules - "Price Schedules"		

