CORRECTIONAL SERVICES CANADA
TECHNICAL SERVICES BRANCH
ELECTRONIC SECURITY SYSTEMS

2015 June 16

STATEMENT OF TECHNICAL REQUIREMENTS

FOR THE UPGRADE OF THE

DOOR CONTROL AND MONITORING SYSTEM

AT

SPRINGHILL INSTITUTION

AUTHORITY

This Statement of Technical Requirements is approved by the Correctional Service of for the upgrade of the Door Control and Monitoring System at Springhill Institution.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address:

Director, Electronic Security Systems
Correctional Service of Canada
340 Laurier Avenue West,
Ottawa, Ontario
K1A 0P9

Prepared by:

Larry Carter
Chief Electronics Systems Maintenance

Reviewed by:

Edwin Morton
Electronic Security Systems and Installation Engineer
Electronic Security Systems

Approved by:

Marc St-Amand
Director,
Electronic Security System

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
ACL	Access Control List
API	Application Programming Interface
ATP	Acceptance Test Procedure
BIFMA	Business & Industrial Furniture Manufacturers Association
CA	Contract Authority
CCDA	Command Control and Data Acquisition
CCTV	Closed Circuit Television
CD	Commissioner's Directive
CER	Common Equipment Room
COS	Class of Service
COTS	Commercial-Off-The- Shelf
CSA	Canadian Standards Association
CSC	Correctional Service Canada
DCMS	Door Control and Monitoring System
DES	Director Engineering Services
DCMS	Door Control and Monitoring System
DSCP	Differentiated Services Code Point
EIA	Electronic Industries Association
ESS	Electronic Security Systems
FAAS	Facility Alarm Annunciation System
FAR	False Alarm Rate
FDS	Fence Disturbance Detection System
FIU	FAAS Interface Unit
GFE	Government Furnished Equipment
GUI	Graphical User Interface
IP	Internet Protocol
IEEE	Institute of Electronic and Electrical Engineers
MCCP	Main Communications and Control Post
IVRMS	Inmate Voice Recording and Management System
MDS	Motion Detection System
MTBF	Mean Time Between Failure
MTTR	Mean Time to Repair
NAR	Nuisance Alarm Rate
NTP	Network Time Protocol
PA	Public Address
PC	Personal Computer
Pd	Probability of Detection
PIDS	Perimeter Intrusion Detection System
PIU	Perimeter Intrusion Detection System Integration Unit
PLC	Programmable Logic Controller
RFP	Request for Proposal
RTEO	Regional Technical and Engineering Officer
PPA	Portable Personal Alarm
PPAL	Portable Personal Alarm Locatable
QoS	Quality of Service
RTE	Request to Exit
SCC	Security Control Centre
SIO	Security Intelligence Officer

TABLE OF DEFINITIONS

#	Term	Example(s)	Description	Function
1	Administrative User Interface		Monitor and Software that supports task specific User Interaction for System Administrators, located in a secure area	Provides Administrative Personnel with the ability to map enrolled users to the functional domains that they are allowed to access and change
2	Application	Cell Call Management, PA Management	Software that is used to deliver Application Support functionality for a sub-system	Software that provides the Operator Interface and supporting logic that allows a sub-system (Control Domain) to be managed
3	CCTV Monitor	PIDS or Range CCTV Monitor	Computer Monitor Hardware	Displays CCTV images for Operator viewing
4	Client		Rack mounted computer located in a secure area away from a Control Post or Control Desk.	Runs software and supports one or more Application
5	Configuration Data	Site floor plans showing quantity of cameras, doors, cells etc. Camera locations. Number of User Interfaces required in a Post.	Site and System specific information typically supplied by CSC that defines how a sub-system Application is to be set-up for a site, location within a site, or post.	The configuration data provides the information that a sub-system application requires to tailor it to meet site, location within a site, or post user requirements.
6	Configuration User Interface		Monitor and Software that supports task specific User Interaction, located in a secure area	Allows suppliers or qualified personnel to add, delete and modify Application Configuration
7	Contract Authority		Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.	
8	Contractor		The company selected as the successful bidder.	
9	Control Console	MCCP Console, Living Unit Control Post Console	Console, typically located in a Control Post. Serves as the physical support infrastructure for Operator User Interfaces	Contains User Interfaces or Control Panels used by staff to execute their management responsibilities and interact with the Domains over which they have Control
10	Control Desk	Living Unit Control Desk	Desk, typically located in a Control Post or Office. Serves as the physical support infrastructure for Operator User Interfaces	Equipped with User interfaces used by staff to execute their management responsibilities and interact with the Domains over which they have Control
11	Control Domain	Cell Call, Guard Tour, Public Address	A group of Physical and Virtual devices or objects, often supported by specialized hardware and software, that performs a set of related functions	Collect information, or activate capabilities in their operational domain
12	Control Panel	PACP, Fire Alarm	Hardware and Software device that provides an Operator Interface (I/O device), located in a Control Post	Allows Operators to manage one or more Domain
13	Control Post	Living Unit Control Post/MCCP	Room or area, typically located in a secure area in an institution	Room used by staff to execute their management responsibilities and interact with the Domains over which they have Control

#	Term	Example(s)	Description	Function
14	Custom Equipment		Equipment designed and/or manufactured specifically for a specific contract.	
15	Design Authority		Director, Electronic Security Systems (DES) Correctional Service of Canada (CSC) is responsible for all technical aspects of the system design and implementation.	
16	Device	CCTV Camera, Managed Door, Call Origination Device	A specialized device, typically consisting of hardware and software	Provides data collection or activate functions associated with a specific system or sub-system
17	Enrolment User Interface		Monitor and Software that supports task specific User Interaction, located in a secure area	Allows Designated Personnel to enroll and delete Users from the Command, Control and Data Acquisition System.
18	Maintenance User Interface		Monitor and Software that supports task specific User Interaction, located in the CER or Maintenance Service Provider Office	Provides Maintenance Personnel with the ability to interact with one or more Systems to carry out their day to day tasks to troubleshoot and maintain Systems and Subsystems
19	Notification	Notification that a door is opened, or a door is closed, or a sensor is in alarm	A notification is a message that can be shown on a User Interface and/or logged in a database that represents a change in state or a command initiated by an operator.	
20	Off-the Shelf		Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.	
21	Operator User Interface	PIDS Display, Door Control and Monitoring System Display	Computer Monitor and Software that supports User Interaction (I/O device)	Provides an Operator with the ability to interact with one or more Systems to carry out their day to day tasks at a Control Console or Control Desk
22	Project Officer		A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.	
23	Reporting User Interface		Monitor and Software that supports task specific User Interaction, located in a secure area	Provides Management Personnel with the ability to access preconfigured reports and to create custom reports
24	Server	Network Video Recorder	Rack mounted computer that runs software and is located in an equipment room such as a CER or TER	Runs software that is used to deliver services that support Command and Control Applications to connect to sub-systems
25	State		The state of a device as reported to a sub-system or system	This is a logical representation of the state of a device that is being monitored or managed

#	Term	Example(s)	Description	Function
26	Sub-system	Cell Call, Guard Tour	A group of Physical and Virtual devices or objects, often supported by specialized hardware and software, that perform a specific set of related functions	Collects information, or activates capabilities in their operational domain
27	System	PIDS	A group of Physical and Virtual devices or objects, often supported by specialized hardware and software, including devices from sub-systems that perform a more general set of related functions	Collects information, or activates capabilities in their operational domain
28	Touch Screen User Interface	Door Control and Monitoring System User Interface	Typically an LCD Monitor with touch screen technology	Allows an Operator to view and interact with the Systems presented on the Monitor
29	Workstation		Rack mounted computer located in a secure area away from a Control Post or Control Desk	Runs software that is used to deliver Command and Control Capabilities

1 INTRODUCTION

1.1 General

.1 Correctional Service Canada has a requirement to replace, upgrade or augment the existing Door, Lighting and Power Control Systems in Living Units, 50, 51, 52, 57, 58 and the Regional Reception Center building 5 at Springhill Institution, Nova Scotia.

.2 This STR will cover the general and site specific technical requirements for the required work.

1.2 Scope

.1 The contractor must:

.1 design, supply, install, integrate, test, and train operators/maintenance personnel on the installed equipment, as described in this STR.

.2 provide documentation and As-Built drawings for the operation and the maintenance of this equipment.

.3 provide a list of proposed spares.

1.3 Requirement/Purpose

.1 This Statement of Technical Requirements is being issued to support the procurement and installation of Electronic Security Systems and equipment to be installed in CSC Facilities.

.2 This STR provides prospective suppliers with sufficient information so that they can define the scope of the system architecture, equipment, installation, testing, acceptance, training and handover steps required to:

.1 Deliver a fully functioning Door Control and Monitoring System (DCMS) to replace the existing DCMS in Living Units 50, 51, 58, the Regional reception Centre (Building 5),

.2 Upgrade the User Interfaces of the DCMS installed in Living Units 52 and 57, and

.3 Implement a back- up DCMS system server that will provide redundancy in the event that any of the Living Unit servers fails.

.3 The systems in all Living Units except 52 and 57 are reaching the end of their service life and need to be replaced.

.4 This work will have to be accomplished with minimum disruption to the daily operation and security of Springhill Institution.

.5 This STR will also indicate the extent to which both general and particular CSC specifications are applicable to the implementation of this requirement.

.6 Bidders must comply with the STR and the listed specifications, standards and requirements unless identified in this STR.

.7 This STR takes precedence over the subordinate documents such as a Statement of Work, a Specification, Standard or a Requirement.

1.4 Background

.1 Location:

.1 Springhill Institution, a medium-security facility located in Springhill, Nova Scotia, 330 McGee Street, B0M 1X0.

.2 Springhill institution is located on a plateau overlooking the town of Springhill. Springhill Institution opened in 1967.

.2 Current System Configuration and Functionality:

.1 The current Door, Power and Lighting Control Systems installed at Springhill Institution have been installed at different times and although they have some common elements, they are representative of different manufacturer's responses to the requirements that CSC issued at the time that they were installed.

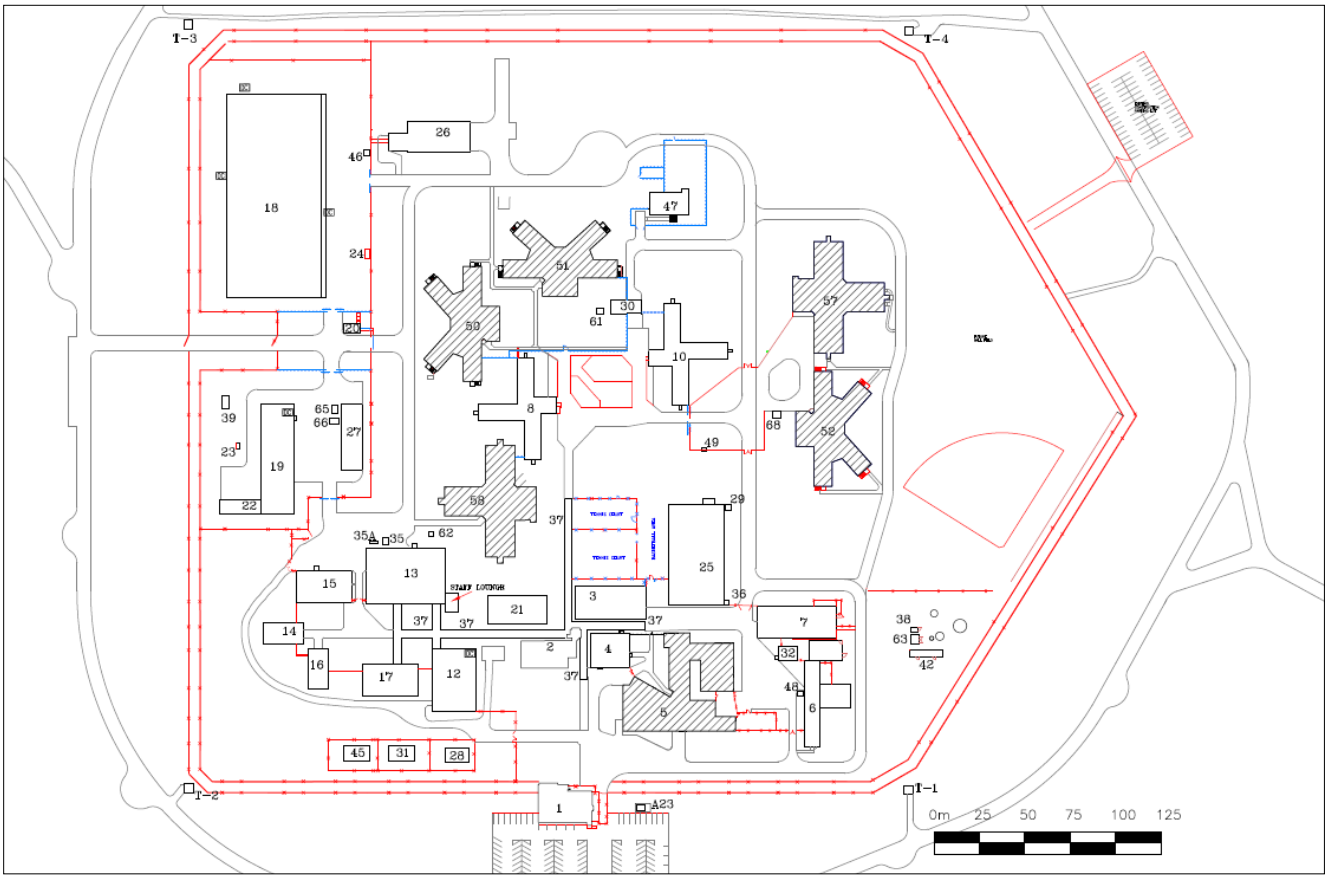
.2 In the **Regional Reception Centre and Living Unit 58** the existing DCMS consists of a Simplex 3600 Prologic system. This system is now "manufacturer discontinued", which has made it very difficult, or, in some instances, impossible to obtain parts. The system in the Regional Reception Centre manages Doors, Power and Lights. The system in Living Unit 58 manages Doors only and there is no facility to manage Power Outlets and Lights.

.3 In **Living Units 50 and 51** the existing DCMS consists of Omron PLC Based Process Controller model GS1G –CPU-45H using Omron output modules. The currently installed User Interfaces were developed and implemented by Simplex Grinnell and consist of mimic panels.

.4 In **Living Units 52 and 57** the DCMS is a recent installation that was deployed when the new Living Units were completed in 2014. These systems manage Door Position, Power Outlets and Lights from Touch Screen User Interfaces located in the Living Unit 52 Control Post and Door Position from Touch Screen User Interfaces located in the Living Unit 57 Control Post. The PLCs are provided by Omron and the Control Software has been designed and developed by Simplex Grinnell on a Wonderware "In Touch 10" Platform.

.5 Each of these systems is configured as stand alone, although there is some element of connectivity to the PIDS and FAAS servers located in the CER for alarm and event reporting purposes.

Site Plan showing Living Unit Locations



1.5 Description of Existing Door Control System

.1 A brief description of the elements of the existing Door Control Systems in living units 50, 51, 58 and the Regional Reception Center building 5 follows:

.1 The current systems were supplied and installed by Simplex.

.2 Each system is stand-alone with no connection to the other Door Control Systems. Living Unit 58 and the Regional Reception Center are a Simplex Prologic 3600. Living Units 50 and 51 are a Omron PLC Based Process Controller model GS1G –CPU-45H using Omron output modules OD261 and Omron input modules ID261.

.3 In each building there is one User Interface (GUI) at each control post with the exception of the Regional Reception Centre which has two User Interface (GUI) units. One displaying Range A and one displaying Ranges B and C.

.4 Living Units 50, 51, 58, and 5 have the process control/server equipment located in the T&E (Telecommunication and Electronic) rooms. .

.5 Cabinets for control panels, I/O modules and power supplies are located on the upper floor T&E rooms.

.6 Cell Door Locks in Living Units 50, 51, 58, and 5 are all 24VDC and controlled emergency exit doors are 120 Volts supported by Phoenix contacts.

.7 Screen shots of Living Unit 50, 51, 58 and the Regional Reception Center will be made available at the mandatory bidder's site meeting. Living units 50, and 51 are identical to each other.

.8 Refer to Appendix A for layouts of buildings, control posts, T&E rooms, and cells.

.2 A brief description of the elements of the existing Door Control Systems in living units 52 and 57 follows:

.1 The current systems were supplied and installed by Simplex as part of the recent Living Unit Expansion at this location.
.2 Each system is stand-alone with no connection to the other Door Control systems. Living units 52 and 57 are each equipped with Wonderware Command and Control Software running on Dell Prologic servers and managing the Doors, Lights and Power, as needed, through Omron PLCs, model numbers to be provided at the bidders meeting.
.3 In each building there are two User Interfaces (GUIs) at each control post.
.4 The process control/server equipment is located in the T&E (Telecommunication and Electronic) rooms in each Living Unit.
.5 Cabinets for control panels, I/O modules and power supplies are located on the upper floor T&E rooms.
.6 Cell Door Locks in Living Units 52 and 57 are all 24VDC and controlled emergency exit doors are 120 Volts supported by Phoenix contacts.
.7 Screen shots of Living Unit 52 and 57 will be made available at the mandatory bidder's site meeting.
.8 Refer to Appendix A for layouts of buildings, control posts, T&E rooms, and cells.
.9 Refer to Appendix B for existing DCMS system drawings.
.10 There is a server in the CER that serves as an event and fault log aggregator for the DCMS in each Living Unit.

1.6 Site Visits/Survey

.1 The Design Authority, or their authorized representative, will coordinate a site visit, and identify to the potential bidders the exact locations of the user interfaces, the system servers, any peripheral PLC or control interfaces, power supplies, interconnecting cable and any other associated electronic equipment. Wherever possible, drawings and documentation will be made available.
.2 The visit may be useful to determine:

.1 The exact location and mounting of the user interfaces, as required,
.2 Mounting location of the electronic equipment or system servers,
.3 Existing Network equipment,
.4 Layout of existing LU Control Posts,
.5 Conduit and cabling requirements, and
.6 General layout and operating environment of the site.

1.7 Technical Acceptability

.1 CSC operational environment is unique for its diversity of locations, climate exposures and the physical restrictive construction techniques of penal institutions. Maintaining national security, the safety of staff and offenders alike is CSC's commitment to the government and public. Electronic security systems operating in this unique environment must maintain very high standards of dependability and reliability.
.2 CSC Facilities Branch has established Statements of Work (SOW), technical specifications and standards for electronic security systems, which are based on very specific, and restrictive operational performance criteria. Technical acceptability of these systems means that the systems equipment and components comply with the pertinent CSC SOWs, specifications and standards.

2 APPLICABLE DOCUMENTS

2.1 Applicability

.1 The provisions contained in the documents listed in the following paragraphs will apply to all aspects of this requirement, unless these provisions have been exempted or modified by this STR.

Number	Title
ES/SOW-0101	Statement of Work for Installation of Electronic Systems
ES/SOW-0102	Statement of Work for Quality Control of Electronic Systems Installations
ES/SOW-0110	Statement of Work for Structured Cable Systems for Electronic Systems Installations
ES/SPEC-0006	Electronics Engineering Specification - Conduit, Space and Power Requirements for Security Systems for use in Federal Correctional Institutions
ES/SPEC-0950	Electronics Engineering Specification – Door Control and Monitoring System For use in Federal Correctional Institutions
CAN/CSA-E61131-2-06	Programmable Logic Controllers Part 2: Equipment Requirements, and Tests
EIA-310	Electronic Industry Association Standard for Racks, Panels and Associated Equipment

3 REQUIREMENTS

3.1 System Architecture

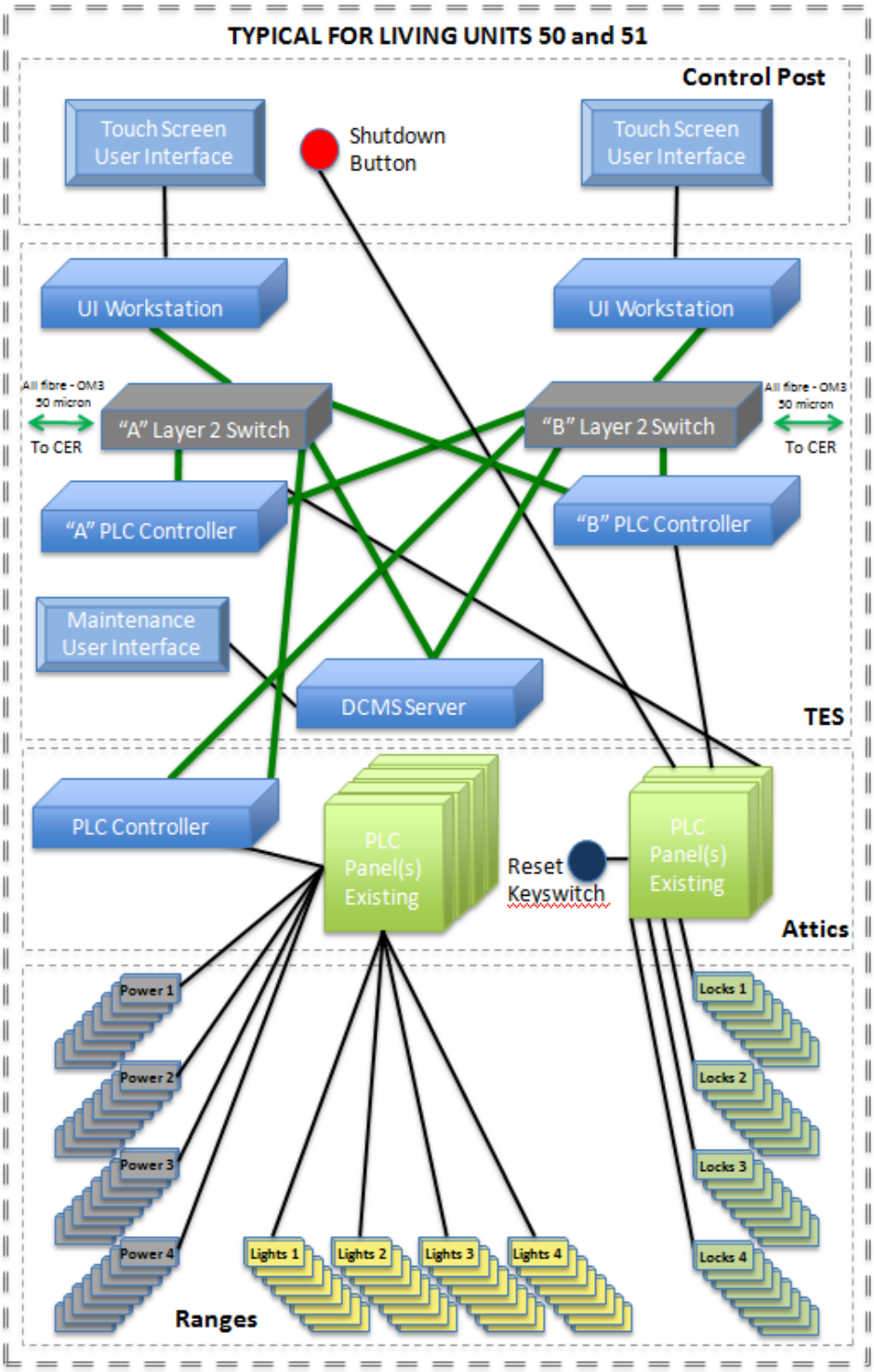


Figure 2: Typical Configuration of the DCMS for building 50-51

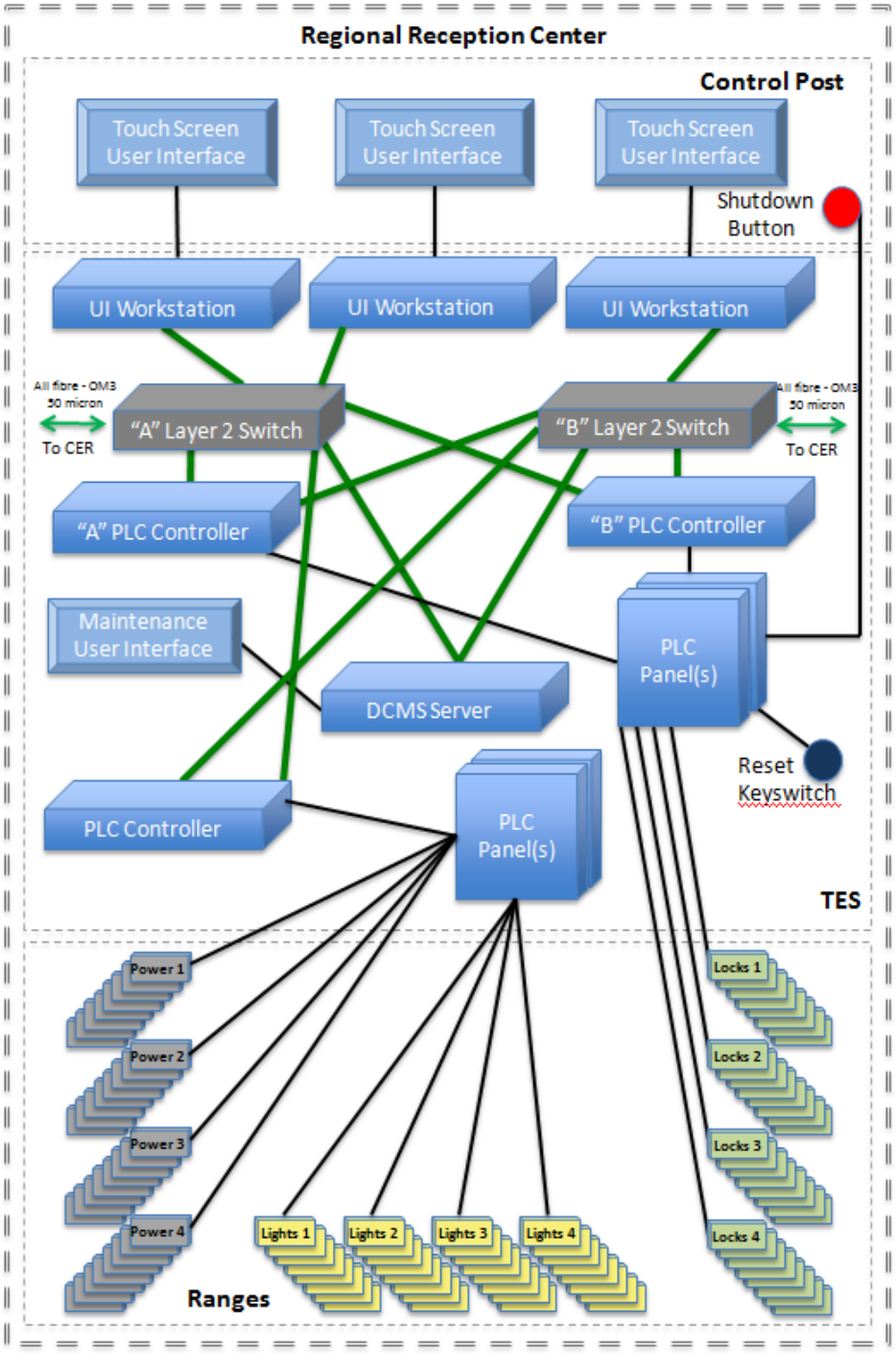


Figure 3: Typical Configuration of the he Regional Reception Center.

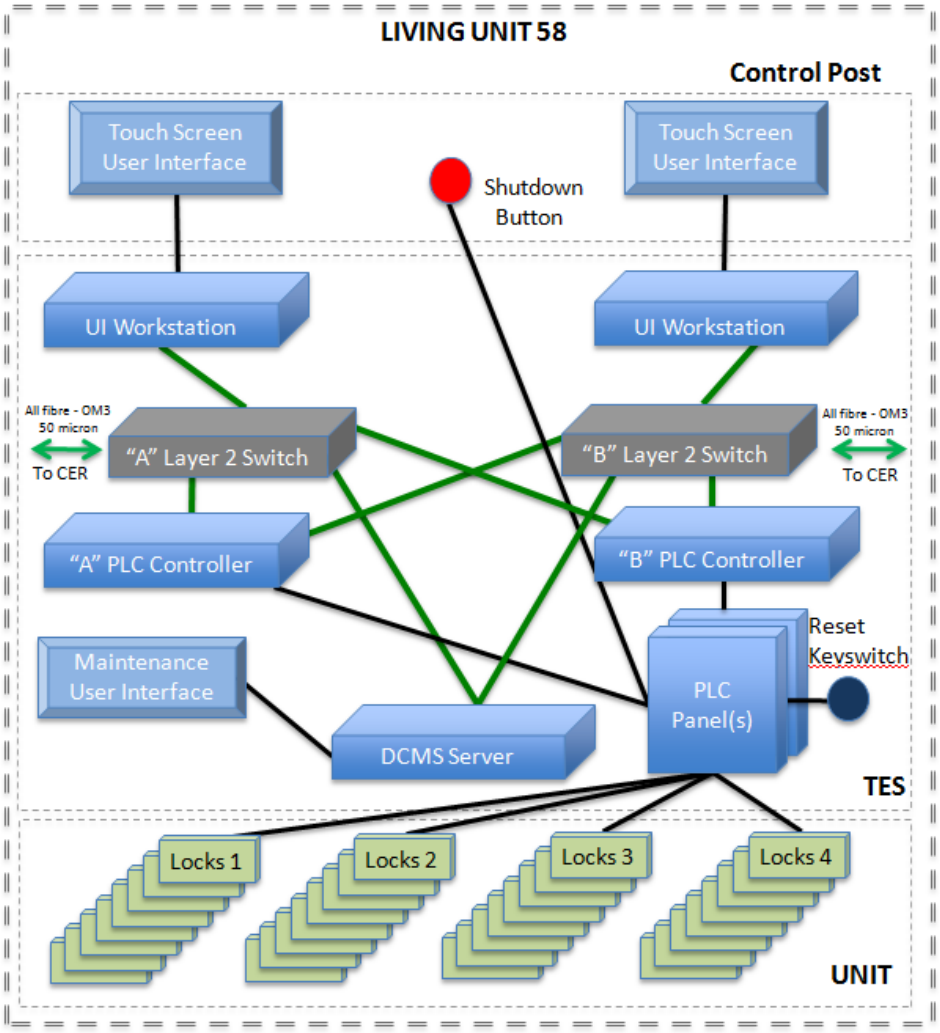


Figure 4: Typical Configuration of the DCMS for the Living Unit 58.

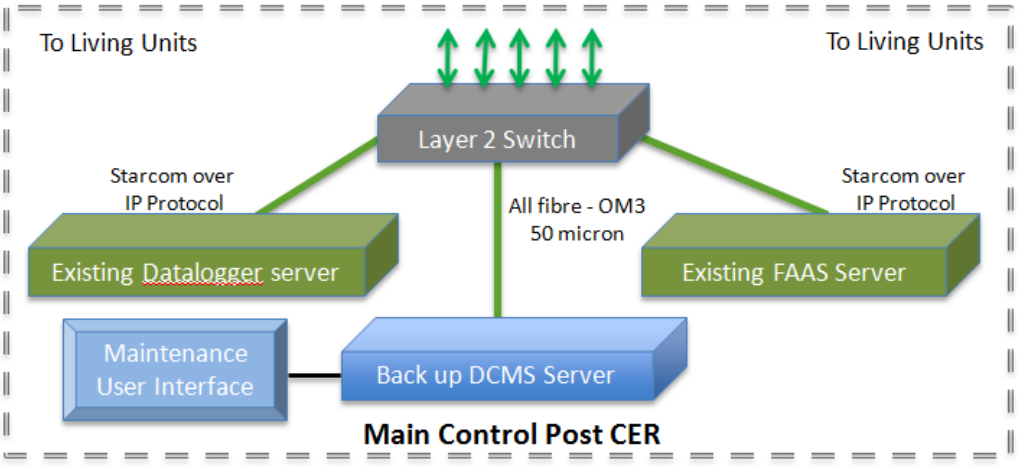


Figure 5: Typical Configuration of the Backup Server in the CER

3.2 Scope of Work

.1 The Contractor must:

.1 Carry out a detailed investigation, including a review and analysis of the entire existing Door Control system, including all components not being replaced under this contract.

.2 Review the CSC Specifications, Standards, Requirements and supporting documentation related to requirements for Door Control and Monitoring Systems and Power and Lighting Management Systems, and incorporation of them into the system and implementation.

.3 Design, supply and install Door Control and Monitoring Applications that run as individual instances in each Living Unit

.4 Providing a Touch Screen Operator Interface and supporting workstations and servers containing all of the application logic to manage and monitor the doors, barriers, power outlets and light fixtures as required, through a PLC based control system with controllers located in equipment spaces convenient to the location of the electric or pneumatic drives associated with the doors and barriers.

.5 Design, supply and install Door Control and Monitoring Applications that are compatible with and can be integrated seamlessly with CSC's Command, Control and Data Acquisition platform.

.6 Use existing copper cables wherever possible. Potential bidders must familiarise themselves with the existing connectivity as part of the site visit. If the cabling for the PLCs and Door Controllers is not adequate, additional hardware and copper cabling should be identified and supplied.

.7 Use existing Security Network fibre, where available. Potential bidders must familiarise themselves with the existing network connectivity as part of the site visit. (Note: Available Dark Fibre has been tested in the recent past, but verification may be required.)

.8 Identify and provide additional hardware and fibre if the network connectivity is not adequate for the solution proposed.

.9 Design, supply and install new, Layer 2, dedicated Network Switches in the Living Units and CER as part of the solution.

.10 Design, supply and install new, generic, non-proprietary Programmable Logic Controllers (PLC) based Door Control systems to replace the existing systems in Living Units 50, 51, 58, and Building 5.

.11 Provide operational training to correctional staff and in-depth maintenance training for the Electronic Security Systems maintenance technicians (National Maintenance Service Provider).

.12 Provide one year of full warranty support of the DCMS, once it has been accepted by CSC, this support must include all system upgrades as they become available, troubleshooting, the correction of any deficiencies and the resolution of operational or technical problems.

.13 Provide written confirmation that the "off the shelf" elements of the DCMS, including software and hardware, will be supported for at least ten years from the deployment of the system.

3.3 General System Technical Requirements

.1 The Contractor must design, supply, deploy, integrate, test, train operators & maintainers, then turn over a fully functioning Door Control and Monitoring System (DCMS) for Living Units 50, 51, 58 and Building 5 at this institution.

.2 The Contractor must supply a DCMS system that:

.1 Manages and monitors edge devices including Motorized Doors, Motorized Barriers and their associated Position Switches.

.2 Manages and monitors edge devices including power Outlets and Light Fixtures in Ranges and Common areas, where such Outlets and Fixtures are provided with the appropriate remote management and control interface.

.3 Is designed using robust, Industrial grade, off-the-shelf technology.

.4 Is compatible with and able to be seamlessly integrated with CSC's Command, Control and Data Acquisition platform requirements as provided in Appendix D.

.5 Uses open and off the shelf PLC based industrial automation system technology as the means of interfacing to the edge devices identified above.

.6 Is designed for an industrial environment and is available to any contractor through nationwide distribution.

.7 Deploys the PLC controllers in equipment spaces convenient to the electric or pneumatic drives associated with the doors and barriers.

.8 Includes a Door Control and Monitoring Application that provides all of the application logic to manage and monitor the edge devices described above and is installed as an executable file on servers located in the TES in each Living Unit.

.9 Includes a Door Control and Monitoring Application which must meet CSC's standards as defined in section 2.0.

.10 Includes two (2) orthree (3), depending on the Living Unit, client DCMS workstations, each equipped with a User Interface consisting of a 22" Touch Screen Monitor that provides the means to manage the DCMS.

.11 Is developed and implemented using non proprietary Application Development and Service Delivery environments for all elements, with the exception of the Door Control and Monitoring Application and the supporting Graphical User.

.12 Includes a back-up Server, installed in the CER, which is compatible with CSC's Command, Control and Data Acquisition platform.

.13 Includes an instance of each DCMS Application, which can back up each DCMS Application in the Living Units, that is installed on the back-up server in the CER.

.14 Provides connectivity between the back-up server in the CER and each DCMS server in the Living Unit TES's.

.15 Provides connectivity between the system and the FAAS.

.16 Offers an open architecture that allows for a simple integration of other equipment as well as accommodating any future expansion.

.17 Is manufactured and tested to the requirements of CAN/CSA-E61131-2-06 – Programmable Logic Controllers Part 2: Equipment Requirements, and Tests,

.18 Meets the highest standards for custom control systems to ensure reliability, maintainability, and safety.

.19 Is designed as a modular, generic PLC system from a single manufacturer of general-purpose industrial control applications

.20 Is equipped with the complete complement of controllers, power supplies, input/output modules and communication links to meet this requirement.(Note: Examples of PLC manufactures include: Allen-Bradley, Omron Electronics, Square D-Modicon, GE, and Siemens.)

.21 Provides the capability for all events and logs to be collected and stored locally, but aggregated at the backup server.

.22 Provides the capability to connect to the Data logger and export events and logs to it in real time using Starcom over IP Protocol. (Details of this protocol are provided in Appendix C.)

3.4 General System Operational Requirements

.1 The Contractor must:

.1 Provide a Door Control System that allows an operator in the Living Unit Control Post and the regional Reception Center to remotely control, through a pair of Touch Screen User Interfaces, electrically or pneumatically operated doors, barriers, cell lighting, cell power and to monitor the status of all doors, barriers and hatches in defined areas, including Living Units, of a correctional facilities.

.2 Program the system such that for any system failures, power loss or reboot on any of the CPUs, all doors must revert to the secure (locked) state.

.3 Provide a software driven ability to shut down the User Interfaces in a Living Unit Control post using a soft key on the Operator User Interfaces. and a “Mushroom Button. (This capability is already available in Living Units 52 and 57.)

.4 Provide a hardware driven ability to shut down the User Interfaces in a Living Unit Control post using a Mushroom Button located in or adjacent to each Control Post . (This capability is already available in Living Units 52 and 57.)

.5 Ensure that the shutdown status is provided to the MCCP Operator by means of an alarm that is raised on the FAAS.

.6 Provide the ability for the MCCP Operator to re–enable the Door Control and Monitoring System by means of a Command on the FAAS. (This capability is already available in Living Units 52 and 57.)

.7 Provide the ability for an authorised individual to re–enable the Door Control and Monitoring System by means of a Key switch in the Living Unit TES. (Re-enabling the system at the TES will cause a status change at the FAAS.) (This capability is already available in Living Units 52 and 57.)

3.5 General System Software Requirements

.1 The Contractor must:

.1 Provide a Command, Control and Data Acquisition platform on which the Application (CCDA) software is developed and on which instances of the DCMS Application run, when in service, that meets the requirements of the HMI and Supervisory Control environment described in Appendix D.

.2 Use non-proprietary software code through the development of the application and any dependent software modules that are supplied as part of the platform.

.3 Provide CSC with all programming passwords, source codes, configuration files and programming schedules at the end of the project.

.4 Confirm in writing that CSC, or their designate, will be free to modify and maintain the Door Control and Monitoring System Application Software that is specifically developed as part of this requirement with no restrictions.

.5 Confirm in writing that CSC, or their designatewill be free to redeploy this software at other Living Units or Institutions within CSC’s purview with no additional licenses or fees other than those associated with the CCDA platform software and hardware offered.

.6 Provide a structured configuration environment that will allow a qualified and authorized Wonderware InTouch Developer the ability to reconfigure the software to meet additional needs and to deploy at additional locations.

.7 Use Software design best practices in developing the application software required to implement the DCMS.Typical software best practices are defined as:

.1 Selection of the appropriate development process,
.2 Selection and use of the correct development tools,
.3 The use source-control management,
.4 Application of sound estimating techniques,
.5 Development of manageable software development milestones,
.6 Delivery of Software project leadership,
.7 Development of modular, portable, extensible and reusable code,
.8 Configuration Management,
.9 Application of regular testing scenarios,
.10 The use of Object Oriented design and implementation techniques,
.11 Development of detailed software documentation,
.12 The Contractor must provide details of its proposed software development process and how it intends to meet the software best practices provided above for the development of custom application functionality for the DCMS software.

3.6 General System Testing Requirements

.1 The Contractor must:

.1 Build, program and test the new Applications and PLC management and monitoring capability prior to delivery to site.
.2 Provide an opportunity for the software and hardware associated with these Applications and the PLC management and monitoring to be tested and approved by CSC representatives prior to installation at the contractor's premises.

3.7 General System Hardware Requirements

.1 The Contractor must:

.1 Provide industrial grade computers in industrial grade rack mount configurations.
.2 Provide all computers with adequate RAM and Enterprise Hard Drive space to meet the needs of the Application software and the CCDA Platform for 5 years.
.3 Provide a spare computer and touch screen monitor for each living unit.
.4 Provide industrial, rugged or vandal resistant; 22" display Touch Screen Operator User Interfaces in the quantities defined elsewhere in this document using capacitive touch screen technology in each Control Post.
.5 Provide the supporting computer hardware in the adjacent TES, using KVM extenders where needed to provide remote connectivity.

3.8 General System Network Infrastructure

.1 The contractor must:

.1 Supply new and replace all existing network switches associated with the new DCMS capability in all Living Units and the CER if they do not meet or exceed the requirements identified in this STR. (Note: CSC requires an upgraded network infrastructure capable of providing integrated support for multiple Electronic Security System (ESS) sub systems. Initially, for this deployment, this network infrastructure will support the deployment of the DCMS servers and connectivity to the PIDS and Data logger.

.2 Provide a network infrastructure that is flexible enough to scale to support additions to this network infrastructure and/or addition of further ESS sub-systems within the institution as required in the future. This network infrastructure will provide an integrated, end-to-end “virtualized” architecture for the systems connected to it, using state of the art techniques for the network operation and configuration as described in sections below.

.3 Source the new network switching infrastructure from one switch vendor with the ability to interface in a multi-vendor manner to other vendors equipment should future requirements deem this necessary.

.4 Provide a network infrastructure that supports an open system, multi-vendor capable, communication environment utilizing IEEE 802,1aq Shortest Path Bridging (SPB) to forward and control traffic between switches.

.5 Ensure that the new switching infrastructure is fully integrated into the FAAS and PIU alarm and display systems.

.6 The contractor is responsible for taking all steps to minimize the number of network equipment devices required to minimize sparing requirements. – this is a catch all to alleviate the above and allow also for switch consolidations within buildings where possible based on a detailed full site survey (see part 2).

.7 Ensure that all switches must include QoS (Quality of Service) and security management capabilities. Each switch must have the ability to classify, mark and prioritize traffic into a minimum of 2 strict priority queues, and 6 weighted round robin queues on every port, and maintain QoS across the virtual / stack backplane. Classification controls and ACL (Access Control List) strategies must include the ability to sort traffic based on: MAC Address, 802.1Q VLAN ID, IP Address, TCP/UDP Ports, CoS (Class of Service), ToS (Type of Service), and DSCP (Differentiated Services Code Point).

.8 Ensure that the network infrastructure will provide a layer 2 SPB VID (VLAN identification) environment in which each ESS subsystem has its own allocated VID to provide for secure traffic segregation for each sub system and thus ease of monitoring, troubleshooting and maintenance. Each VID will be logically separate from any other and thus allow multiple services and systems to operate independently on the same wired infrastructure.

.9 Ensure that the network infrastructure will be capable of supporting flexible topology configurations e.g. star, full or partial mesh or ring topology to allow for optimal use of additional data paths as these become available and thus provide extra resiliency and readiness for redundancy in network connectivity connections.

.10 Ensure that all network switches within the network infrastructure are mountable in 19” mounting rail racks, and that the switches do not exceed the depth of communication racks and cabinets.

.11 Provide a design and implementation of a Core network that:

.1 Consists of a single core L2 switch deployed in the CER and providing management of the SPB network. Note: This core switch must be compatible with upgrade to a switch cluster, with a minimum of two switches acting as one logical switch, providing active-active switch operation and linkage capability once further fibre links are available at this institution. This switch cluster will provide high availability connectivity and links to the edge switching equipment.)

.2 Must provide a this switch cluster will be a 19” rack mountable 1RU switch providing the capability to be configured with Layer 2 switching features.

.3 Must provide a core switch and network infrastructure that supports ease of provisioning via edge only device and service provisioning, providing ease of configuration at the edge devices automatically informing the network infrastructure of a move, add or change and not require core configuration when changes to the network are required. The edge only provisioning will be capable of adding a new device to the associated VID.

.4 Must provide software for automatic edge device authentication to ensure edge devices are compatible devices for installation, manage device permissions and monitor the health of connected devices.

.5 Provide a core switch that will support a minimum of 1 Gbps wire speed.

.6 Provide a core switch that offers end-to-end (system-wide) network infrastructure support for a flexible and robust, optimally high availability and reliable (Best in class mean time between failure) network (that is always on), with high throughput (1Gbp) and providing a lossless environment with lowest latency (<4ms) for an evolving, high performance CSC institution data center environment

.7 The switch must provide hot-swappable power supplies with redundant fans.

.2 Must provide a design and implementation of an Edge network that:

.1 Provides stackable 248 port network edge switches utilizing 802.1aq SPB allowing for ease of future expansion of the network infrastructure and the capability for multiple connections into different switches in the stack utilizing load balanced network paths to provide an extra level of resiliency within the network in case of any switch failure.

.2 Provides Edge switches that deliver:

.1 L2 switching

.2 10/100/1000 Mbps switching

.3 1GBps SFP+ uplinks (with migration option for 10Gb future uplinks) resilient, always on connectivity

.4 Wire-speed performance and non-blocking throughput to support a variety of applications

.5 Field replaceable redundant power supplies for increased resilience

.6 Provide one-touch edge provisioning for edge devices with any move, add or change communicated automatically throughout the network infrastructure

.7 capability (via stackable functionality) to add further network capacity as required without impacting current operational switching

.8 Support IEEE 802.1aq SPB

.9 Advanced QOS and prioritization

.10 Network access control (NAC) via device authentication software and IEEE 802.1x Port-based NAC

.11 Support for both IPv4 and IPv6 management addresses

.3 Provides edge switches that support edge-provisioning, automatically informing the rest of the network of the change/ addition, eliminating the need for manual configuration of the core switches when changes are made.

.4 Provides network switches that are capable of device authentication, and include a management GUI interface for maintenance equipment.

.5 Meets the following technical requirements:

.1 Support up to 50 Ethernet ports (24 port version)

.2 Software support for IPv4 and IPv6

.6 Meets the following environmental requirements:

.1 Temperature range of operation: O^oC to 40^oC
.2 Operating humidity range: 0 to 95% relative humidity

3.9 General System Administration, Configuration, Reporting and Maintenance User Interfaces Requirements

.1 The Contractor must:

.1 Provide and install the Maintenance, Configuration and Administration User Interfaces in the in the associated equipment room (T&E) in each Living Unit.
.2 Provide and install the computers mounted on rails for easy repair and maintenance
.3 Provide rack mounted servers or computers with flip up monitor, keyboard, and touchpad with a minimum of six inputs with cabling to support all of these User Interfaces. (Note: The capabilities of each of these interfaces are defined in ES/SPEC-0950.

3.10 General System Warranty Support – Hardware and Software Lifecycle Management Requirements

.1 The Contractor must:

.1 Provide systems that are designed such that CSC can easily transfer the software to new computers or hard drives.
.2 Ensure that all software is transferable and provide a hard disk copy of all DCMS hard drives using a “Ghosting” or similar back-up method.

3.11 General System Component, cable and connector replacement requirements

.1 The Contractor must:

.1 Replace all the existing KVM extenders in the Living Units. (Note: Fibre or CAT6 KVM extenders are acceptable.)
.2 Ensure that KVM extender have at least one video, one audio, RS232 port, and two USB ports.
.3 Replace all components of the system with the exception of the field devices such as electric door locks, request to exit switch, door position switch, kill switch (shutdown button). (Note: It is expected that the field wiring in Living Units 2, 3, 4, and 5 is fit for purpose good, Living Unit 1 will require new resistor packs and wiring from the equipment rack to the door relays.)
.4 Review the documents related to the existing systems to ensure compatibility with the proposed system components for the existing field service devices and wiring, clearly indicating compliance in response to this requirement.

3.12 General System Configuration requirements

.1 The Contractor must:

.1 Ensure that the Inmate Request to Exit (RTE) switch must have a 2 state function: Closed then open to activate, with a five second timeout.
.2 Ensure that existing door types and protocols are copied to the new system unless exceptions are identified by CSC. Some improvements must be required and are to be coordinated with CSC.

.3 Ensure that for Living Units 2. 3 and 4, Doors D200 and F200, the door alarms can be configured on a schedule that masks alarms between 7:00 and 16:00 on weekdays. The dates and times must be configured through the Configuration Menu.

.4 Replace all the relays associated with the DCMS in all living units. These relays are typically installed between the PLCs and the Door Locks.

.5 The types of Doors that must be controlled and or monitored by this Door Control and Moniotoring System are listed in Appendix E.

3.13 Touch Screen Operator User Interface

.1 The Contractor must provide, for Living Units 50, 51, 58, and Building 5:

.1 An Operator User Interface on a Touch Screen Display that presents the Operator with the information needed to manage the functionality to be provided by the DCMS, including the visual and audible parameters that the operator will respond to and use to interact with the system. The touch screen display must provide a Framework that will include any graphic images and interactive controls required to manage the target system. A typical graphic map must incorporate the following display features as applicable to the area of presentation:

.1 building structures including the devices being managed, including gates, doors,
.2 barriers, locks, lights, power etc.;
.3 type, condition, priority and real time status of all devices being managed; and
.4 emergency instruction and operator prompts, in graphic form wherever possible.

.2 The system graphics must reduce information clutter to a minimum with the appropriate use of icons, especially to display sensor location and state. Details of all icons, sizes, colours and actions will be provided in the Design Requirements for the GUI Framework and the Design Requirements for the Icons referred to in Section 2.

.3 The design of this interface will be defined in more detail in “the DCMS GUI Requirements and the Design Requirements for the GUI for the LU Power and Light System” provided as Appendix F.

.4 As a general guideline, the existing GUI layout structure should be used, but CSC is providing scalable vector Floor Plans in pdf form for the supplier to integrate into the Graphical User Interface. These are provided in Appendix G.

.5 Refer to Appendix F for detailed description of icons; CSC should have the ability to change the icons in the future as it is CSC’s intent to standardize all DCMS icons in the regions.

4 SITE SPECIFIC REQUIREMENTS

4.1 Installation

.1 For the **Available Documentation** the Contractor must:

.1 Review the documents related to the existing systems to ensure compatibility with the proposed system components for the existing field service devices and wiring, clearly indicating compliance in response to this requirement. (Note: These documents will be provided by CSC following contract award.)

.2 Review carefully the O&M manuals, “As-Built” drawings, and other documents related to the existing systems. (Note: These documents will be provided by CSC following contract award.)

.2 For the **Design** the Contractor must:

.1 Document the protocols and prepare text and GUI screen layouts in keeping with the Requirements for the Operator Graphical User Interface for a Door Control and Monitoring System provided in Appendix F, submitting these to CSC for review.

.2 Prepare all screen layouts in colour. (Note: Adherence to the above standards will reduce the number of submittals that will be required before approval will be provided on GUI layouts and operating protocols. Existing Door Layouts have served well to date, and commonality between the two systems would be valuable but will be subordinate to the requirements attached to this STR.

.3 For the **Schedule** the Contractor must:

.1 Complete the installation of the equipment and ensure that the new system is operational no more than 180 days (including weekends) from the award of the contract.

.2 Hold, within 10 working days of contract award, an on-site meeting with a walkthrough of the facility and control systems.

.3 Provide bi-weekly updates at site meetings. (Note: Meetings must include status of work, current or updated completion dates, and other issues identified as work progresses. Date and time must be set as to when CSC may review functional checks of the equipment prior to installation.)

.4 Prepare a final implementation plan for review and approval by CSC prior to the commencement of installation addressing, as a minimum, the following topics and clearly explain the implementation process from start to finish.

.1 An introductory overview of the implementation process.

.2 The degree of involvement required of Institutional staff.

.5 All employees of the Contractor working on-site must meet the security requirements of the Institution prior to attempting to gain access to the facility.

.6 Plan and coordinate this work carefully as this project is in a correctional environment. (Note: The must be carefully planned and coordinated with CSC and the Institution to minimize the disruption of daily security operations and inmate movement. Refer to Appendix H for CSC Safety Regulations for Security Electronics Contractors.)

.4 For the **Existing Installation and Hardware** the Contractor must:

.1 Ensure that the contractors entering the Institution complete and forward any Institutional Access CPIC Clearance Request at least two weeks prior to site entry. Refer to Appendix I.

.2 Ensure that the Inmate Request to Exit (RTE) switch must have a 2 state function: Closed then open to activate, with a five second timeout.

.3 Complete the installation of the equipment and ensure that the new system is operational no more than 180 days (including weekends) from the award of the contract.

.4 Examine hardware, wiring, controllers, software, operating protocols, and all relevant details of the existing systems to develop a full understanding of the existing system prior to starting the project.

.5 Test the existing systems, especially the components that are not being replaced as part of the scope of this project. Provide a written report confirming whether the systems work properly and if there are any problems.

.5 For the **Project Review Meetings** the Contractor must:

.1 Meet with Design Authority to discuss the scope of work and develop a full understanding of the parameters of the project.

.2 Provide recommendations for improvements to the existing Door Control and Monitoring System.

.3 Meet with Design Authority and its representatives to discuss security requirements, shut downs, staging sequencing of construction, temporary measures, and other similar requirements.

.4 Meet with Design Authority and PWGSC prior to programming of Applications, PLCs and GUIs to determine the operating protocols for the Door Controls and Monitoring System.

.6 For the **Cut Over Planning** the Contractor must:

.1 Ensure that at no time any entire living unit is without an operating Door Control and Monitoring System.

.2 Ensure that he changeover from the existing system to the new system in any building must be done in various stages, i.e. one range at a time.

.3 Provide at least 48 hours advance notice of any disruptions in service.

.4 Make provisions for the possibility that, while all necessary preparations may be conducted during regular working hours, the final changeover for living unit ranges might need to be between 23:00 and 06:00.

.5 Ensure that the existing Door Control and Monitoring System, including the GUI's at the control posts in any of the living units, remain operational until the migration from the old system to the new system is completed for the entire living unit.

.6 Consider the CSC guidelines provided below as a suggested methodology. However, CSC is willing to consider other installation plans.

.1 The entire PLC based control system components for each building, including the master controller, input/output modules, power supplies, field wiring terminations, and communication interface modules are pre-assembled and wired at the Contractor’s facilities on metal back panel designed to fit within the existing Door Control and Monitoring System enclosures in the T&E room located in the penthouse of each living unit. The assembly work is to be done noting the requirement indicated in item 4.1.5.3 above i.e. the ability and ease with which the system components can be broken down into sub-systems relative to each range. Once assembled, the entire system should undergo detailed tests and simulations designed to mimic the intended control operations. CSC

representatives will witness these factory tests and request modifications to the control strategies if necessary.

.2 Upon completion of tests deemed successful by the CSC Design Authority, the preassembled component panels should be shipped to the Institution and temporarily installed beside the existing cabinets. Prior to the changeover, the Contractor must label all existing field wiring. At the appointed time, the Contractor must disconnect the field wiring related to the range designated for changeover, remove the wiring from the existing components and reconnect to the new system components. Only after testing of the system and components has confirmed correct and trouble free operation of the system, the changeover work for the next range will start. This process is repeated until the entire living unit is integrated into the new system at which time the existing component back panel must be replaced with the new component back panel.

.3 Concurrently, the Contractor should set-up and configure GUI monitors and associated computers and establish data links between them and the new control panels. As indicated before, the existing GUI monitors must remain functional until the new GUI system encompasses the entire living unit at which time the new GUI monitors will replace the existing GUI monitors.

.7 Perform a full functionality check, a Pre-ATP, on all components associated with the system through hands-on interaction with each door before system acceptance in each building.

.8 Provide the Pre-ATP to the CSC representative for review prior to the completion of a Final ATP at which a CSC representative may ask the Contractor to perform a sample of the tests carried out in the Pre-ATP, or, depending on system performance, all of the tests may be repeated.

.9 Provide a detailed commissioning plan.

4.2 On Site Communications

.1 The Contractor must adhere to the following Communications Requirements:

.1 Communications between the contractor, the Institutional Representative and the Maintenance Technicians is of the utmost importance during interruptions to existing systems to ensure that additional and/or alternative security procedures can be taken by the Institution during the interruption of individual systems.

.2 The contractor must work closely with the Maintenance Technician during interruptions to existing systems. (Note: The on-site National Maintenance Service Provider responsible for the maintenance of all security systems with the Institution is currently “ADGA”. If the service provider changes during the course of these projects, this information will be provided to the Contractor.)

.3 Prior to commencement of each work period contractor must advise the Institutional Representative and Maintenance Technician of the work that will be performed during that period.

.4 During the work day, the Institutional Representative and Maintenance are to be kept regularly informed of the progress being made and will be notified prior to any required disruption in system availability.

.5 As a minimum the parties will meet at the beginning and end of the working day.

4.3 Institution Operations

.1 The Contractor must adhere to the following on site Operational Requirements:

.1 The contractor must take every precaution to minimize any disturbance to institutional operations.
.2 Equipment and systems operational down time must be kept to a minimum.
.3 All down time must be coordinated with the Assistant Warden Operations on site or designate.
.4 The contractor's staff may be required to work during evenings, nights and/or weekends to reduce the amount of down time and to meet operational requirements.
.5 The contractor and his staff on site must cooperate fully with operational staff and conform to all security requirements.

4.4 Testing and Acceptance Procedures

.1 The Contractor must adhere to the following on site Testing Requirements:

.1 The contractor shall provide a detailed ATP to the DA, or his designated representative, by fax or email, for approval at least two weeks prior to the start of installation of the CCTV equipment and system.
.2 The test procedure will outline tests and procedures to be undertaken by the contractor and witnessed by Design authority, Institutional Representative and Maintenance Technician to demonstrate that each system is fully functional and operational as it was prior to relocation to new equipment cabinet.
.3 The Design Authority will review test procedures, and may request additional tests to ensure all required tests are performed prior to accepting as completed.
.4 Test procedures are to be provided by the contractor to the Design Authority in an itemized format indicating each test to be performed and the method in which it is to be performed.
.5 The contractor shall complete one hundred percent of the tests outlined in the ATP prior to the ATP testing being carried out by the DA.
.6 The contractor shall provide a fully completed and signed copy of the ATP to the DA, or his designated representative, by fax or email, at least two working days prior to the start of the final ATP testing. This copy of the ATP shall include all of the results of the tests carried out in Section 5.6.2.
.7 In the case where subcontractors have been used, the contractor shall provide written confirmation that the work of their subcontractor has been inspected and verified. This verification shall be sent to the DA or his designated representative, by fax or email, at least two days prior to the start of the ATP.
.8 Testing may be carried out by the DA, a designated representative or a third party contractor.
.9 The DA may repeat all of the ATP tests done by the contractor or a percentage of them. During the ATP, if an unacceptable level of failed tests are encountered, the ATP testing will be halted until the contractor has corrected the failures.
.10 If the DA during the ATP testing finds a minor deficiency that does not affect the operational effectiveness of the CCTV equipment or system, the ATP testing may continue. If a major deficiency is found during the ATP testing that does affect the operational effectiveness of the CCTV equipment or system; the testing must cease until the deficiency has been corrected.
.11 ATP testing must be done during normal working hours, 08:00 to 16:00, Monday to Friday. ATP testing at other times will only be done in an emergency situation.

.12 The DA or designated representative will sign-off on the ATP, upon the successful conclusion of the testing. Any minor deficiencies noted during the testing will be indicated on the ATP form. This signature indicates the Conditional Acceptance of the system.

.13 System will be subjected to operational testing for a period of two (2) weeks following the Conditional Acceptance of the system. CSC will formally accept the system from the Contractor at the end of this two (2) week period, but only if ALL deficiencies have been corrected.

.14 Any deficiencies noted by CSC during this two (2) week operational testing period will be communicated to the Contractor, who will then be required to correct the deficiencies. The two (2) week operational testing period will begin again after all deficiencies have been cleared.

.15 Equipment warranty period will start on the date the system is formally accepted.5.6

4.5 Labelling

.1 The Contractor must adhere to the following on site Labelling Requirements:

.1 Bold face laser quality printed labels, black print on white background must be provided.

.2 The labels must be self adhesive, one piece, label and clear cover wrapped around cable.

.3 The wording on labels must be approved by design authority prior to manufacture.

.4 The Contractor will install labels on each end of cable.

.5 The Contractor must install labels not less than 150 mm from termination end of cable.

.6 All labels must be clearly visible and readable after final termination of cables without having to move or rotate cables.

4.6 Mounting

.1 The Contractor must adhere to the following on site Mounting Requirements:

.1 Install all existing equipment in the new console or in security equipment cabinets in the CER as indicated.

.2 Route all cabling through cable chases and neatly fasten using Velcro type tie-wraps.

5 SUPPORT AND TRAINING

5.1 Support

.1 The Contractor must meet the following support requirements:

.1 CSA/cUL Certification:

.1 Given the sensitive nature of all electronic components and the need for high reliability and safety, it is a requirement that all material and equipment be CSA/cUL certified.

.2 Evidence of compliance must include certified test reports and definitive shop drawings.

.3 All processor units, input/output modules, and their assemblies must be CSA/cUL certified.

.2 National Distribution: Contractor to have the ability to provide national distribution and local parts and service outlets.

.3 Escalation Plan:

.1 Upon contract award, the Contractor must provide the name and credentials of qualified service technician(s) or manager(s) who will be responsible for ensuring that all inquiries or service issues related to the system are addressed satisfactorily and in a timely fashion.

.2 This/these individual(s) will have the authority, resources, and responsibility to address technical issues, dispatch a service representative to the site if required, escalate any issue that cannot be resolved within the expected time frame, and keep CSC informed at regular intervals until issues are resolved.

.3 Provide your company's definitions for problem types with expected response resolution times, and company's procedures for escalating service issues that are not resolved within expected time frames.

.4 Local Technicians:

.1 The Contractor is to provide one or more local technicians to handle on-site maintenance and repair of the equipment at the institution.

.2 The local technician(s) must be trained, certified, and available for dispatch to the Institution any time a system problem cannot be diagnosed and rectified by CSC personnel.

.3 Should it become necessary, the Contractor must be willing and able to dispatch additional technicians to the Institution?

.4 If on-site service is to be provided by a subcontractor, identify the proposed subcontractor and describe the subcontractor's qualifications to provide this service.

.5 The Contractor is fully responsible for all work performed by a Contractor-provided subcontractor.

.6 System Support:

.1 The Contractor must provide full support of the system through completion and acceptance by CSC and for one full year after acceptance (warranty period).

.2 This support must include system upgrades (as they become available), troubleshooting, the correction of any system bugs or deficiencies, and the resolution of any operating problems.

5.2 Training

.1 In addition to providing operator and technical training in accordance with CSC document ES/SOW-0101, the Contractor must also meet the following training requirements:

.1 Provide informal operator training as systems are being installed to ensure operational staff will not be surprised with a new operating environment.
.2 Log all operators names who receive the informal training.
.3 Provide one session of formal operator's training for each living unit.
.4 Provide an interactive Power-Point Presentation as a training aid for the operator's training that is suitable for use during formal training and for later use by CSC for refresher training.
.5 Provide an in-depth maintenance course for the electronic maintenance technicians (ADGA). Course duration must be at Ieast two days.
.6 All manuals and as-built drawings must be available for the training sessions.
.7 The training plan shall be included with the proposal.

6 DOCUMENTATION

6.1 Manuals and Drawings

.1 The contractor must provide at least four sets of complete documentation including 4 CD's or DVD's, which must include operation manuals, service manuals, and as-built documentation for the system in English; including drawings in AutoCAD 2013 and PDF format. This documentation must be provided be in accordance with CSC document ES/SOW-0101unless superseded by this ST.

.2 In addition to the requirements defined in the above documents, the documentation must also meet these requirements:

.1 Operator's manuals must include both a complete binder with all detailed information, and a single laminated sheet with Condensed instructions.

.2 Condensed Instructions shall be laminated for durability.

.3 Provide at least 10 operator's manuals including the Condensed Instructions.

.4 Maintenance Manual: Upon completion of the project submit to CSC three (3) electronic copies (DVD disk) containing PDF files and three (3) paper copies (in loose leaf binder) of operation and maintenance manual. Include all operational and maintenance documents. Manual must include but not limited to:

.1 Contractor/Suppliers list

.2 System Description and Operation Data clearly explaining all system features and functions.

.3 Detailed System Parts Specifications and Information.

.4 All as-built drawings c/w detailed block and wiring diagrams, schematics and software documentation.

.5 Details of a site specific hardware or software must be supplied as part of the documentation.

.6 Testing and Commissioning (T & C) Reports.

.5 All Manuals will be delivered to the CESM at Springhill Institution, 330 McGee Street, PO Box 2140, Springhill, NS, B0M 1X0.

.6 Electronic manuals must be structured based on a database framework with direct links to the appropriate PDF files. Document retrieval and viewing must be executed through a menu driven approach. All PDF files must be enhanced with appropriate bookmarks to facilitate searching of information within the document or linked 10 other relevant documents tor references.

.7 Provide a handover report which includes details of the equipment, dates of warranties, contractor contact information and other project information. A copy of this document is provided as Appendix J.

7 OPTIONS

7.1 Optional System components,

.1 The contractor must provide a list including the name, part number and, in the cost proposal only, the price of each DCMS system element, including hardware, cables, conduit, firmware, software and licenses, that constitutes the entire IVIRS system supplied under this contract.

.2 CSC may elect to purchase additional equipment for installation at further locations based on the items identified and the prices provided in the cost proposal.

7.2 Optional System deployment services

.1 The contractor must provide a list including the name, part number and, in the cost proposal only, the price of each of the services required to configure, install, test and provide training in support of a fully functional DCMS system as supplied under this contract.

.2 The contractor must provide the cost of services, in the cost proposal only, as a typical cost per line item with supplemental information that would allow CSC and the contractor to increase or decrease a bundled service cost in daily increments.

.3 CSC may elect to purchase additional services in support of installations at further locations based on the items identified and the prices provided in the cost proposal.

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