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Solicitation No. - N° de l'invitation 21120-158587/A	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client 21120-158587	**Date** 2015-02-06
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File No. - N° de dossier hn334.21120-158587	**CCC No./N° CCC - FMS No./N° VME**
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Canada

This amendment is raised to include an electronic copy of the Statement of Requirement (STR)

(Please see attached pdf)

ALL REMAINING TERMS AND CONDITIONS ARE UNCHANGED

Correctional Service Canada
Facilities Branch
Electronics Security Systems

October 16 2014

STATEMENT OF TECHNICAL REQUIREMENTS

PUBLIC ADDRESS / INTERCOM SYSTEM REPLACEMENT

AT

EDMONTON INSTITUTION

AND

PUBLIC ADDRESS REPLACEMENT

AT

SASKATCHEWAN PENITENTIARY

AUTHORITY

This Statement of Technical Requirements is approved by the Correctional Service of Canada for the replacement and augmentation of the Intercom/Public Address System at Edmonton Institution.

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
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
CME	Custom Manufactured Equipment
COTS	Commercial-Off-The- Shelf
CSA	Canadian Standards Association
CSC	Correctional Service Canada
DCMS	Door Control and Monitoring System
DES	Director Engineering Services
EIA	Electronic Industries Association
FAAS	Facility Alarm Annunciation System
FAR	False Alarm Rate
FDS	Fence Disturbance Detection System
FIU	FAAS Interface Unit
GFE	Government Furnished Equipment
IP	Internet Protocol
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
PCP	Primary Control Panel
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
SCC	Security Control Centre
SCP	Secondary Control Panel
SIO	Security Intelligence Officer
SOW	Statement of Work

Abbreviation	Expansion
STR	Statement of Technical Requirements
TCP/IP	Transport Control Protocol/Internet Protocol
TER	Telecommunications Equipment Room
UPS	Uninterruptible Power Supply
V&C	Visits and Correspondence
VDU	Video Display Unit
VIRS	Visits Intercept and Recording System
VMS	Video Management System

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

#	Term	Example(s)	Description	Function
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
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

#	Term	Example(s)	Description	Function
				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
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

The Correctional Service of Canada plans to install:

- an integrated Public Address and Intercom system at the Edmonton Institution in Edmonton, Alberta to replace the existing PA and Intercom System, and
- a Public Address system at Saskatchewan Penitentiary, Prince Albert, Saskatchewan to replace the existing PA and Intercom capability.

This Statement of Technical Requirements (STR) defines the specific requirements for these systems at both locations, as follows:

1.1.1. Saskatchewan Penitentiary

In the Medium security portion of the institution, PA capability currently exists only in the East and West wing cell blocks and the gymnasium area. This existing system will be replaced and integrated with the Institution wide system required PA system.
In the Unit 6 Maximum security portion of the institution, PA capability currently exists in the ranges, common rooms and exercise yard areas. This existing system will be replaced and integrated with the Institution wide system required PA system.

In addition, paging coverage will be extended to additional areas where none currently exists. Recording capability will be added to the new systems installed and extended to include the existing PA system at Unit 7 through integration with the existing Voice Logging and Recording System.

1.1.2. Edmonton Institution

Paging coverage will be extended to additional areas where none currently exists. Recording capability will be added to the new systems installed and extended to include the existing PA system at the new 96 Bed Unit.

1.1.3. Off the Shelf Equipment

At each location, the proposed systems must be designed and implemented using as much “Off the Shelf” Technology as possible. Custom Manufactured Equipment will be accepted if sufficient technical detail and justification is provided by the prospective bidder.

1.2. Scope

The contractor must design, supply, install, test, provide training and documentation for the systems and equipment described in this STR.

1.3. Purpose

The purpose of this Statement of Technical Requirement (STR) is to define the technical, operational and site specific aspects for the installation of the systems to be provided at each location. This STR will indicate the extent to which both general and particular CSC specifications are applicable to the implementation of this requirement.

1.4. Function

1.4.1. Saskatchewan Penitentiary

The proposed Public Address system must provide a means for CSC staff to make intelligible voice announcements within the main institution to specific paging zones or on an all-call basis. In addition, a high-priority function must be able to over-ride all local paging functions and lockouts. The PA system must be designed for one-way (simplex) communication.

The new system must make use of a hybrid IP/Analogue architecture, taking full advantage of existing analogue cabling to existing speaker locations from IP to digital convertors installed in Equipment Spaces adjacent to the Control Posts that are located in ranges or buildings. The control network must use IP connectivity to the Controllers located in the MCCP and the Living Unit Control Posts.

The proposed Public Address System must also replace existing equipment at Saskatchewan Penitentiary and augment the existing system by providing coverage in areas where there currently is no PA capability. The contractor must remove and dispose of the existing system.

1.4.2. Edmonton Institution

This system must provide Public Address and Intercom capability on a site-wide basis. The system will provide a means for CSC staff to communicate within the institution using two-way intercom with seven master stations, and several substations as shown on system drawings as well as to make Public Address announcements.

The new system must make use of a hybrid IP/Analogue architecture, taking full advantage of existing analogue cabling to existing speakers and existing Intercom locations from IP to digital convertors installed in Equipment Spaces adjacent to the Control Posts that are located in ranges or buildings. The control network must use IP connectivity to the Controllers located in the MCCP and the Living Unit Control Posts.

There is an existing paging and intercom system in use at the institution. Most of the system no longer functions or is no longer supported by the manufacturer. The contractor must remove and dispose of the existing system.

1.5. Site Visits

1.5.1. Saskatchewan Penitentiary

The Design Authority, or their authorized representative, will coordinate a mandatory site visit at Saskatchewan Penitentiary.
This visit will assist prospective bidders by identifying:

- Existing infrastructure of which includes as fibre-optic cable, conduits, cable ducts.
- Locations of new equipment cabinets, speakers, amplifiers, intercom stations, SCP and PCP.
- Functional overview of the proposed system.

1.5.2. Edmonton Institution

The Design Authority, or their authorized representative, will coordinate a mandatory site visit at Edmonton Institution, and identify to the contractors the exact locations of the speakers, interconnecting cables, amplifier and other electronic equipment.

The visits may be useful to determine:

- The exact location and mounting of the intercom speakers,
- The cable requirements for the intercom speakers,
- Mounting location of the electronic equipment, and
- Conduit and cabling requirements.

2. APPLICABLE DOCUMENTS

The following Specifications, Standards and Publications of the issue in effect on the date of the Invitation to Tender form a part of this STR to the extent specified herein.

ES/SOW-0101	Statement of Work for Electronic Systems for the Correctional Service of Canada Institutions
ES/SOW-0102	Statement of Work for Quality Control for the Installation of Electronic Security Systems in Federal Correctional Institutions
EIA-310-C	Electronic Industry Association Standard for Racks, Panels and Associated Equipment
ES/SPEC-0101	Electronic Engineering Specification – Public Address System for use in Federal Correctional Institutions
ES/SPEC-0303	Electronic Engineering Specification – Limited Call Intercom System for use in Federal Correctional Institutions
ES/SPEC-0006	Electronic Engineering Specification, Conduit, Space and Power Requirements for Security Systems for use in Federal Correctional Institutions

3. TECHNICAL REQUIREMENTS

3.1. Saskatchewan Penitentiary

3.1.1. System Architecture

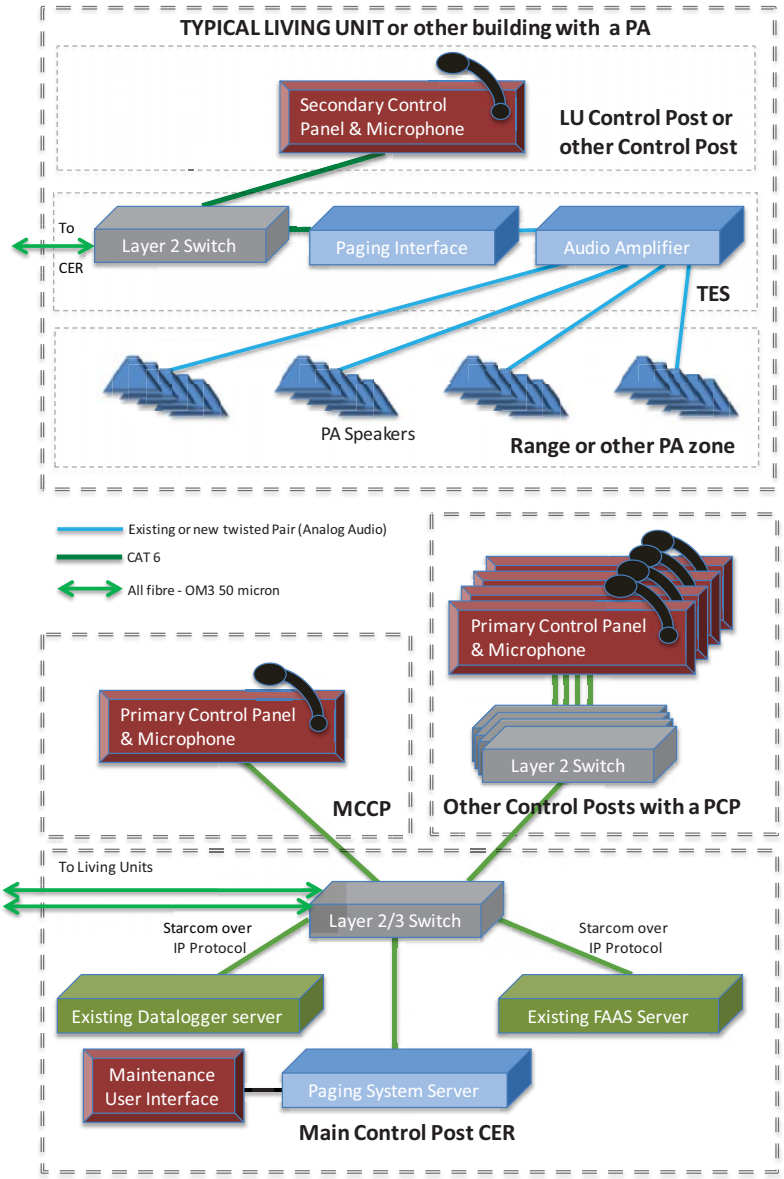

Figure 2: Typical Configuration of the Saskatchewan Penitentiary PA system.

3.1.2. Prototypes

The contractor must supply a fully functional prototype for each type Custom Manufactured Equipment (CME) proposed. The prototypes must be approved be the Design Authority prior to the manufacture of these components. All CME must be CSA approved.

* -All CME will require a prototype to be submitted at the time of the submission of PDR.

3.1.3. System Components

The PA system must consist of the following components.

- Primary Control Panels (PCP), including a touch screen user interface,
- Secondary Control Panels (SCP), including a push button user interface and equipped with a local paging speaker equipped with a volume control,
- A System Server that manages the functionality of the system including all control logic and, in conjunction with remote interfaces, provides audible signals such as pre-announcement tones and other tones as required,
- IP addressable Paging Interfaces
- Audio Amplifiers,
- A Maintenance User Interface associated with the system server,
- Network Switches,
- Analog loudspeakers,
- Cable and interconnection hardware,
- Any other items that may be required to provide a complete and functional system capable of meeting the intent of this STR.

Note that some existing loudspeaker enclosures and conduits may be re-used. Existing loudspeaker components and wiring in the Cell Blocks will be replaced. This will be determined at the site visit.
Alternative configurations will be considered if the supplier can clearly demonstrate benefits and cost savings to Canada.

3.1.4. System Paging Priority Modes

The main institution paging system must have priority modes consisting of the following, in order of priority:

- All Call (MCCP must have immediate priority over other PCPs' and SCPs' in this mode)
- Zone Call
- Local Page

3.1.5. System Paging Zones

The paging system must support the following paging zones:

Zone	***Description***	***Buildings and Areas***
1	Administration, V&C, A&D	B-13, B-2, V&C,
2	Gymnasium/Recreation Area/ Passage way	C-19
3	Large and small Exercise Yards	External Gym and main outside yard
4	Health Care/Passage	B-12
5	Segregation Cell Blocks A1 & A2 and Yard	B-3
6	Living Units - Cell Blocks A3 & A4, B1 & B2, B3 & B4, E1 & E2, F1 & F2, E3 & E4, F3 & F4, Overflow and Dome	B-1,B-3, B-4, B-5
7	Intake A1-A5, B1-B5, A2-1-A2-4, B2-1-B2-4, A3-1-A3-4, B3-1-B3-4, Common Areas	B-7
8	Kitchen	B-11
9	Programs	B-4, B-8, B-10
10	South Courtyard & North Compound	Outside Coverage B-5,B-8,B-7, B-12, B-10, B-11,C-6, C-2, C-1,C-4, C-22,
11	Dorms	C-5, C-6, C-7
12	Cement Shop/coin box shop	C-22
13	Dome, Industrial Carpentry Metal Shop, Taylor, Paint, Programs, Boiler House and Workshop,	C-1,C-2, C-3, C-4, C-13, C-14,
14	Laundry & SIS	C-29, C-30
15	External buildings – Officers Staff Lounge, Maintenance Office, Admin Maintenance Garage, Stores	A-3,A-4, C-31, C-33
16	Minimum Security, (Riverbend) Admin	F25
17	Max Security	Unit 6
18	Max Security	Unit 7
19	Max Security	C24
20	Max Security	Yard and Sallyport

3.1.6. Primary Control Panels (PCP)

The PCPs must consist of a touch-screen graphical user interface with the following components:

- Gooseneck-style microphone w/panel mounted momentary PTT switch

A balanced line level audio output must be available for logging all PCP audio to CSC equipment located in the MCCP.

The system must be able to page a zone or location by selecting the zone(s) required on the touch screen and pressing the PTT switch while speaking into the microphone.

Each PCP must have a touch screen user interface that supports the selection of one paging zone, any selection of paging zones or all paging zones. The PCP must be equipped with a Touch Screen Graphical User Interface that shows the current status of all PA zones under its control through icons that change in state and or colour as needed. An All-Call button must automatically select all zones. Zones must automatically deselect after a predetermined timeout. The logic control of the system shall be capable of automatically clearing any selected zones after a period of inactivity. (The periods of the "time outs" must be configurable between 10 and 60 seconds on a system wide basis through a configuration menu.)

The microphone circuits of the PCP or the central zone control processor must employ automatic level control to provide adequate and consistent audio levels at the paging speakers.

Each PCP shall have status indicators on the touch-screen graphical user interface to indicate when any of the other PCP's are in use.

The contractor must supply a sample of the PCP to the Design Authority for approval at the time of the PDR, prior to manufacturing and delivery.

This STR and the attached drawings provide information concerning the locations of the PCPs.

The Primary Control Panels must be installed at five locations

- PCP1 – MCCP (B-2, 2nd floor)
- PCP2 – Main Control (B-2)
- PCP3 – CMO Office (B-2) room 240
- PAP4 – Max Unit 6 Main Control
- PCP5 – Minimum Security (Riverbend) Main Control (F25)

3.1.7. Secondary Control Panels (SCP)

The SCPs must consist of a touch-screen graphical user interface with the following components:

- Gooseneck-style microphone w/panel mounted momentary PTT switch

The secondary control panels must consist of an IP connected panel either desktop or wall mounted with zone select ability (if required by the number of zones being managed by the specific panel) and momentary PTT button.

The operator must be able to page zones within the span of control of the SCP by pressing and holding the PTT switch while speaking into the microphone. When the PTT switch is pressed, the speaker in the SCP must be muted.

The SCP must incorporate AGC to help compensate for varying source levels.

The contractor must supply a sample of the PCP to the Design Authority for approval at the time of the PDR, prior to manufacturing and delivery.

This STR and the attached drawings provide information concerning the locations of the SCPs. The SCP must permit staff to make paging announcements in their local area. These panels must not be equipped with Zone Page, All-Call functionality.

The secondary control panels must be located as per following:

- SCP1 – V&C Office
- SCP2 – Gym Rec Office
- SCP3 – North-West Tower (D-4)
- SCP4 – Seg Office, Range A1-A2
- SCP5 – Health Care Office (B-12)
- SCP6 – Range B1-B2 (B-3)
- SCP7 – Range E1-E2, F1-F2 (B-5)
- SCP8 – Range A3-A4, B3-B4 (B-3) and Overflow
- SCP9 – Range E3-E4, F3-F4 (B-5)
- SCP10 – Intake (B-7) Office
- SCP11 – Kitchen Office
- SCP12 – Dorms Office (C-5)
- SCP13 – C-1 Dome (C-11)
- SCP14 – SCP25 – Unit 6 Unit Control and Catwalk locations
- SCP26 – SCP31 – Unit 7 Unit Control and Catwalk locations
- SCP32 – C-24 Tower

3.1.8. System Server – hardware and software

The Public Address, Paging and Messaging system must be controlled and managed by software that operates on a Server located in the CER. The appropriate system logic, including messaging, paging over-ride functions, audio routing and zone control for the control panels, must be managed by software running in the server.

The Server must support:

- an interface to an external data logger that will not be connected as part of this project but will likely be used in the future. The interface must support the Starcom over IP Protocol.
- An interface to a Network time Server that meets the requirements identified in "Electronics Engineering Standard, Network Time Protocol Server for use in Federal Correctional Institutions" ES/STD-0500R1,
- include an open SDK for the display interface generation. This is required in the event that the DCMS is deployed as a stand-alone system. The interface must be accessible over an IP connection.
- provide an object model for all devices that are managed by the system, either as native TCP/IP devices or in the form of metadata. This will allow their core functionality, including both events and manageable parameters, to be normalised and exposed to higher level systems,
- log all events on an internal database,
- ensure a minimum of twelve (24) months of data is retained; and
- ensure data over twelve (24) months is deleted automatically.

3.1.9. System Interfaces to Data Logger

The PA system must have the ability to provide an output to the Data Logger described in ES/STD-0102, to provide a record of all PA events including:

- System failures and restorations;
- all tamper/fault alarms with edge devices;
- change of state of any managed Edge Device, including speakers, amplifiers and switches.

All of these activities must be logged in plain-language (or approved abbreviation thereof) without the need for a cross-reference table. The events must also include date and time to the nearest second.

3.1.10. System Interfaces to FAAS

The system reports cell call alarms and faults to the MCCP. The alarms are integrated into the existing FAAS application at the MCCP.

The FAAS must:

- display alarms for System Failure,

3.1.11. System Control Logic

The zone control logic must function in accordance with the requirements of the PCP.

Any page originated by a PCP shall override any SCP operation. SCP audio shall be muted and PCP paging will take priority.

The hierarchy of PCP/SCP priority for the institution must be as follows:

1. MCCP – PCP
2. CMO Office PCP
3. B-2 Main Control - PCP
4. Max Unit 6 – PCP

5. Min Unit (Riverbend F25) PCP
6. All SCPs

The PCP located at the MCCP must be configured to All-Call.

The All-Call Paging capability, together with the associated priority control must be provided at the locations of all remote amplifiers. The MCCP PCP must activate the local over-ride function at all other PCP or SCP location(s) thus ensuring that All-Call announcements take priority over any local paging or other local audio program.

3.1.12. Tone Generators

The system must incorporate a pre-announce tone for all-call announcements. The specific tone(s) to be used must be approved by the Design Authority.

3.1.13. Amplifiers and Local Zone Priority Control

Amplifiers must be sized to power loudspeakers to maximum rated continuous power handling with at least 3 dB of headroom. In the case of the large yard area, the amplifier should be of sufficient power that a person standing in the center of the yard can clearly hear an announcement.

All amplifiers must be rack-mounted with one or more output channels at nominal 70-volt output.

3.1.14. Loudspeaker Assemblies

All loudspeakers used in outdoor areas must be of a weather resistant design intended for outdoor use.

The contractor must supply and install all loudspeaker components and enclosures.

The contractor must supply and install all required conduit and cable needed for new speakers. While some existing conduit may be re-used where appropriate, it is expected that all existing loudspeakers and wiring must be replaced. Potential bidders will have the opportunity to assess this at the site visits.

3.1.14.1. Ceiling Speaker Assemblies

Two types of distributed speaker assemblies will be applicable at most of the locations associated with this installation. The majority of indoor assemblies will consist of ceiling or wall mounted 8-inch speaker assemblies with back boxes.

i) Tamper-proof baffles and appropriate back-boxes must be used for all 8-inch speakers. Existing back boxes in the Cell Blocks and Gymnasiums may be modified as required to accommodate currently available loudspeakers.

ii) In areas where higher levels are required due to ambient noise, high power paging horn style speakers must be used.

These areas will be identified during the site visits as part of the tendering process. The contractor must provide a system design that is suitable for the layout of an audio paging system.

3.1.14.2. Paging Horn Speaker Assemblies

Paging horn speakers must be rated at continuous 30 watts minimum requirement. These speakers must incorporate an adjustable mounting assembly to facilitate easy re-orientation if required. Since these paging horns are used in some outdoor locations, they must be designed for all-weather use.

3.1.14.3. High Power Outdoor Speaker Assemblies

Small exercise yards and the south courtyard area, which will be identified during the site review as part of the tendering process, must be equipped with high power speaker assemblies.

3.1.15. Wire, Cable, Conduit, Ducts

The Contractor must supply all required conduits to speakers, amplifiers and server locations must be supplied by the contractor.

3.1.16. System Testing Capability

Each PCP must be equipped with a local audio input that is to be used for the purpose of testing. This input must accept a balanced line level audio signal from an external audio generator.

The PCP must be equipped with a “test” switch that will route this external signal through the system in place of the audio signal that would normally be delivered from the PCP.

The contractor must supply an audio analyzer including an analog sound level meter as part of the contract. The contractor must provide the make and model number as part of the shop drawing review for approval by the Design Authority.

3.1.17. A.C. Power

The contractor must supply and install all 120 volt circuits under this contract. All PA equipment must be powered by emergency power.

The contractor must connect this equipment to the existing AC supply of the institution.

3.1.18. System Capacity

The central system must be configured such that it has the additional capacity to accommodate an additional eight (8) PCPs and paging zones with no additional modifications to the server hardware and configuration changes only to the software.

The system must be configured such that it is possible to add local amplifiers and local page override to existing zones without making substantial changes to the balance of the system.

3.1.19. Expansion and Zone Changes

The system must be designed and delivered with an architecture and configuration that supports easy expansion without the need for major redesign or extensive rewiring. For example, if a future requirement is to break larger zones into more granular groups, this must be achievable with site programming and minimal hardware modifications.

3.2. Edmonton Institution

3.2.1. System Architecture

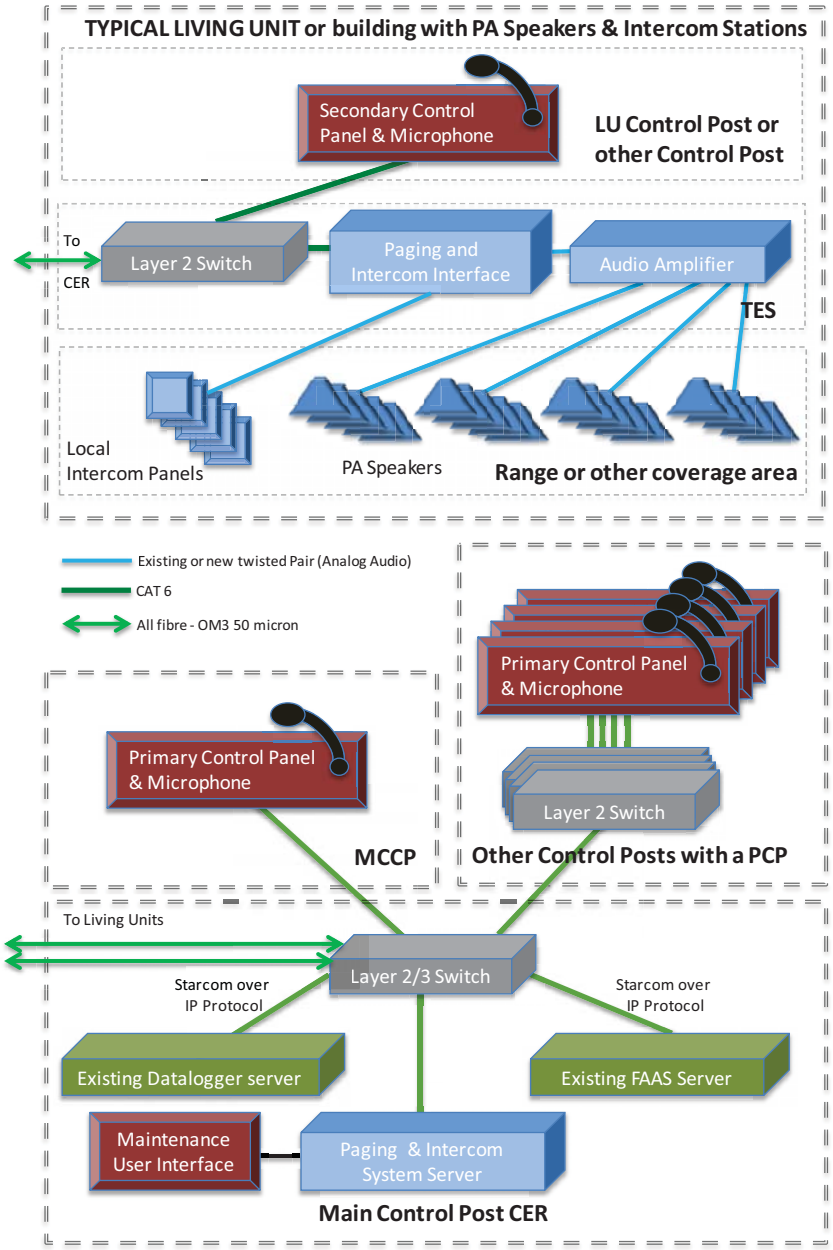

Figure 1: Typical Configuration of the Edmonton Institution PA & Intercom system.

3.2.2. Prototypes

The contractor must supply a fully functional prototype for each type Custom Manufactured Equipment (CME) proposed. The prototypes must be approved be the Design Authority prior to the manufacture of these components. All CME must be CSA approved.

* -All CME will require a prototype to be submitted at the time of the PDR.

3.2.3. System Components

The integrated PA and Intercom System must consist of the following components:

- An IP connected Master Control Panel (MCP) including a touch touch-screen graphical user interface equipped with a speaker, a volume control and a goose neck microphone, qty one (1).
- IP connected Primary Control Panels (PCP) including a touch screen user interface equipped with a speaker, a volume control and a goose neck microphone, qty six (6).
- Analog Local Intercom Panels (LIP) suitable for interior use, including push button user interface equipped with a speaker/microphone for half duplex operation, (quantity to be determined at the site visit).
- Analog Local Intercom Panels (LIP) suitable for interior use, including a push button user interface equipped with a handset, (quantity to be determined at the site visit).
- Analog Local Intercom Panels (LIP) suitable for exterior use, including a push button user interface equipped with a speaker/microphone for half duplex operation, (quantity to be determined at the site visit).
- A System Server that manages the functionality of the system including all control logic and, in conjunction with remote interfaces, provides audible signals such as pre-announcement tones and other tones as required.
- IP addressable Paging Interfaces.
- IP addressable Intercom Interfaces.
- Audio Amplifiers.
- A Maintenance User Interface associated with the system server.
- Network Switches.
- Analog loudspeakers.
- Cable and interconnection hardware.
- Any other items that may be required to provide a complete and functional system capable of meeting the intent of this STR.

The Local Intercom Panels locations must replace existing units in all cases. Locations are identified on system drawings.

- Master Control Panel, overrides primary panels, Touch Screen UI
- Primary Control Panels, manages paging and Intercom, Touch Screen UI
- Local Intercom Panels, calls primary

Alternative configurations will be considered if the supplier can clearly demonstrate benefits and cost savings to Canada.

3.2.4. System Paging Priority Modes

The main institution paging system must have priority modes consisting of the following, in order of priority:

- All Call (MCCP must have immediate priority over other PCPs in this mode)
- Zone Call
- Local Page

3.2.5. System Paging Zones

The paging system must support the following paging zones

Living Unit A/B

Intercom	Paging
A100	Upper 1
B100	Upper 2
TS-8	Lower 1
A103	Lower 2
A104	Upper 3
B103	Upper 4
B104	Lower 3
	Lower 4

Living Unit C/D

Intercom	Paging
C100	Upper 1
D100	Upper 2
TS-7	Lower 1
C103	Lower 2
C104	Upper 3
D103	Upper 4
D104	Lower 3
	Lower 4

Living Unit E/F

Intercom	Paging
E100	Upper 1
F100	Upper 2
TS-4	Lower 1
E103	Lower 2

E104	Upper 3
F103	Upper 4
F104	Lower 3
	Lower 4

Living Unit G/H

Intercom	Paging
G100	Upper 1
H100	Upper 2
TS-3	Lower 1
G103	Lower 2
G104	Upper 3
H103	Upper 4
H104	Lower 3
	Lower 4

Health Care Unit

Intercom	Paging
Front Door	N/A
K100 Vestibule	
K119 Cell	
K120 Cell	
K121 Cell	
K122 Cell	
K123 Cell	
K125 Cell	
K112 Cell	
Doctor's Office	
Dispensary	
Treatment Room	
Dentist Office	

D/S Unit

Intercom	Paging
U1 Prog	Upper 1

L1 Prog	Upper 2
U4 Prog	Lower 1
L4 Prog	Lower 2
Vehicle Gate Out	Upper 3
Vehicle Gate In	Upper 4
“S” Exercise	Lower 3
“D” Exercise	Lower 4
Sec. Office	
Adm Area	
Main Corr	
ACC Corr	

The microphone paging signals from the PCP’s shall be controlled by AGC systems to provide consistent and adequate audio levels.

There is adequate power available at Uninterruptible Power Supplies in the locations where this equipment will be installed and the contractor must connect the system components that require AC power to these outlets at each location in accordance with CSC SOWs and Standards.

3.2.6. Master Control Panel

The Master Control Panel will be located in MCCP and will connect to the PCPs over an Ethernet network.
The MCP will be configured as a Desktop mounted unit.
The Master Control Panel must provide the following features and functionality:

3.2.6.1. Combined Public Address and Intercom functionality:

a. An IP connected Master Control Panel (MCP) including a touch screen user interface equipped with a speaker, a volume control and a goose neck microphone. The touch screen graphical user interface shows the current status of all PA zones and Local Intercom Panels under its control through icons that change in state and or colour as needed against a Floor Plan that represents a simplified layout of the Institution.

b. The touch screen graphical user interface must be no more than 5 RU high and must be available in three configurations:

- Rack Mount
- Wall Mount
- Desk Mount

c. The user interface may use more than one floor plan at an appropriate scale to provide the operator with status information and the ability to select different floor plans. This may be required to allow the operator to more effectively address incoming calls or to make pages across multiple locations or zones.

3.2.6.2. Intercom Specific:

a. Present a queue, sorted by time, identifying the location of the incoming calls; that allows the operator to answer them in the order that they choose. Selecting an incoming call selects the appropriate floor plan for the Operator to answer the call.
b. The ability for the operator to clear an incoming call from the queue without answering the call.
c. The ability for the operator to forward calls temporarily to a PCP.
d. The ability for the Operator to call-a PCP by selecting the PCP required on the touch screen and pressing the PTT switch while speaking into the microphone.

3.2.6.3. Public Address Specific:

a. The user interface must supports the selection of one paging zone, a group of paging zones that consist of one or all zones selected using a multi-touch capability, a touchable icon that selects a group of zones, or a grouping function, or all paging zones.
b. The ability for the Operator to page a zone, group of zones or an all call by selecting the zone(s) required on the touch screen and pressing the PTT switch while speaking into the microphone.
c. An “All-Call” touchable icon that allows the Operator to select all zones with a single touch.
d. Automatic de-selection of zones or after a predetermined timeout that can be set on a system wide basis between 10 seconds and 60 seconds on system configuration.
e. Automatic Gain Control to provide adequate and consistent audio levels at the paging speakers
f. A balanced line level audio output must be available for logging all MCP audio to CSC equipment located in the MCCP (VRE).

3.2.7. Primary Control Panels

The Primary Control Panels will be located at six locations with the designated substations and interconnected with the master control panel in MCCP as shown on the block diagram.

3.2.7.1. Combined Public Address and Intercom functionality:

f. An IP connected Primary Control Panel (PCP) including a touch screen user interface equipped with a speaker, a volume control and a goose neck microphone. The touch screen graphical user interface shows the current status of all PA zones and Local Intercom Panels under its control through icons that change in state and or colour as needed against a Floor Plan that represents a simplified layout of the Institution.
g. The user interface may use more than one floor plan at an appropriate scale to provide the operator with status information and the ability to select different floor plans. This may be required to allow the operator to more effectively address incoming calls or to make pages across multiple locations or zones when calls have been forwarded to a PCP.

3.2.7.2. Intercom Specific:

h. Present a queue, sorted by time, identifying the location of the incoming calls; that allows the operator to answer them in the order that they choose. Selecting an incoming call selects the appropriate floor plan for the Operator to answer the call.

i. The ability for the operator to clear an incoming call from the queue without answering the call.
j. The ability for the Operator to call a LIP or PCP by selecting the LIP or PCP required on the touch screen and pressing the PTT switch while speaking into the microphone.

3.2.7.3. Public Address Specific:

k. The user interface must supports the selection of one paging zone, a group of paging zones that consist of one or all zones selected using a multi-touch capability, a touchable icon that selects a group of zones, or a grouping function, or all paging zones.
l. The ability for the Operator to page a zone, group of zones or an all call by selecting the zone(s) required on the touch screen and pressing the PTT switch while speaking into the microphone.
m. An “All-Call” touchable icon that allows the Operator to select all zones with a single touch.
n. Automatic de-selection of zones or after a predetermined timeout that can be set on a system wide basis between 10 seconds and 60 seconds on system configuration.
o. Automatic Gain Control to provide adequate and consistent audio levels at the paging speakers.

The PCP will be configured as Desktop, Rack Mount or Wall mount. Mounting details will be defined at the Bidders Conference.

3.2.8. Local Intercom Panels (LIP)

All three variations of Local Intercom Panels must provide the following features and functionality:

p. A microphone/speaker mounted in a rugged panel suitable for interior institutional use equipped with a push to talk button that changes the operation of the device from receive to transmit in half duplex mode.
q. A telephone handset and armored cord, mounted in a rugged panel suitable for interior institutional use equipped with a push to talk button that changes the operation of the device from receive to transmit in half duplex mode. Note: These will likely be used at the secure control posts, V&C, A&D, Main entrance and Dissociation/segregation. CSC may request hands free operation only.
r. A microphone/speaker mounted in a rugged panel suitable for exterior institutional use equipped with a push to talk button that changes the operation of the device from receive to transmit in half duplex mode.
s. The ability to receive calls and pages from the MCP and any PCP.
t. The ability for a call to be answered in a hands free mode at LIP equipped with a speaker/microphone configuration.
u. The ability for a call to be placed only to the PCP that is “managing” the calling SCP. Once the PCP has acknowledged a call, the inmate can continue a conversation.
v. Note that this stated functionality shall take precedence over the SCP functionality as indicated in ES/SPEC-0101 and ES/SPEC-0303.

The LIP units will be located as follows:

1 Control
130 try to CP#1
130 try to G/H
N116 Entry to MCCP
103 #1 Station
104/103 South Barrier

2 Control
HCU Corridor
HCU Exit
D&S Corridor
K107 Restricted Visits
Psychology Unit
North Barrier
M100 Office
CP#2 Station

3 Control
SIS 1&2
WE 3&4
School 5&6
IND Hallway 7
IND Outdoor 8
Outside Door 1 – 9
Outside Door 2 – 10
KIT
IND R06
D19 IN
D19 OUT
D20 IN
D20 OUT
D6 – 23 IN
D6 – 23 OUT
Q3 IN
Q3 OUT
S3 IN
SR OUT
Note, for information purposes only: The current intercom is interfaced with an Axis 291 decoder – utilizing the dry contacts

V&C Unit "P"
Yard
Search Room
Restricted Visits
Visitor Area
Visitor Entrance

Admission & Discharge Unit "J"
Holding Cell
Rear Entrance
Front Entrance

Main Entrance, Unit "Z"
Visitor's Vestibule
Private Family Visits #1
Private Family Visits #2

3.2.9. Site specific mute requirements

The following muting controls must be provided:

a. A mute control for the PA speakers in the Spirituality Room,
b. A mute control for the PA speakers in the Parole Board Room,
c. The mute control must be in the form of a momentary key lock switch with status indicator and must be wall-mounted near the room entrance
d. The local mute function must be automatically cleared daily at approximately five p.m.

3.2.10. Additional System Requirements

3.2.10.1. Loudspeaker and Intercom Panel Assemblies

All loudspeakers used in outdoor areas must be of a weather resistant design intended for outdoor use.

The contractor must supply and install all loudspeaker components and enclosures.

The contractor must supply and install all required conduit and cable needed for new speakers. While some existing conduit may be re-used where appropriate, it is expected that all existing loudspeakers and wiring must be replaced. Potential bidders will have the opportunity to assess this at the site visits.

3.2.10.2. Ceiling Speaker Assemblies

Two types of distributed speaker assemblies will be applicable at most of the locations associated with this installation. The majority of indoor assemblies will consist of ceiling or wall mounted 8-inch speaker assemblies with back boxes.

i. Tamper-proof baffles and appropriate back-boxes must be used for all 8-inch speakers. Existing back boxes in the Cell Blocks and Gymnasiums may be modified as required to accommodate currently available loudspeakers.
ii. In areas where higher levels are required due to ambient noise, high power paging horn style speakers must be used.

These areas will be identified during the site visits as part of the tendering process. The contractor must provide a system design that is suitable for the layout of an audio paging system.

3.2.10.3. Paging Horn Speaker Assemblies

Paging horn speakers must be rated at continuous 30 watts minimum requirement. These speakers must incorporate an adjustable mounting assembly to facilitate easy re-orientation if required. Since these paging horns are used in some outdoor locations, they must be designed for all-weather use.

3.2.10.4. High Power Outdoor Speaker Assemblies

Small exercise yards and the south courtyard area, which will be identified during the site review as part of the tendering process, must be equipped with high power speaker assemblies.

3.2.10.5. Intercom Assemblies

Small exercise yards and the south courtyard area, which will be identified during the site review as part of the tendering process, must be equipped with high power speaker assemblies.

3.2.11. Wire, Cable, Conduit, Ducts

The Contractor must supply all required conduits to speakers, amplifiers and server locations must be supplied by the contractor.

3.2.12. System Testing Capability

Each MCP and PCP must be equipped with a local audio input that is to be used for the purpose of testing. This input must accept a balanced line level audio signal from an external audio generator.

The MCP and PCPs must be equipped with a "test" switch that will route this external signal through the system in place of the audio signal that would normally be delivered from the MCP or PCP.

The contractor must supply an audio analyzer including an analog sound level meter as part of the contract. The contractor must provide the make and model number as part of the shop drawing review for approval by the Design Authority.

3.2.13. A.C. Power

The contractor must supply and install all 120 volt circuits under this contract. All PA and Intercom equipment must be powered by emergency power.

The contractor must be responsible for the connection of this equipment to the existing AC supply of the institution.

3.2.14. System Capacity

The central system must include future capacity for at least two additional PCP's, four local intercom stations and at least four additional paging zones.

It must be possible to add PCP's and additional zones without making substantial changes to the balance of the system.

3.2.15. System Server – hardware and software

The Public Address and Intercom System must be controlled and managed by software that operates on a Server located in the CER. The appropriate system logic, including messaging, paging over-ride functions, audio routing and zone control for the control panel, must be managed by software running in the server.

The Server must support:

- an interface to an external data logger that will not be connected as part of this project but will likely be used in the future. The interface must support the Starcom over IP Protocol.
- An interface to a Network time Server that meets the requirements identified in "Electronics Engineering Standard, Network Time Protocol Server for use in Federal Correctional Institutions" ES/STD-0500R1,
- include an open SDK for the display interface generation. This is required in the event that the DCMS is deployed as a stand-alone system. The interface must be accessible over an IP connection.
- provide an object model for all devices that are managed by the system, either as native TCP/IP devices or in the form of metadata. This will allow their core functionality, including both events and manageable parameters, to be normalised and exposed to higher level systems,
- log all events on an internal database,
- ensure a minimum of twelve (24) months of data is retained; and
- ensure data over twelve (24) months is deleted automatically.

3.2.16. System Interfaces to Data Logger

The PA system must have the ability to provide an output to the Data Logger described in ES/STD-0102, to provide a record of all PA events including:

- System failures and restorations;
- all tamper/fault alarms with edge devices;
- change of state of any managed Edge Device, including speakers, amplifiers and switches.

All of these activities must be logged in plain-language (or approved abbreviation thereof) without the need for a cross-reference table. The events must also include date and time to the nearest second. The log must be accessible to permit subsequent analysis of calls and events

3.2.17. System Interfaces to FAAS

The system reports cell call alarms and faults to the MCCP. The alarms are integrated into the existing FAAS application at the MCCP.

The FAAS must display alarms for System Failure,

3.2.18. Tone Generators

The system must incorporate a pre-announce tone for all-call announcements. The specific tone(s) to be used must be approved by the Design Authority.

3.2.19. Amplifiers and Local Zone Priority Control

Amplifiers must be sized to power loudspeakers to maximum rated continuous power handling with at least 3 dB of headroom. In the case of the large yard area, the amplifier

should be of sufficient power that a person standing in the center of the yard can clearly hear an announcement.

All amplifiers must be rack-mounted with one or more output channels at nominal 70-volt output.

3.2.20. Expansion and Zone Changes

The system must be designed and delivered with an architecture and configuration that supports easy expansion without the need for major redesign or extensive rewiring. For example, if a future requirement is to break larger zones into more granular groups, this must be achievable with site programming and minimal hardware modifications.

4. SITE SPECIFIC REQUIREMENTS

4.1. Saskatchewan Penitentiary

The following sections itemize the work that is required in specific areas of Saskatchewan Penitentiary. Note that this list is provided as a reference only and is not intended to be an all-inclusive list of tasks.

The drawings only identify general locations of speakers. They do not represent the actual number or type of speakers required. Additional locations, or changes to those identified, may be determined during the site visit. It is the contractor's responsibility to provide the appropriate number of speakers for acceptable audio coverage for all zones. **During the ATP stage, if it is determined that the audio coverage is not acceptable, the contractor must provide more speakers at their cost.**

4.1.1. Building B-3 – North Side lower – A1 & A2 Ranges (segregation)

"A" Range Segregation/ Yards - 9 speakers must be provided in this area, 3 of the speakers are wall mount with back boxes and 6 are wall mount, horn type (4 of which will be outdoor installations). Existing conduits and speaker enclosures may be reused.

4.1.2. Building B-3 – South side lower – B1 and B2 ranges

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.3. Building B-3 – North side upper – A3 and A4 ranges

4 wall mount speakers; existing conduits and speaker enclosures may be reused. Local paging to the Overflow range is required from this SACP.

4.1.4. Building B-3 – South side upper – B3 and B4 ranges

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.5. Building B-5 – South side lower – E1 and E2 ranges

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.6. Buildings B-5 – North side lower – F1 and F2 ranges

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.7. Building B-5 – South side upper – E3 and E4 ranges

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.8. Building B-5 – North side 3rd Floor – F3 range

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.9. Building B-5 – North side 4th floor – F4 range

4 wall mount speakers; existing conduits and speaker enclosures may be reused.

4.1.10. Building C-19 – Gymnasium & Passageway

Existing conduits and speaker enclosures may be reused. There is currently 10 existing speakers, 6 of which are wall mount enclosures and 4 (gym) are wall mount Horn type.

4.1.11. Large/Small Exercise Yards (Zone 6)

There is an old PA system installed in these locations that is currently non-functional. There are currently 12 speakers in total between the two areas, 4 wall mount horn type (outdoor) on the inside of the North wall for the Small yard and 8 wall mount horn type (outdoor) on the West side of the institution wall. The 8 speakers on the West wall are mounted in pairs at 4 locations as indicated on the map.

4.1.12. Unit 6 – Main Max Yard, Exercise Yards, Common Rooms, Ranges, Program Rooms, V&C,

Existing speakers and wiring to be replaced.

4.1.13. Unit 7 – General (Zones 58-71)

This Unit has an existing PA. The contractor must integrate this PA with the rest of the institution. This information will be supplied as part of the site visit. (The installed system is based on a Harding hybrid Analog Digital PA.)

4.2. Edmonton Institution

The following sections itemize the work that is required in specific areas of the Edmonton Institution. Note that this list is provided as a reference only and is not intended to be an all-inclusive list of tasks.

The drawings only identify general locations of speakers. They do not represent the actual number or type of speakers required. Additional locations, or changes to those identified, may be determined during the site visit. It is the contractor's responsibility to provide the appropriate number of speakers for acceptable audio coverage for all zones. **During the ATP stage, if it is determined that the audio coverage is not acceptable, the contractor must provide more speakers at their cost.**

4.2.1. Living Unit A/B

- Replace existing PCP with new equipment
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Replace existing PA speakers
- Test and verify operation of all other new substations.

4.2.2. Living Unit C/D

- Replace existing PCP with new equipment
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Replace existing PA speakers
- Test and verify operation of all other new substations.

4.2.3. Living Unit E/F

- Replace existing PCP with new equipment
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Replace existing PA speakers

- Test and verify operation of all other new substations.

4.2.4. Living Unit G/H

- Replace existing PCP with new equipment
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Replace existing PA speakers
- Test and verify operation of all other new substations

4.2.5. Dissociation and Segregation Unit

- Replace existing LIP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Replace existing PA speakers
- Test and verify operation of all new substations.

4.2.6. Health Care Unit, Unit "K"

- Replace existing PCP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.2.7. Secure Control Post #1

- Replace existing LIP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.2.8. Secure Control Post #2

- Replace existing LIP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.2.9. V&C Unit "P"

- Replace existing LIP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.2.10. Admission and Discharge Unit "J"

- Replace existing LIP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.2.11. Main Entrance Unit "Z"

- Replace existing LIP/intercom station with new equipment.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.2.12. MCCP

- Replace existing Master control station with new MCP.
- Connect new system to new System Server.
- Replace wiring as required to meet manufacturer's specifications for new intercom stations.
- Test and verify operation of all new substations.

4.3. Installation

The contractor must supply and install the PA and Intercom System equipment, as required at each location, interconnecting cables and all 120 VAC required for the operation of the system. The entire system must operate from emergency power circuits. The contractor must provide 120 VAC circuits as required. The contractor must supply a new rack (if required) similar to existing racks in locations at which equipment will be installed. The contractor must calculate the additional heat load of new PA and Intercom Server and upgrade the cooling system to accommodate the increased load (if required). All paging must be recorded and archived. The contractor must integrate (and expanding if required) the PA system with the existing Eventide audio recording equipment in MCCP. The voice logger at both locations consists of an Eventide VR740. Details of the Eventide System will be made available at the bidder's conference.

4.4. Installation Schedule

The Contractor must:

a. 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.
b. Hold, within 10 working days of contract award, an on-site meeting with a walkthrough of the facility and control systems.
c. 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.)
d. 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.
    i. An introductory overview of the implementation process.
    ii. The degree of involvement required of Institutional staff.

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.

4.5. Project Review Meetings

a. Meet with CSC to discuss the scope of work and develop a full understanding of the parameters of the project.
b. Meet with CSC and its representatives to discuss security requirements, shut downs, staging sequencing of construction, temporary measures, and other similar requirements.

4.6. Cut Over Planning

a. To the greatest extent possible, the cutover of the systems from old to new, must result in minimal disruption to the institution.
b. The implementation and cut-over plans must be clearly defined in the proposal.
c. 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.

d. Provide at least 48 hours advance notice of any disruptions in service.
e. 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.
f. Perform a full functionality check, a Pre-ATP, on all components associated with the system through hands-on paging to each zone before system acceptance in each building.
g. 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.
h. Provide a detailed commissioning plan.

4.7. On Site Communications

The Contractor must adhere to the following Communications Requirements:

a. 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.
b. 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.)
c. Prior to commencement of each work period contractor shall advise the Institutional Representative and Maintenance Technician of the work that will be performed during that period.
d. 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.
e. As a minimum the parties will meet at the beginning and end of the working day.

4.8. Labelling

The Contractor must adhere to the following on site Labeling Requirements:

a. Bold face laser quality printed labels, black print on white background must be provided.
b. The labels must be self adhesive, one piece, label and clear cover wrapped around cable.
c. The wording on labels must be approved by design authority prior to manufacture.
d. The Contractor will install labels on each end of cable.
e. The Contractor must install labels not less than 150 mm from termination end of cable.
f. All labels must be clearly visible and readable after final termination of cables without having to move or rotate cables.

4.9. Mounting

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

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

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

5. ENVIRONMENTAL CONDITIONS

5.1. Restricted Work Areas

Some of the living units have crawlspaces below the main floor. It will be necessary to access wiring in these crawlspaces. Note that these areas are classified as restricted work area and are not classified as confined. *Verify at bidders meeting*

5.2. Equipment Operating Environment

The system shall operate under environmental conditions as specified by the Environmental Conditions of ES/SOW-0102. The electronic equipment will be located in an indoor environment. Some loudspeakers will be located in an outdoor environment.

5.3. System Design Audio Analysis

The contractor must conduct a System Design Audio Analysis of the institution in order to determine ideal placement, number and type of speakers required. This information must be included in the PDR.

6. FIBRE, DATA CABLE REQUIREMENTS, NETWORK & SWITCHES

6.1. Fibre

The contractor must use the existing security fibre infrastructure where it exists. The bidders will be shown all fibre termination locations and spare fibre during the site visit. If new fibre is required, the contractor must supply, install, terminate 12 strand 50/125 multimode OM3 fibre optic cable. If distances exceed the specifications of the fibre, it is the contractor's responsibility to install new fibre at their cost. The contractor must provide a design to include a minimum of 50% spare optical fibres at each fibre distribution location. All new fibres must be tested in both directions with an OTDR with all signal strength values documented and provided at Acceptance Testing.

6.2. Data Cable Requirements

The contractor must avoid, as much as possible, the use of conduit in inmate accessible areas. The contractor must utilize existing pipe chases, existing conduit in the walls, etc., where possible. New lengths of conduit must be of the minimum necessary length. All newly installed conduits carrying audio for this project must be identified, except in inmate accessible areas, by prominent labels with **BRIGHT GREEN** wording. These labels must be securely affixed to the conduit at each end of the conduit run, on both sides of any penetration of a wall, and at 3.5 metre points along its length.

All data cables and data jumper cables (minimum 23 gauge), jacks and connector boots installed as part of this project, whether CAT 6 or fibre optic, must be **BRIGHT GREEN** in colour. All cables must be FT4 rated.

All patch cables are to be stranded cable with RJ45 connectors. RJ45 connectors are not to be attached to solid conductor cable.

All *installed runs of CAT6 cable are to be solid conductor cable and terminated into patch panels in equipment racks or faceplates in other locations.

* An installed cable is any cable that is run through a conduit, run from one area in a building to another area, any cable that travels farther than the adjacent equipment cabinet in a series of cabinets. Note: Equipment cabinets must be abutting without side panels to open for the connection to be considered adjacent.

6.3. Network & Switches

The contractor must supply new L2 managed switches to meet the connectivity requirements of this new PA system for each specified location. These switches will be no more than 1 RU in height.

The CER switch must be a L2+ device and must connect to the existing data logger and FAAS servers, the paging system server, and each PCP, as well as fibre connectivity to each switch supporting IP Addressable Control Panel locations. This switch must be 48 port to provide for existing and future growth, including capacity for a minimum of 24 fibre links (SFP ports).

Connectivity between all switches must use an existing multi-mode fibre strand pair unless such does not exist.

Each switch supporting IP addressable PA and Intercom control panel operation must provide Ethernet connectivity to the SCP and the paging system interface, as well as fibre connectivity to the CER switch. Each of these switches must be layer 2 managed switch with a minimum of 24 ports supporting 10/100/1000 Mbps with a minimum of 2 SFP ports. In those instances where the switch is to be deployed in a Tower, an IP30 compliant minimum 4 port switch must be deployed.

6.4. Removal of Equipment and Cable

The contractor must remove all of the redundant cables, and redundant equipment. The contractor must ensure that any cables and conduits of other systems are not damaged. The contractor must remove from site and dispose all old equipment, cable, connectors and associated hardware.

7. SUPPORT AND TRAINING

7.1. Support

The Contractor must meet the following support requirements:

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

b. Escalation Plan:

   I. 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.

   II. 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.

   III. 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.

c. Local Technicians:

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

   II. 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.

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

   IV. 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.

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

e. System Support:

   I. The Contractor must provide full support for all elements of the system through completion and acceptance by CSC and for three full years after acceptance.

   II. 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.

7.2. Training

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:

a. Provide informal operator training as systems are being installed to ensure operational staff will not be surprised with a new operating environment.

b. Log all operators’ names who receive the informal training.

c. Provide one session of formal operator's training for each living unit.
d. 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.
e. Provide an in-depth maintenance course for the electronic maintenance technicians (ADGA). Course duration must be at least two days.
f. All manuals and as-built drawings must be available for the training sessions.
g. The training plan shall be included with the proposal.

8. DOCUMENTATION

8.1. Manuals and Drawings

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.

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

a. Operator's manuals must include both a complete binder with all detailed information, and a single laminated sheet with Condensed instructions.
b. Condensed Instructions shall be laminated for durability.
c. Provide at least 10 operator's manuals including the Condensed Instructions.
d. 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:

I. Contractor/Suppliers list
II. System Description and Operation Data clearly explaining all system features and functions.
III. Detailed System Parts Specifications and Information.
IV. All as-built drawings c/w detailed block and wiring diagrams and schematics.
V. Testing and Commissioning (T & C) Reports.

e. All Manuals will be delivered to the CSEM at Regional Headquarters, Prairies, 2313 Hanselman Place, PO Box 9223, Saskatoon, Saskatchewan, S7K 3X5
f. 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.
g. 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 Annex 1.

8.2. Software Documentation

The contractor shall provide CD copies of all system software in accordance with specification ES/SOW-0101 Statement of Work. The contractor shall provide two copies of the software to the site, one to the Design Authority and one to the RTEO.

8.3. Acceptance Testing Procedures

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 equipment and system. This shall include;

1. Audio signal levels at input every electronic audio device in the system (loudspeakers excluded).
2. Audio signal level and distortion data at the output of every audio processor, preamplifier and power amplifier in the system
3. A-weighted audio levels at several specific locations within each building as specified by the local design authority. These measurements will be used as a future reference to ensure that the system is performing properly.
4. The exact method of testing must be thoroughly documented so it is possible for facility maintenance staff to recreate these same tests in the future thus verifying the performance of the system.

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.

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 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.

Testing may be carried out by the DA, a designated representative or a third party contractor.

The DA may repeat all of the ATP tests done by the contractor or a percentage of them. If an unacceptable level of failed tests is encountered during the ATP testing by the DA; the ATP testing will be halted until the contractor has corrected the failures.

If the DA during the ATP testing finds a minor deficiency that does not affect the operational effectiveness of the Public Address 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 Public Address equipment or system; the testing must cease until the deficiency has been corrected.

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.

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.

Public Address 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.

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.

9. WARRANTY & SPARES

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

9.1. Spares

The contractor shall include an itemized list of recommended spare parts with his proposal. This list shall include unit costs.

10. INSTITUTIONAL OPERATIONS

Equipment and systems operational down time shall be kept to a minimum. The contractor shall provide a plan and schedule to demonstrate how they intend to install a completely operational system before integrating existing equipment. The plan and schedule shall be reviewed during the PDR stage and formally approved at the FDR stage. All down time will be coordinated with the Correctional Manager Operations (CMO) on site or designate after normal working hours and to the Chief of Works during normal working hours. 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.

10.1. Security

The Contractor must submit completed CPIC forms for all staff who will be working at the Institutions. The CPIC forms must be submitted to the CSC Project Manager, or his designate, ten (10) working days prior to the start-up date. The contractor and his staff on site shall cooperate fully with operational staff and conform to all security requirements.

10.2. Safety

The Contractor must comply with the document titled" Safety Regulations for Security Electronics Contractors Working at CSC Institutions" attached as Annex B.

10.3. Communication Responsibility

The contractor is responsible for briefing institution staff prior to leaving the work site for the day. The briefing shall be given to the Correctional Manager Operations (CMO), and shall include, as a minimum:

a) Work performed that day
b) Operation status of the system, including any limitations in functionality or peculiarities
c) Contact name and number in the event of a system failure

The contractor shall maintain a record of these briefings complete with time, date and attendees.

The contractor shall provide a monthly report on the status of the project in accordance to CSC specifications. A teleconference to include stakeholders may be required.

11. QUALITY ASSURANCE

The contractor shall conduct a quality assurance plan that shall include the complete test results of in-plant and on-site tests.

All on-site installation and testing shall be in accordance with CSC document ES/SOW-0102.

11.1. Availability

The contractor shall include an availability model as a part of his proposal as specified by CSC document ES/SOW-0101.

11.2. Reliability

The proposal of the contractor shall include expected MTBF and MTTR figures for all system components. Industrial grade electronic components shall be used exclusively throughout the system. Wherever possible, COTS equipment is to be used.

12. DELIVERABLES

12.1. Manuals and Drawings

The contractor shall provide at least four sets of complete documentation, which shall include operation manuals, service manuals, and as-built documentation for the system in English. This documentation shall be in accordance with CSC document ES/SOW-0101.

The contractor shall provide as-built drawings of the site installation in AutoCAD 2014 format and in accordance with specification ES/SOW Statement of Work. The contractor shall provide two copies of the as-built drawings to the site, one to the Design Authority, one to the RTEO and one to ADGA Headquarters (attn: Project Manager, CSC National Maintenance Program) within 30 days of an accepted ATP.

12.2. Software Documentation

The contractor shall outline in his proposal specifically what software is to be used and what documentation will be provided with the system.

The contractor shall supply operation manuals documenting all supplied software. The supplier must indicate whether any site-specific source code will be supplied. It is deemed advantageous to supply source code in order to facilitate future revisions by Correctional Service of Canada personnel and subsequent contractors.

The contractor shall supply systems that operate on open software systems (non-proprietary) are preferred.

12.3. Training

The contractor shall provide operator and technical training in accordance with CSC document ES/SOW-0101. The training plan shall be included with the proposal.

The contractor is responsible to ensure that CSC maintenance technicians receive training to be able to provide 1st level monitoring equipment.

In the event of any failure of equipment under this STR, including the network switching infrastructure, the contractor is responsible for immediate resolution for resumption of full system operation. This will include provision of a three year warranty including a response time to a service call of within 4 hours.

In order to facilitate this, the contractor will be required to ensure appropriate maintenance support agreements are in place with the switch vendor to provide immediate support in the event of equipment failure. The contractor will provide proof of the availability of certified maintenance support.

The contractor shall prepare and present a two-day training course, in English, to five persons responsible for the maintenance of the equipment. The course shall concentrate heavily on the material contained in the technical manual and site manual. The contractor shall ensure that all maintenance staff trainees can maintain all equipment and use audio testing equipment as identified in the STR. The course shall be presented on the site within two weeks of the successful acceptance testing of the system.

12.4. Custom Equipment

To the maximum extent possible, it is preferred that systems consist or readily available off-the-shelf equipment. Custom assemblies and software shall be used only when such off-the-shelf equipment or software does not exist.

To the maximum extent possible, it is preferred that system configuration and changes be executed by means of software changes, not changes in hardware.

It is expected that manufacturers of major components of the system have a network of national distribution with local supply and service available in larger cities across Canada.

All equipment including any custom assemblies will require CSA approval as per CSC document ES/SOW-0102.

12.5. System Reliability and Redundancy

Wherever possible, the failure of a single component shall not result in the failure of the entire system. The contractor shall address possible failure modes and system fault tolerance in his proposal. MTTR shall be provided for any single-point failure modes.

12.6. Sparing Plan

The contractor shall include an itemized list of recommended spare parts and/or test equipment with his proposal. This list shall include current unit costs.

12.7. Existing Equipment Integration

It may be necessary to physically integrate this equipment with other equipment in some cases. This shall be accomplished in accordance with accepted human engineering principles.

12.8. Existing Equipment Removal

It is the responsibility of the contractor to remove from service any equipment that is being decommissioned as a result of this Paging/Intercom System upgrading. Equipment will be turned over to the local CSC Design Authority or other designated authority.

The contractor shall remove and dispose of all of the wiring rendered redundant, as a result of an advanced design, off site in an environmentally friendly way.

Annex A

Annex B

Annex C