

ICT Scope Specification General

Version 2019.1.0 Approved



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Please Read

IMPORTANT COMPLIANCE REQUIREMENTS

Note: The following instruction applies to all documents in this library.

This is a controlled document and is reviewed on an annual basis. The last review was carried out on September 2019. If you are viewing this document after September 2020, you will need to contact the sender to confirm you are working from the latest revision.

It is the responsibility of the contractor/vendor to read and adhere to the procedures, processes and guidelines set out in the following document when quoting for or carrying out work for ACT Health.

If you have questions or require clarification of any of the procedures, processes or guidelines in the following document please contact the sender of the document in writing with your questions so that a formal response can be provided. If any specific requirement is unclear, it is expected that clarification will be sought from the Health DSD - ICT architect(s), rather than a decision made and a design implemented and based on unclarified assumptions.

These standards are applicable to ALL CHS and ACTHD sites or any work funded by ACTHD (e.g. Calvary, ACTHD provided NGO sites) unless specifically exempt.

All Greenfield Health sites are expected to be fully compliant with all appropriate standards.

Brownfield Health sites undergoing refurbishment should be fully compliant unless an exemption is provided by DSD Infrastructure Hub.

In the event of any design non-compliance issues, a Departures document must be completed and submitted to DSD Infrastructure Hub. These issues should be resolved, in consultation with DSD Infrastructure Hub, as soon as possible within the project process and explicitly prior to site handover.

While some test cases have been cited within these documents as examples, the list is not exhaustive, and all appropriate test procedures shall be formulated, approved prior to testing and testing shall be performed by the client system administrators before full acceptance can be signed off by the Director of ICT Infrastructure Hub.

IMPORTANT:

Any departure from the standard, whether intentional or in error shall require a completed Departures Document to be submitted to DSD infrastructure Hub for approval.

Any non-compliant designs without a pre-approved Departures Document by completion of the project or a nominated milestone or gateway, will require remediation by the Head Contractor at the Head Contractors cost.

Document review high level

(to review detailed document updates Amendment history)

Version	Summary of Changes	Author	Date
2019.0.5	Review document and update several sections	Nitin Saxena	22/10/2019
2019.1.0	CIO Approval for release	Sandra Cook a/g CIO	24/10/2019

Document references

Document	Version	Location

Document default review cycle

(to be review every 12 months from the release date)

Date	Version	Comments
Oct 2019	2019.1.0	Original release date
Oct 2020		(Next review date)

Document Owner

Name	Location
Senior Director, ICT Infrastructure Hub	DSD, Future Capability & Governance, ACT Health

Executive Summary

This ICT Scope Specification document provides the Core Infrastructure ICT project milestones for the head contractor and the Health Directorate - Digital Solutions Division (DSD), DSD inspection points and Critical Non-Clinical systems technical requirements. Additionally, it allocates responsibilities for various tasks to the relevant parties such as the Head Contractor, and DSD. This document does not include Critical Clinical systems and applications.

The document incorporates information based on ICT lessons learnt during several previous Health Directorate projects. The complexity in the implementation and integration of numerous Critical Non-Clinical systems necessitates adherence to the scope specifications provided in this document.

Compliance with the specifications will deliver the following benefits:

- Clear statement of scope for the Head Contractor, DSD and other parties;
- Confidence in the implementation of the systems as it will be based on current enterprise architecture providing reliability and performance; and
- Deliver consistent implementation of the systems within various Health Directorate builds.

The document is divided into three major categories as follows:

- Section 2 details Head Contractor and DSD core project milestones;
- Section 3 provides DSD inspection points at various stages of the project to ensure compliance with the specifications and standards; and
- Sections 4 – 23 provide technical specifications and allocate responsibilities for the implementation and provisioning of the Critical Non-Clinical systems and the network infrastructure that will support these systems.

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1. Introduction

1.1 Document Scope

This document provides the agreed understanding for provisioning Information and Communications Technology (ICT) Infrastructure for Greenfield or Brownfield sites. It outlines the scope of works to ensure that all parties are aware of their responsibilities during the design, construction and operational commissioning phases of the site in compliance with DSD Standards and Patterns.

DSD in conjunction with Shared Services ICT has developed standards and patterns that must be complied with by the head contractor and third-party organisations that provide ICT services for the Health Directorate. These standards are critical to the 'problem-free' operation of the all the critical Health services provisioned at the site.

Any requests, from the Head Contractor, for a change to the design or deviation from the standards must be provided to DSD in writing at least ten business days prior to implementation. DSD will provide a response to the building contractor within ten business days after receiving the request.

A departures document must be completed by the Head Contractor to demonstrate compliance or non-compliance with standards and specifications mentioned in this document.

1.2 Critical non-clinical systems

This document also refers to several Critical non-clinical systems which are listed below:

- **Fixed Duress.** Supports fixed duress buttons within the facility;
- **Mobile Duress.** Supports mobile duress and Real Time Location Service;
- **Access Control.** Provides building and room access control as required;
- **Closed Circuit Television.** Supports monitoring and storage of CCTV images at the site;
- **Nurse Call.** Supports communication from the patient bed to the nurse's station;
- **Building Management and Control System.** Monitors and controls all building utilities within the site;
- **Digital Addressable Lighting Interface.** Supports control of lighting, blinds, emergency lights and exit signs;
- **Distributed Antennae System.** Enhances the mobile cellular coverage inside the building; and
- **Patient Information and Entertainment System.** Includes a range of services such as Free-to-air TV.

1.3 Core infrastructure systems

This document provides scope and minimum technical specifications for several infrastructure components which include:

- **Cabling specification.** Baseline requirements for ICT communication fibre and copper cabling requirements;
- **Communication rooms.** Both building and floor level distribution communications rooms to house ICT cabinets with network and associated equipment;

- **Power specification.** Power connection requirements;
- **Wireless Access Points (WAP).** Requirements for ACT Government wireless network; and
- **Video Conferencing.** Provide advice for room-based video conferencing.

2. Project Milestones

2.1 Head Contractor Core Milestones

The following table outlines the core ICT milestones that the Head Contractor must comply with for this project. These milestones must be included in the Head Contractor master program schedule, with updates provided on a monthly basis, or as required, throughout the duration of the project. The PAP/HC master program must include dates when documents will be provided to DSD for review and the request for information will be sent to DSD to assist in allocation of relevant resources.

It should be noted that many of the DSD deliverables are dependent on these tasks. Failure to provide DSD with the relevant information in a timely manner may result in delays to the DSD deliverables, and consequently delays to the overall program.

NOTE: There are 3 critical hold points, highlighted in red. If the Head contractor becomes aware that any of these points will not be met by the specified dates, DSD must be advised promptly to avoid delaying the program.

Task Name	Dates
Planning	
Draft schedule for delivery of planning milestones	
PAP/HC engagement of Security Consultant	
Provide draft Security Specifications (developed by Security Consultant)	
Provide completed 30% PSP for review	
Provide completed 50% PSP, incorporating DSD feedback from 30% PSP	
Provide completed 80% PSP, incorporating DSD feedback from 50% PSP	
Provide completed 100% PSP, incorporating DSD feedback from 80% PSP Note: Feedback must be incorporated into 50% PSP, 80% PSP and 100% PSP. Otherwise DSD will not accept these PSP releases. Additionally, HC must provide reasons for not including any feedback in the latest released document.	
Provide final Security Specifications (developed by the Security Consultant)	
DESIGN	
Provide draft dates for Core ICT Milestones	
Provide written response to address the vendor requirements in the Critical Non-Clinical System Specifications	
Provide completed 30% FSP, incorporating DSD feedback from 100% PSP ¹	
Provide completed 50% FSP, incorporating DSD feedback from 30% FSP ¹	
Provide completed 80% FSP, incorporating DSD feedback from 50% FSP ¹	
Security Design/content walkthrough of the solution with the Stakeholder groups	

¹ These stages may be collapsed depending on the size of the project and the type of contract. This will need to be approved by DSD upfront.

Provide completed 100% FSP, incorporating DSD feedback from 80% FSP ¹	
Provide Final 100% FSP, incorporating all DSD feedback Note: Feedback must be incorporated into 50% FSP, 80% FSP and 100% FSP. Otherwise DSD will not accept these FSP releases. Additionally, HC must provide reasons for not including any feedback in the latest released document.	
DOCUMENT READY (DR)	
Critical non-clinical systems High Level Vendor Designs² for DSD review	
Provide departures documentation against DSD Specifications and Standards	
Critical non-clinical system proposals from sub-contractors – DSD to review	
Provide high level vendor system design (HLD) – DSD to review – see Appendix E	
Schedule for Building Commissioning Phase, including DSD inspection points	
BUILDING COMMISSIONING	
Updated Schedule for Building Commissioning Phase, including DSD inspection points, on a regular basis ³	
System Implementation Plans, including tasks, roles, responsibilities & timeframes (aka. Run Sheet)	
Provide DSD with test plans for all Critical Non-Clinical systems	
Address vendor requirements from the Critical System Specifications documents	
Provide cable Test Results to DSD, which are required prior to ICT network equipment installation	
Provide completed Network Configuration Information Request Form at least 5 days prior to the information required from DSD	
Communications Room Partial Handover	
Completion of installation of all critical non-clinical system components by vendors	
Inform DSD when Uninterruptible Power Supply (UPS) support infrastructure, such as input switch boards, AC power, surge protector, etc, have been installed	
Confirm system and WAPs readiness for patching	
Critical non-clinical systems implementation, configuration & local testing	
Provide DSD with test results for all critical non-clinical systems	
Critical non-clinical systems integration and vendor testing	
Witness Testing of critical non-clinical systems with ACT Health	
Communications Room Handover (Post final clean)	
Provide “As Built” Detailed Designs for the critical business systems	
OPERATIONAL COMMISSIONING	
Provide current software configuration settings and operational procedures (if applicable) to DSD	

² Sample document/template will be provided by DSD showing the level and type of information required in these documents to ensure DSD can commence their Solution Design for the whole facility.

³ Timeframe to be defined on a project-by-project basis

PROJECT CLOSURE	
Provide latest soft configurations post DLP	

Table 1 - Head Contractor Milestones

2.2 DSD Core Milestones

The following table depicts the core infrastructure milestones that DSD will provide for inclusion in each project's master program schedule. DSD will provide updates to this schedule on a monthly basis, or as required, throughout the duration of the project.

It should be noted that many of these tasks are dependent on the provision of an up to date schedule from the PAP/HC. Failure to provide DSD with this information in a timely manner may result in changes to the estimated duration for these tasks. The duration of the tasks provides DSD adequate time to thoroughly review the documents and provide a consolidated response to the PAP/HC.

DSD dates will be populated once the Head Contractor's milestone dates are identified, as per Table 1 - Head Contractor Milestones.

Task Name	Duration – Std Project	Dates
INITIATION		
DSD Standards sent to PAP/HC		
DSD Specifications Sent to PAP/HC		
DSD - Develop ICT Brief		
PLANNING		
DSD - 30% PSP Review		
DSD - Develop Core Infrastructure BRS		
DSD - Core Infrastructure BRS Endorsed by Stakeholder		
DSD - 50% PSP Review		
DSD – Develop and provide Preliminary Cost Estimate (PCE)		
DSD - 80% PSP Review		
DSD - 100% PSP Review		
DSD – Review and provide feedback on Final Security Specifications		
DESIGN		
DSD - 30% FSP Review ¹	10d	
DSD – Develop and provide preliminary Communications Room layout	3d	
DSD - Develop Critical System BRSs	40d	
DSD - Critical System BRSs Endorsed by BSSGSC	6d	
DSD - 50% FSP Review ¹	10d	
DSD - 80% FSP Review ¹	10d	
DSD - 100% FSP Review ¹	10d	

DESIGN READY (DR)		
DSD - Review Vendor Provided High Level Vendor Designs	10d	
DSD - Develop Conceptual Solution Design (CoSD), including approvals	50d ⁴	
DSD - Develop Project Proposal	15d	
DSD - Project Proposal Approved by Health	1d	
DSD - Supply sanitised Solution Design to PAP/HC post approval of the CoSD by the Shared Services ICT (SSICT) Architecture Design Review Panel	1d	
BUILDING COMMISSIONING		
DSD - Site Inspections	<i>Dependent on vendor schedule, as per DSD ICT Specifications document</i>	
DSD - Procurement of Active Network Hardware and associated Infrastructure	60d	
DSD - Cable Test Results Received and reviewed	2d	
DSD - Issue IP addresses and network configuration information to Head Contractor	10d	
DSD - Accept Partial Communications Room Handover	1d	
DSD - Communications Room Fit Out (inc. Network & UPS)	10d	
DSD - Patching of Desktops and Systems onto respective networks	5d	
DSD - Wireless Access Point (WAP) Configuration and Testing	3d	
DSD - ICT Infrastructure Testing (inc. Network & UPS)	5d	
DSD - Critical Systems Acceptance Testing	5d	
DSD - Communications Room Handover (on completion of forensic clean and lockdown)	1d	
OPERATIONAL COMMISSIONING		
DSD - Operational Commissioning Tasks	<i>See Operational Commissioning schedule for each project</i>	
DSD - Project Acceptance (Go-Live)	1d	
DSD - Post Implementation Support	30d	
PROJECT CLOSURE		
DSD - Project Closure (after expiry of post implementation support period)	10d	

Table 2- DSD Milestones

⁴ Depending on the size of the project and the ICT complexity this figure may vary up or down but is given as an average time frame. This will need to be approved by DSD upfront.

3. Health Digital Solution Division ICT Inspections

In order to ensure compliance with standards, DSD will require site inspections of the ICT infrastructure at each stage of the installation and commissioning.

The Principle Authorised Person (PAP) and the DSD project manager will discuss and mutually agree on the timing of each inspection point. At each stage of ICT deployment, DSD will need to approve the installed infrastructure. PAP will provide DSD a minimum of five days’ notice confirming the date for site inspections.

In addition to the inspection schedule, the DSD project team will require access to the site. DSD project manager will provide the PAP, twenty-four hours’ notice or in case of an urgent request four-hour notice with intention to attend the site.

In the event DSD deems the ICT provisioning does not comply with ICT standards, DSD will raise the issue with PAP to be rectified by the Head Contractor.

The frequency of inspections is listed in the following table, Table 3. Dates for inspections will be agreed upon completion of the Head Contractor milestone dates, as per Table 1.

Inspection Item	Intervals	Dates
Weekly	Weekly walk-through the site to check ICT infrastructure	
Fibre cabling	After any conduit or pit installations (before backfilling)	
	After run-in and splicing	
	After completion	
General Cabling	Post cable tray installation – inspect installed cable trays throughout the building	
Data cabling	After run-in (before sheeting). It can be progressive	
	At completion	
Data cabling for Wireless Access Points (WAP)	After run-in (before sheeting)	
	At completion of installation of access hatch/enclosures	
	At completion of WAP's installation	
Wide Area network (Fibre cabling)	After any conduit or pit installations (before backfilling)	
	After run-in	

Inspection Item	Intervals	Dates
	After Building Distributor to Floor Distributor Fibre Cabling	
	After completion	
Building Distributor (BD) and Floor Distributor (FD) Cabinets	At cabinet delivery (Note: ACT Health has standardised on specific data cabinet models. Please confirm the cabinet models with DSD before placing an order)	
	After Cabinet placement	
BD and FD rooms	After cable tray installation	
BD and FD rooms	Post sheeting	
	After cable lead-in completion	
	After cable termination	
	After cable tray installation	
	After initial pre-equipment forensic clean	
	At completion of cables and equipment installation	
	After final forensic clean	
	At completion – prior to handover	
ICT related power cabling	At run in (before sheeting)	
	After UPS, battery cabinet, Castell key & EPO installations / terminations - confirm correct layout	
	At completion – test for correct operation	

Table 3 - Site inspection schedule

Note: The Head Contractor must provide any pre-requisite requirements, such as White card, at least ten days prior to DSD staff or vendor site attendance.

Note:

Contractors shall adhere to the latest versions of all standards quoted, as determined at contract signing. If standards are updated after this stage, and Health Directorate decide to implement such changes, any variation shall be established with vendors providing a quote for said change in scope.

4. Wide Area Network In-Ground Optical Fibre

4.1 Summary

Two Wide Area Network (WAN) connections for offsite Health Buildings or two Campus Ring connections for onsite Health Campus from the building site to two diverse nodes on the ACT Government network will be provisioned to provide high levels of availability to the services hosted at the data centres. Provisioning of optical fibre will require implementation of fibre pits, conduits and installation of the in-ground optical fibre. The optical fibre entries to the building shall be physically diverse and enter at the extreme ends/opposite sides of the building to provide the greatest physical diversity possible for WAN cabling to ensure resiliency and high levels of availability.

4.2 DSD Scope

DSD will:

- Organise installation of optical fibre conduits from ACT Government Fibre Access Points (FAPs) to the site boundary;
- Organise installation of DSD approved security locks for the pits, internal and external, as per DSD standards;
- Organise OS2 Single mode optical fibre installation and splicing from the ACT Government (offsite) FAPs or the onsite Low core count splice pit (LCCSP) to the Fibre Optic Break Out Trays (FOBOT) in the Building Distributor (BD) communications rooms;
- Organise steel anaconda protection, from last WAN (offsite) / Building entry pit -BEP (Campus) pit to FOBOT;
- Organise FOBOT's, splice tails and cassettes for termination of exterior links; and
- Review installation compliance at quality assurance (QA) checkpoints as detailed in Table 3.

4.3 Head Contractor Scope

The Head Contractor will:

- Co-ordinate conduit installation with the DSD approved underground cabling company to provide conduits from the site boundary to the building perimeter

Note: This MUST be done by an approved DSD Underground Cabling panel member and can be done at the same time as the underground cabler does the above DSD scope work. i.e. Civil contractors can dig trenches in preparation and fill in after, but infrastructure must only be installed by approved parties;

- Provide two J5 Pitlok (or approved equivalent) building entry pits (BEP) boundary pits (if not already in place);

- Install marking tape with trace wire as per Appendix E in SSICT_Cabling_Underground_Fibre_optic (latest version) document;
- Comply with all appropriate standards listed in section 4.4;
- Provide DSD project management team five days' notice to inspect conduits and pits, to ensure compliance with DSD standards, prior to backfilling of trenches and pits; and
- Provide 'As Built' documentation to the DSD project management team.

Note: A contractor from the DSD-approved cabling contractors list, provided in Appendix A - **Table 5**, must be used for any conduits and optical fibre installed for this project as they are familiar with DSD cabling standards and requirements.

4.4 Standards, Specifications and Patterns

The project must comply with the (latest version) of the Health Directorate standards:

- SSICT_Cabling_Underground_Fibre_Optic (latest version) standard (CUFO);
- Fibre Ring Interconnect – Fibre Category – Network Campus Base Specification 2019-1;
- Approved list of cabling contractors provided in Appendix A - Table 4;
- **TCH Campus based sites:** Provision a minimum of 24-core OS2 single mode optical fibre between each BD communications room and WAN splice pits. The lead-in cable from the BEP to either the first entry to a ceiling cable tray system or the BD communications room FOBOT, whichever comes first, must be sheathed in flexible steel conduit (“anaconda”) unless otherwise specified by the DSD project team;

Offsite buildings: Provision a minimum of 12-core single mode optical fibre between BD communications rooms and nearest street splice pits located in disparate locations. The lead-in cable from last BEP to the BD communications room FOBOT must be sheathed in flexible steel conduit (“anaconda”) unless otherwise specified by the DSD project team;

- **TCH Campus based sites:** For each 12-cores entering the BD communications room FOBOT, they will be spliced onto AFL MTP Elite+ tails as per splice drawing (TIA 568 Method C) and will be attached to AFL MTP Elite+ LC cassettes;
- **Offsite buildings:** Each 12-cores entering the BD communications room FOBOT will be spliced onto SC tails and be presented on an SC patch panel; and
- Two diverse entry points into the building will be used to service each BD communications room.

5. Building Backbone Fibre Cabling

5.1 Summary

The backbone fibre cabling will be implemented to provide connectivity between the BD and the FD network switches.

5.2 DSD Scope

DSD will:

- Provide site specific requirements and design layout for OM4 multimode optical fibre within the building. The Head-Contractor must provide DSD the final layout by 50% FSP and incorporate any feedback from DSD by 100% FSP; and
- Review and provide feedback to PAP, on testing and certification documentation provided by the cabling contractor, within five business days.

5.3 Head Contractor Scope

The Head Contractor will:

- Comply with the DSD fibre cable design layout for OM4 multimode fibre;
- Order and install fibre trays, FOBOTs, cassettes and fibre, between the communications rooms;
- Test fibre and provide test results to DSD project management team within two days of completion of tests;
- Provision a minimum of 1x12-core pre-terminated OM4 (aqua) multimode AFL MTP elite+ cables between each FD and BD room or as specified by the DSD project team;
- Provide at each FD room, 1 AFL HD sliding tray + 3 blanks and 1x OM4 HD24 MTP elite+ / 12 LC pair cassette;
- Provide at each BD room, 1 AFL HD sliding tray with front flap (per 8 fibre links) and 1x OM4 AFL HD24 MTP elite+ / 12 LC pair cassette per two links (i.e. total # of FDs/2 +1 additional BD link); and
- Provision a minimum pre-terminated 2x12 core OM4 multimode optical fibre between the two BD rooms terminated on an OM4 AFL HD24 MTP elite+ / LC cassette at each end (as counted and included above) or as specified by DSD project team (1x12 for FD reciprocal components and 1x12 for Cisco Virtual Switching System (VSS) switch pairs if required).
- Provision an additional pre-terminated 12 core OS2 single mode optical fibre between the two BD rooms terminated on an OS2 AFL HD12 MTP elite+ / LC cassette at each end

Note: A contractor from the approved Underground Fibre approved list of contractors provided in Appendix A - Table 4, must be used for any outdoor WAN/BD to node optical fibre, conduit and or pits. The copper data cabling and inter BD/FD fibre cabling installed for this project must be installed by a contractor on the SSICT panel for Structured Cabling approved list of contractors.

5.4 Standards, Specifications and Patterns

The project must comply with the (latest versions) of the following Health Directorate standards:

- St-01 Medical Grade Network (Specifically Figure 4 Building internal trunk fibre connection hardware*); and
- In addition to the multimode internal trunk fibres an additional single mode MTP trunk fibre shall be installed between the two BDs.

*Note: There are several different types and qualities of MTP connectors and three different methods for crossover of MTP circuitry (Methods A, B & C). Each manufacturer uses a different type and method. Mixing these types can cause confusion and issues later, so DSD have standardised on AFC MTP Elite+ solution. This drawing contains all relevant AFC part numbers required to maintain the correct circuit design.

6. Structured Data Cabling

6.1 Summary

Structured cabling on each floor has specific requirements due to copper cable length restrictions that are applicable to comply with ICT industry Australian and International standards. In addition to these requirements there are DSD and Health specific standards that must also be followed.

6.2 DSD Scope

DSD will:

- Provide the number of patch/fly leads of each colour (Black, Light Blue, Dark Grey, Green, Orange, Red, White, Yellow, Lilac & Dark Blue), length and construction required for the project based on Structured cabling colour code standards and installation best practice;
- Provide CommScope® CAT6_A 28 AWG (high density, small diameter size “MiNo”) UTP patch/fly leads or CAT6 UTP patch/fly leads;
- Provide connectivity details for Highly Available (HA) dual Data Outlets (DO) to different communications rooms or different switch stacks within the same communications room;
- Review data outlet layout plan and sign-off on the layout plan if it complies with the DSD standards;
- Provide master cable patching spreadsheet to the building contractor;
- Following completion of the IP address requirements spreadsheet by the building contractor, DSD will update the spreadsheet with IP addressing information within 10 working days based on resource allocation;
- Review data cabling test results and provide feedback; and
- Patch communications services and configure switches to suit specific project requirements.

6.3 Head Contractor Scope

The Head Contractor will:

- Provide final structured cable layout, including outlets and cable tray, design to DSD at least five working days, prior to proceeding with cabling;
- Ensure all cabling outlets are within 80m distance, following (right angle path) cable trays, from the communications room where they are terminated on a plan view – (i.e. 10m allowance for vertical paths, up and down walls);
- Provide manufacturer (Link, Channel and Application) warranties for the installed structure cabling;
- Install Consolidation Points (CP), if approved by DSD. The building contractor, via PAP, must consult with DSD prior to installation of CPs;
- Provision data outlet points;
- Supply appropriate amounts, lengths and colours of patch cables and fly leads, based on the numbers and colours provided by DSD;

- Provide a patch cable holding system on the Communications room wall to hold spare patch cables. Allow enough capacity for storing multiple cables of each colour and length;
- Use CommScope Cat6_A GigaSPEED X10D U/UTP copper cables;
- Populate the building system patching spreadsheet, provided by DSD, with the information which details **all** Critical non-clinical systems equipment to be connected to the range of available networks. The spreadsheet must include device name, type, number and cable outlet identifier. This information is to be provided to DSD **prior** to requesting IP address allocation;
- Ensure installation complies with DSD cabling standards; and
- Provide DSD with certification and cable test results within two days of completion of test results.

6.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- All horizontal cabling outlets shall be no more than 80m cable path distance away, on a plan view, from the two Communications rooms or switch stacks they are terminated on;
- St-02 Communications Cabling Infrastructure 2019-1;
- St-03 Fibre lead-ins for Campus and Office Buildings 2019;
- St-10 Lighting Control System ICT Specification 2019-1; and
- St-12 BMCS ICT Specifications.

The project will comply with the following DSD standards to provide high availability.

- When appropriate tier for High Availability is selected, double outlets should be cabled to different switch stacks in the same communications room. The aim is to maintain a level of data service to a building area in the event of failure of one of the switches in the switch stacks.

The implementation of the high availability applies as follows:

- Double Data Outlets: The left-hand outlet (on the wall) should be cabled to the one switch stack in the Communications room and the right-hand outlet to the second switch stack in the same communications room;
- MUTOs (when approved), TVs, adjacent WAPs and single data outlets should be patched alternately to different switch stacks in the same communications room;
- Each Building Management and Control System (BMCS) field panel (i.e. multiple BACnet controllers connected via One IP controller or multiple IP style controllers), iStar and DALI controllers are to be provided with N+2: outlets (i.e. 1 outlet per IP controller + 1 for service laptop + 1 spare for growth). Outlets should be cabled to the nearest Communications room on the same floor. Alternate outlets will be patched to different switch stacks in the same communications room; and
- For the BD that has primary iStar, an additional data outlet is required.

Other data outlet requirements for a non-HA system will be as per the following:

- Electrical Management System (EMS) requires one data outlet per IP meter.

Note 1: If DALI and BMS controllers/outlets are in the same location a single data outlet for laptop use is sufficient for both.

Note 2: Consult with DSD prior to tender / procurement for installation of structured cabling in order to eliminate any non-compliance with DSD standards and rework required, to rectify non-compliance.

7. Communications Rooms

7.1 Summary

The communications room requirements are applicable to the Main Distribution (MD), Building Distributor (BD) and Floor Distributor (FD) and UPS/Battery Rooms.

7.2 DSD Scope

DSD will:

- Provide internal Communications room layout which outlines the location of data cabinets, air conditioning unit, iStar unit etc;

Note: In the event the communications room layout is **not followed by the head contractor**, the head contractor will remediate the communications room at no cost to the Health Directorate;

- Review and approve Communications room location within the building, size and fixtures;
- Provide conceptual design which includes environmental requirements including HA requirements for UPS and air-conditioning, number & type of switches that will be provisioned to support Critical non-clinical systems, UPS specifications and heat output, power bus type and additional Health service appliances that will be installed within the rooms;
- In the conceptual design provide data cabinet RU layouts, Main Distribution Frame (MDF) and Intermediate Distribution Frame (IDF) layouts;
- Provide the head contractor, via PAP, with specific SRA cabinet model numbers required for procurement of the data cabinets. Health has specific “purpose designed” cabinets depending on row position and stakeholder ownership which may require security side panels between the data cabinets. Note: These models include ~35 additional specified items, including Baying kit, Earthing bars, Cabinet Permanent Labels etc;
- Procure, install and test active communications equipment such as switches and UPS;
- Review and approve UPS electrical bus design provided by the Head Contractor;
- Following communications room partial handover, configure BD and FD switches as per the conceptual and network detailed designs;
- Inspect and signoff on initial communications room clean-up;
- Inspect and signoff on final forensic clean-up; and
- Signoff on Communications room acceptance.

7.3 Head Contractor Scope

The Head Contractor will:

- Provide a communications room consistent with DSD design requirements, including:
 - physical separation of two communications rooms on the same floor (a minimum of 10m apart and in separate fire zones);

- provide BD rooms that can accommodate a maximum of seven data cabinets (number to be determined by DSD solutions architects during initial PSP planning depending on the size of the building and number of Floor Distributor rooms), UPS units and wall mounted access control devices such as iStar panels as required;
- provide FD rooms that can accommodate a maximum of four data cabinets and wall mounted access control devices such as iStar panels as required; and
- fire and floor rating, and floor, wall and ceiling finishes;
- Provide communications room data cabinets as specified by DSD. The data cabinets have been specifically designed to comply with DSD & Health Directorate requirements and as such must not be substituted by another size or type of data cabinet unless specifically approved by DSD.

Note: Cabinets include: labelling, cable chimneys, recessed deep vertical cable management and centre mounted 2RU horizontal copper cable management bracket (CMB) plus additional six 1RU CMBs, and additional reciprocal horizontal fibre management and inter cabinet protection, different Power Distribution Unit configurations (IEC/GPO -unique for each stakeholder), inter cabinet cable access and perforated security barriers and other additional designed features are all preconfigured and preinstalled within the specified SRA model cabinets;

- Provision UTP data cable and power cable trays;
- Provision fibre optic, fibre guide system (if required) as per model specified by DSD for WAN fibre entry;
- Provision data and power outlets for access control (iStar), ICT CCTV cameras connected to the DSD network, Cisco wall mounted VoIP phone as shown on the communications room layout, fire/smoke monitoring and fire extinguisher. Additionally, two data outlets must be installed adjacent to each UPS to support system monitoring over the network;
- Provide DSD plans outlining communications rooms locations in the building at the 50% FSP;
- Provision environmental infrastructure (in line with HA requirements) such as air conditioning, UPS battery venting (if separate battery cabinets are deployed), room fire rating, floor weight rating to all the communications rooms. The head-contractor must adhere to the specific fire rating requirements of communications rooms based on the National Construction Code of Australia (NCC) standards, particularly the BD room if hosting UPS and/or batteries;
- Ensure no hydraulic services, including any waste/water/drainage pipes, are designed to traverse any communications room. Installation of any hydraulic services in the communications rooms will need to be removed by the head contractor;
- Provide “stick mats” at all communications room (BDs & FDs) entry points;
- Provide clear and level access pathways to communications rooms to allow the import of large and heavy equipment; and
- Provide operational lifts for upper/lower floors when communications rooms are not located on the ground floor. The lifts will be used to move ICT equipment to the communications rooms.

7.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- Health Directorate ICT standards;
- SSICT_Cabling_Specification;
- St-01 Medical Grade Network 2019;
- St-02 Communications Cabling Infrastructure 2019;
- St-03 Fibre lead-Ins for Campus and Offsite Buildings 2019;
- St-05 Communications Rooms Building Infrastructure and ICT requirements 2019;
- A minimum of one FD communications room must be provided per floor for new buildings;
- FD communications rooms must be vertically stacked if located centrally within the floor. In the event the FD rooms are not centrally located, connecting vertical risers between every second floor must be provisioned; and
- FD communications rooms must be as centrally located as practical to minimise cabling distances. A maximum of 80 metres of cable paths on the plan view are acceptable.

Note: Compliance with the location of the BD and FD communications rooms, as specified in the DSD standards, is critical to problem free operation of IT infrastructure. Cable lengths exceeding 80 metres from Communications rooms, on the plan view using right angle paths, will not be acceptable as this generally has resulted in exceeding 90m once installed. Any possible cases of contravention shall be discussed and resolved no later than 50% FSP.

8. Uninterruptible Power Supply Infrastructure

8.1 Summary

UPS infrastructure is critical for the operation of the Health systems in the event of loss of power.

Currently, Vertiv (formerly Emerson) UPS units are used for the Health Directorate project. These units have been assessed to comply with the Health Directorate requirements and are approved by Shared Services ICT Facilities.

8.2 DSD Scope

DSD will:

- Provide the conceptual design which includes details of the power and UPS functional requirements for the UPS infrastructure including battery requirements, Castel keys and EPO's if required;
- Arrange procurement and installation of UPS and any DC wiring;
- Organise DSD facilities team to review the installation and be present at testing. PAP should provide DSD at least five days' notice of inspection;
- Provide technical guidance for the installation of the UPS units as required;
- Supply IP numbers and network configuration details to enable Simple Network Management Protocol (SNMP) feature for the UPS units; and
- Organise UPS vendor to, program SNMP card and attach patch lead, EPO and Castel wiring during install. Test SNMP capability when commissioning UPS.

8.3 Head Contractor Scope

The Head Contractor will:

- Provide all electrical design information and diagrams, including UPS DB and EPO wiring single line diagrams, to DSD for review and approval before procurement and installation;
- Supply and install main UPS input and output switchboard(s), one on mains power and the other on Essential Services;
- Provide AC power to the UPS units once installed and tested;
- Provision Sub-boards (A & B circuits) and ensure they are located near entry door;
- Provision diverse cabling from each UPS Output to each sub-board in each FD and BD communications room (A & B circuits);
- Ensure a surge protector is installed prior to bypass circuit;
- Provision external bypass for each UPS with Castel keys on top of each UPS;
- Supply and install an Emergency Power Off (EPO) button (red) with protective shroud (yellow), as illustrated in Figure 1, for each room containing a UPS. The final connection of EPO to UPS to be completed by Vertiv. EPO buttons must be installed at approximately 1.6m

near Sub-boards and doorway but not in a position where a light switch would be located in order to avoid accidental activation of the EPO button;

- Arrange Certificate of Electrical safety and provide a copy to the DSD project management team.



Figure 1- EPO Button

8.4 Standards, Specifications and Patterns

The project must comply with the following:

- Dedicated dual UPS infrastructure must be provided for ICT infrastructure;
- St-05 Communications Rooms Building Infrastructure and ICT requirements 2019;
- Applicable Australian standards for UPS and battery environment must be met, including floor loadings, fire rating of battery enclosures /rooms etc. Where Battery cabinets are located in BD room adequate ventilation (to fulfil AS requirements) must be provided; and
- EPO must be wired as per DSD standard – to be provided by DSD.

Note: Wrap-around Bypass will operate as per the following:

- Take Castell key out of UPS;
- Removal of the key will force UPS into internal bypass mode; and
- Key is then used to unlock bypass protector.

9. Communications Room Air Conditioning

9.1 Summary

Appropriately sized and provisioned air conditioning is critical to maintaining manufacturer compliant ICT equipment environment. The air conditioning specifications are applicable to the Main Distribution, Building Distributor which may include UPS, Floor Distributor and separate Battery/UPS rooms.

9.2 DSD Scope

DSD will:

- Provide conceptual design which includes heat load for the IT infrastructure hosted in the room. The heat load should be used by the Head Contractor to provision appropriate size air conditioning units for the communications rooms. The Head Contractor **must** provide high level vendor designs which provide information about the equipment that will be used for the Critical non-clinical systems. The information from these detailed designs will be used to calculate the heat load. The air-conditioning units should not be procured prior to receiving heat load detailed in the conceptual solution design.

Note: The location of the air conditioning units is outlined in the conceptual solution design document. Any noncompliance with the location will need to be remediated by the head contractor.

9.3 Head Contractor Scope

The Head Contractor will:

- Supply and install minimum two air conditioning units per Communications room;
- If domestic split systems are used, each shall be rated at 150% of required cooling capacity;
- Test and ensure cycling of the air-conditioning units as specified in the Standards and Patterns section 9.4;
- Ensure air conditioning unit can maintain the room temperature at 21 degrees +/- 2 degrees; and
- Provision a connection to BMCS system for cycling, alarms and warnings e.g. failures, Over temperature threshold etc. Test to ensure alarms are working and notifications are sent to appropriate personnel.

9.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- Communications room air-conditioning will be a duplicated system to provide high level of resiliency as follows:
 - A centralised ducted system with two supply units and independent temperature settings; or
 - Two room based split domestic or commercial AC systems;
- Air conditioning for communications rooms must be independent of building air conditioning;
- Two air conditioners in each communications room capable of automatic 8 hour cycling and one in battery room capable of 24x7 operation;
- In the event Domestic Split Systems are implemented, each must be sized at 150% of required heat handling capacity due to the additional overhead of the dehumidifying components in these units; and
- Air conditioners shall be cycled for optimum life and efficiency. For example, cycle every 8 hours if two units are provisioned. In the event more than two are required to achieve required cooling, they shall be on 8-hour cycles with a 4-hour overlap. For example, start A in 4-hours, start B in 4-hours start C and stop A, in 4-hours start and stop B etc.

10. Network Infrastructure

10.1 Summary

Health Directorate sites are provisioned with Cisco network switches. These switches have been selected to comply with the Medical Grade Network (MGN) architecture that has been approved by the Health Directorate.

10.2 DSD Scope

DSD will:

- Provide conceptual solution design, in compliance with MGN architecture, which will outline the number of switch ports and data cabinet rack-units required in each communications room. Additionally, the design will outline the number and type of switches required for the project;
- Provide IP address ranges, subnets, default gateway, VLAN information for various services that will be connected to the switches; and
- Configure and test network switches to provide connectivity for the services that will be commissioned at the site.

10.3 Head Contractor Scope

The scope for other groups will include:

- Provide DSD with the number of switch ports required for each service and any additional network configurations requirements for the site-specific systems, at 50% FSP, to enable commencement of the DSD conceptual design stage; and
- Supply patch and fly leads at communications room handover, based on DSD colour standards, to provide connectivity for various systems.

10.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-02 Communications Cabling Infrastructure 2019;
- Building Distributor Architecture – Design Patterns; and
- Floor Distributor Architecture – Design Patterns.

11. Fixed Duress System

11.1 Summary

The fixed duress system comprises of an application suite of software and hardware appliances that provide duress and messaging capability.

This system includes fixed button duress alarm capability for the site.

A duress system has been implemented at several Health directorate sites and tested to comply with Health Directorate business requirements. This system has been integrated with other Health Directorate systems such as Nurse Call, paging system etc. The site-based duress appliance leverages the head-end duress infrastructure, which supports multiple sites, installed at data centres.

11.2 DSD Scope

DSD will:

- Provide a conceptual solution design which provides details of the number of onsite duress appliances that will be installed, based on the detailed design for fixed duress provided by the Head Contractor, within the site communications rooms. The design will also include data cabinet rack-unit (RU) requirements, if required, for the onsite duress appliances within each communications room;
- Ensure appropriate number of the FD network switch ports are provisioned to provide connectivity for these appliances;
- Provide IP address ranges, subnets, default gateway, VLANs for the duress appliances;
- Organise patching of onsite duress appliances to the ACT Government network; and
- DSD to approve test plan and be present at testing. PAP or the Head Contractor must provide DSD five days' notice to attend testing.

11.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD, the vendor system detailed design for the fixed duress system. These designs must be provided to DSD prior to commencement of the DSD conceptual design. A system detailed design template is provided in Appendix E;
- Determine infrastructure requirements for providing integration with other Health systems such as Nurse Call, Security, Fire Information Panel (FIP), Building Management and Control System (BMCS), and any other systems. Network programming requirement information such as number of IP addresses required etc., must be provided to DSD at 50% FSP;
- Provide onsite duress appliance including chassis and appropriate number of cards to meet the project requirements;
- Provide duress buttons and ensure they are provisioned with “normally closed” circuits;
- Provide annunciators and any other end-point devices necessary to support the duress system;

- Provide all relevant software licenses for this system;
- Organise configuration of the duress system, including head-end and the site-based appliances, that complies with the project business requirements and the system specifications;
- Ensure the duress system integrates with the existing 3rd party systems mentioned below:
 - Nurse Call system;
 - Fire Information Panel; and
 - Paging system;
- Ensure the system is tested comprehensively prior to commissioning into production using an approved test plan;
- Supply yellow patch cables, based on Health colour standards, to provide connectivity for the duress appliances to the DSD network switches. These cables should be provided prior to conducting functional testing;
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the validation, verification and testing (VV&T) of the system;
- Provide test results to DSD for review; and
- Obtain client sign-off following implementation and testing.

11.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-01 Medical Grade Network; and
- St-08 Security ICT Standard 2019.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub' and the 'Critical Systems and Infrastructure Hub' teams. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

12. Mobile Duress System

12.1 Summary

The mobile duress system comprises of an application suite of software and hardware appliances that provide mobile duress and messaging capability.

The mobile duress head-end infrastructure has been provisioned in a highly available configuration with the appliances hosted in data centres. The site-based duress appliance leverages the head-end duress infrastructure, which supports multiple sites, installed at TCH data centre.

Mobile duress is tightly integrated with the Real Time Location Service (RTLS) engine, which allows location tracking for staff security at the site. Ascom handsets with 'Protector' level of firmware are required to provide location tracking. The handsets leverage the wireless network that will be provisioned at the site. The wireless network specifications are described in section 19 – Wireless Network.

12.2 DSD Scope

DSD will:

- Provide a design that contains details for the mobile duress implementation;
- Ensure wireless network is configured appropriately to support mobile duress;
- Provide the wireless desktop and wireless detailed designs. Organise an RTLS survey to be conducted in the event real time location tracking is required; and
- Review and approve the test plans and assist with testing as required. PAP or the Head Contractor must provide DSD five days' notice to attend testing.

12.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD, vendor system detailed designs. These designs must be provided to DSD to enable commencement of the conceptual solution design. A system detailed design template is provided in Appendix E;
- Provide wireless handsets that will meet the project requirements;
- Provide all relevant software licenses for this system;
- Ensure the duress system, including head-end and the site-based appliances, are configured to comply with the project business requirements and the system specifications;
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the validation, verification and testing of the system;
- Provide test results to DSD for review within 2 days of completion of the test; and
- Obtain ACT Health sign-off following implementation and testing.

12.4 Standards, Specifications and Patterns

The project must comply with the following:

- St-01 Medical Grade Network; and
- St-08 Security ICT Standard 2019.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub' and the 'Critical Systems and Infrastructure Hub' teams. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

13. Nurse Call

13.1 Summary

The IP-based Nurse Call system provides a patient with the ability to contact a nurse. The system includes display of alerts and patient initiated calls on an audio/visual annunciator and display of calls on the Nurse Call station.

Nurse Call system components are required to be installed at the site in a highly available configuration. The head-end infrastructure is expected to be installed in one of the ACT Government data centres. The building concentrators which will support the end points will be installed at the site.

13.2 DSD Scope

DSD will:

- Provide conceptual solution design which details the devices that will be installed for this project. The design will also provide data cabinet RU requirements and physical layout details for the Nurse Call devices within each communications room;
- Ensure appropriate number of FD network switch ports are provisioned to provide connectivity for the Nurse Call appliances;
- Organise patching of Nurse Call appliances to the ACT Government network;
- Provide IP address ranges, subnets, default gateway, VLANs for the Nurse Call appliances; and
- DSD to approve the test plan and be present at testing. The PAP or the Head Contractor must provide DSD five days' notice to attend testing.

13.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD Infrastructure team, the vendor system detailed designs. These designs must be provided to DSD to enable commencement of the conceptual design. A system detailed design template is provided in Appendix E;
- Provide Nurse Call buttons, annunciators and any other end-point devices necessary to support the Nurse Call system;
- Provide all Nurse Call appliances that will be installed at the site;
- Provide all relevant software licenses for this system;
- Ensure the Nurse Call system, including head-end and the site-based appliances, are configured to comply with the project business requirements and the system specifications;
- Supply red patch cables, based on DSD colour standards, to provide connectivity for the Nurse Call devices to the DSD network switches. These cables should be provided prior to conducting functional testing;
- Nurse Call system must be configured to integrated with the following Health Critical non-clinical systems:

- DURAsuite system;
- Potentially other systems such as DALI; and
- Clinical communications and workflow management engine;
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the VV&T of the system;
- Provide test results to DSD for review; and
- Obtain client sign-off following implementation and testing.

13.4 Standards, Specifications and Patterns

The project must comply with the following DSD standards:

- St-01 Medical Grade Network 2019; and
- St-14 Nurse Call ICT Specification 2019.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub' and the 'Critical Systems and Infrastructure Hub' teams. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

14. Building Management and Control System

14.1 Summary

A Building Management and Control System (BMCS) is to be installed at the site to monitor and control all building utilities within the site

The BMCS consists of a several digital controllers which communicate via the ACT Government network infrastructure and BACnet network, and report to a server referred to as a head end. The function of the supervisor or operator workstation is to communicate with the head end server to send operational parameters to the controllers, such as set points and time schedules. Conversely, the workstation can receive operational information such as temperatures, pressures, alarms and system performance information from the controllers via the server as required.

The BMCS field panels are installed in various building plant rooms or electrical switchboard cupboards.

14.2 DSD Scope

DSD will:

- Provide conceptual solution design ensuring a network connection is available at the site, based on the requirements provided to DSD Infrastructure team in the vendor system detailed design, for the BMCS panels;
- Provide IP address ranges, subnets, default gateway, VLANs for the BMCS panels;
- Ensure FD switch network ports are provisioned to provide connectivity for the BMCS infrastructure; and
- Review BMCS test results provided by the Head Contractor.

14.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD, vendor system detailed designs. These designs must be provided to DSD to enable the commencement of the conceptual solution design. A system detailed design template is provided in Appendix E;
- Co-ordinate central and site based BMCS system configurations with the vendor;
- Provide all the system components required for the BMCS installed at the site;
- Ensure all the system licenses are provided for this project;
- Ensure there is adequate space available for the BMCS panels;
- Supply yellow patch cables, based on DSD colour standards, to provide connectivity for the BMCS panels to the DSD network switches. These cables should be provided prior to conducting functional testing;
- Provide DSD, network connectivity requirements and any additional requirements for the system connectivity for the BMCS panels at 50% FSP;

- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the VV&T of the system;
- Provide test results to DSD for review; and
- Be responsible for the configuration and testing of the BMCS system.

14.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-01 Medical Grade Network;
- BMCS ICT Specifications; and
- See Data Outlet spec as described in section 6.4.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub'. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

15. Access Control

15.1 Summary

A building-based access control system will be installed which will manage access into various areas of the building. The head-end server infrastructure is located at TCH data centre. These servers form a highly available pair that support several Health Directorate sites.

IP based controllers, which provide power and local access authority for door card readers, latches/locks, keypads and magnetic strikes will be installed at the site. These site-based controllers reference the stored access permissions resulting in permit/deny actions to the controllers.

15.2 DSD Scope

DSD will:

- Provide conceptual design ensuring a network connection is available at the site, based on the requirements provided by the building contractor and the vendor, for the iStar connections;
- Provide communications room layout which will include data cabinet location, iStar devices location on the walls, UPS units and batteries;

Note: In the event the communications room layout is **not followed by the head contractor**, the head contractor will remediate the communications room;

- Organise patching of controllers to the ACT Government network;
- Provide IP address ranges, subnets, default gateway, VLANs for the appliances; and
- Review Access Control System test results provided by the Head Contractor.

15.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD, vendor system detailed designs. These designs must be provided to DSD to enable the commencement of the DSD conceptual solution design. A system detailed design template is provided in Appendix E;
- Provide iStar control panels mounted on the communications room wall;
- Provide any additional appliances required for the access control system based on the design for this site, including integration with other access control system should the site be a shared space;
- Provide all relevant software licenses for this system;
- Provide specialised wiring for door access controls;
- Comply with the communications room layout, provided by DSD, for the location of iStar controllers on the communications room walls;
- Provide data outlets in the communications rooms;

- Supply patch cables, based on DSD colour standards, to provide connectivity for the iStar controllers to the DSD network switches. These cables should be provided prior to conducting functional testing;
- Ensure the approved access control requirements are available for implementation;
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the VV&T of the system;
- Organise configuration and testing of the access control servers and iStar controllers. Provide test results to DSD; and
- Obtain client sign-off following implementation and testing.

15.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-01 Medical Grade Network
- St-02 Communications Cabling Infrastructure 2019-1; and
- St-08 ICT Security ICT Standard 2019.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub' and the Security team. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

16. Digital Addressable Lighting Interface

16.1 Summary

Digital Addressable Lighting Interface (DALI) is an International standard for the control of lighting, LEDs, blinds, emergency lights and exit signs. DALI, type-6 Multi-master “DALIcontrol” system is the approved standard in the Health Directorate for both main lighting and emergency lighting. DALI is implemented in all Health Directorate Greenfield and refurbished Brownfield buildings when appropriate.

The DALI system consists of DALIcontrol Line Controllers, switches, sensors and input modules. The DALI controllers are connected directly to DSD FD switches. The Facilities Management, Repair and Maintenance standard must be applied with this ICT standard for complete compliance.

16.2 DSD Scope

DSD will:

- Provide conceptual solution design which outlines details of the DALI system that will be installed for this project;
- Ensure appropriate number of FD network switch ports are provisioned to provide connectivity for each DALI controller as per system specification;
- Organise patching of controllers to the ACT Government network;
- Provide IP address ranges, subnets, default gateway, VLANs for the controllers; and
- Review DALI System test results and provide feedback to the Head Contractor.

16.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD, high level vendor system designs. These designs must be provided to DSD to enable the commencement of the conceptual solution design. A system detailed design template is provided in Appendix E;
- Produce lighting layouts and operational descriptions consistent with DALI System-LIGHTING Overview & Specification;
- Procure DALI system controllers, switches, sensors and input modules;
- Provide all relevant software licenses for this system;
- Ensure the DALI system is configured to comply with the project business requirements, the system specifications and integration requirements specified in the DSD Conceptual Solution design;
- Supply yellow patch cables based on DSD colour standards, to provide connectivity for the DALI devices to the DSD network switches. These cables should be provided prior to conducting functional testing;

- Save a local copy of the database on the onsite BMCS PC and provide a copy of the database to FM;
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the VV&T of the system; and
- Provide test results to DSD for review.

16.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards and specifications:

- St-01 Medical Grade Network
- St-02 Communications Cabling Infrastructure 2019;
- St-10 Lighting Control System ICT Specification 2019; and
- Refer to the Data Outlet spec as described in section 6.4.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub'. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

17. Closed Circuit Television

17.1 Summary

A Closed-Circuit Television (CCTV) system has been installed at several Health Directorate sites and complies with DSD standards and Health Directorate requirements.

The CCTV system includes high-definition cameras, Network Video Recorders (NVR) and storage arrays that will be hosted at the site or in the data centre. An Avigilon solution has been assessed by the Security team to be most appropriate system that meets the security requirements in various buildings.

17.2 DSD Scope

DSD will:

- Provide conceptual solution design which outlines the number of cameras, NVR and Storage Arrays that will be installed for this project. The design will also provide data cabinet RU requirements for the NVR(s) and storage arrays required within each communications room;
- Ensure appropriate number of FD network switch ports are provisioned to provide connectivity for a NVR;
- Provide IP address ranges, subnets, default gateway, VLANs for the CCTV appliances; and
- Review CCTV System test results and provide feedback to the Head Contractor.

17.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD, vendor system detailed designs. These designs must be provided to DSD to enable commencement of the conceptual solution design. A system detailed design template is provided in Appendix E;
- Provide DSD at 50% FSP, the number of CCTV cameras and the camera models that will be installed at the site to allow DSD to calculate POE power requirements and provision network switch ports;
- Provide storage requirements for the CCTV footage, clearly stating the amount of NVR storage required. These requirements will be used by DSD to request storage from the TCH data centre-based NVR. In the event the site-based NVR is used, the head contractor must provide specifications for NVR and storage array;
- Procure the cameras, NVR and storage arrays as specified in the vendor detailed design;
- Provide all relevant software licenses for this system;
- Provide two single data points for the CCTV cameras. The CCTV cameras will use POE+ provided by the ACT Government network switches;
- Configure CCTV system components to store images on the NVRs;

Note: The CCTV images must be available for viewing by the authorised security personnel based at TCH.

- Supply yellow patch cables, based on DSD colour standards, to provide connectivity for the CCTV cameras and NVR to the DSD network switches;
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the VV&T of the system; and
- Provide test results to DSD for review.

17.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- ST-02 Communications Cabling Infrastructure 2019-1;
- ST-07 ICT Security Specifications-2019-1; and
- Cameras will be powered by Power over Ethernet Plus (POE+) provided by the network switches. There is no requirement for dedicated power points for the cameras.

Note: Significant changes or a new system must be reviewed by the 'DSD Infrastructure Hub' and the Security team. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.
- .

18. Distributed Antennae System

18.1 Summary

A Digital Antennae System (DAS) is required to mitigate the risk of isolated areas of poor mobile cellular coverage inside the building.

At a minimum a passive DAS will be provisioned by the Head Contractor. However, there may be a requirement for an **active** DAS to be installed based on the building materials and windows. Mobile coverage for a building requires a review of the building coverage and a considered approach towards the implementation of a solution.

18.2 DSD Scope

DSD will:

- Review the proposed solution by the Head Contractor and provide feedback;
- Engage a DAS consultant conduct mobile coverage assessment for the building;
- Review the capacity and capability of the solution to be expanded in future to support active DAS; and
- Review test results and provide feedback.

18.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD passive or active DAS solution for review and comment at 50% FSP. The passive or active DAS solution must comply with MCF Design Specification for DAS 2018 or later;
- The DAS solution must be endorsed by the three main carriers Optus, Telstra and Vodafone;
- Ensure the BD communications room is appropriately sized to host passive DAS or active DAS system. In the event a separate room is provisioned for DAS infrastructure, it must be of sufficient size to host DAS infrastructure as specified by the designated lead carrier;
- Provide **all** the components required for the passive/active DAS solution such as cabling, head-end components, antennae and any other components, not mentioned in this section, necessary to provide the required DAS solution;
- Provide all relevant software licenses for the proposed system;
- Obtain any carrier approvals, as required, for installation of the DAS solution;
- Install, configure and test the DAS system and provide test results to DSD; and
- Install and configure the system to comply with the project business requirements and system specifications.

18.4 Standards, Specifications and Patterns

The project and design must comply with the following:

- St-02 Communications Cabling Infrastructure 2019;
- MCF Design Specification for DAS 2018 or later; and
- “BICSI 006-2015 Distributed Antenna System (DAS) Design and Implementation Best Practices”.

19. Wireless Network

19.1 Summary

A wireless network will be designed and implemented at the site to provide full coverage for the wireless devices. The wireless network design will be based on site specific requirements, building design and fittings in the building. Areas which require location tracking will need an additional RTLS wireless survey. This survey provides a site map that supports location tracking in order provide an additional layer of security for the staff working at these sites.

The existing Health Directorate wireless networks use specific Cisco internal and external WAPs, which leverage highly available head-end infrastructure located at TCH. The WAPs located on-site will leverage the existing head-end 'wireless infrastructure block'.

19.2 DSD Scope

DSD will:

- Organise a design of the Wireless Access Points (WAPs) location, based on the plans provided by the Head Contractor at 80% PSP;
- Review desktop and detailed design for the wireless network to ensure compliance with the DSD standards;
- Purchase WAPs and brackets based on the numbers specified in the desktop wireless design document and the conceptual solution design;
- Provide the conceptual solution design which includes details of the number of WAPs and switch ports required for this project;
- Provide the Head Contractor with the WAP locations to enable planning of the cabling for the 100% FSP;
- Provide patch cable requirements to the building contractor;
- Organise patching of WAPs to the ACT Government network; and
- Configure the wireless network head-end infrastructure and switches to provide connectivity for the WAPs.

19.3 Head Contractor Scope

The Head Contractor will:

- Provide to DSD, requirements for the wireless network at 50% FSP;
- Install WAPs in the appropriate location as per the wireless desktop design that is provided by DSD;
- Install a data port adjacent to the WAP location to provide connectivity for the WAPs. The data ports should be within 1m of the WAP location;
- Patch adjacent WAP data ports to different switch stacks as per DSD standards;
- Supply **black patch-cables**, based on DSD colour standards, to provide connectivity for the WAPs to the DSD network switches. These cables should be provided prior to conducting functional testing;

- Supply **white fly leads** to connect the WAP to the data outlet; and
- Develop test scenarios, produce an approved comprehensive test plan and be responsible for the VV&T of the wireless network.

19.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-01 Medical Grade Network 2019; and
- St-02 Communications Cabling Infrastructure 2019.

20. Voice Telephony

20.1 Summary

The site will use Voice over IP (VoIP) telephony services over the data network for all staff telephony requirements. The existing DSD IP-based voice head-end infrastructure located at TCH will be leveraged to provide this functionality.

20.2 DSD Scope

DSD will:

- Order the voice handsets;
- Provision VoIP telephony services switch configuration for voice over the data network;
- Test VoIP telephony system for proper implementation; and
- Provide VoIP desk handsets.

20.3 Head Contractor Scope

The Head Contractor will:

- Determine technical requirements for the consumer phone system and provide this information to DSD at 50% FSP;
- Provision horizontal cabling, face plates and fly leads;
- Organise commissioning of consumer phones (restricted to local numbers only); and
- For IP telephony use CommScope Cat6_A UTP cables as per the cabling standards.

20.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-02 Communications Cabling Infrastructure 2019.

21. Copper Services (NBN FTTB/FTTC/FTTN)

21.1 Summary

Analogue voice lines **must not** to be used and alternative transmission mediums should be found.

Fire system shall use dual GSM, lifts dual GSM or VoIP, Telephony VOIP, Internet ACTGov or NBN and emergency phones shall use TRN. In the event, a new service requires copper infrastructure such as NBN FTTB/FTTC/FTTN, the following will apply.

21.2 DSD Scope

DSD will:

- Request SSICT to order carrier services, NBN lines, following notification from PAP on quantities required;
- Patch digital services via patch panels where requested;
- Provide cabinet drawings of location and patching required;
- Record final information for ACT Health identifying contact, updated cost centres, patching details and additional information for Health records; and
- Assistance with provisioning alternate digital services.

21.3 Head Contractor Scope

The Head Contractor will:

- Provide DSD minimum six weeks' notice, prior to the requirement for service, to order carrier services;
- Provide building Main Distribution Frame (MDF) as specified by DSD (rear mounted, recessed, 3 RU, Krone style frame). MDF must be mounted in first BD room at RU 22-23 (equal height to the front facing 2 RU horizontal cable manager), at the **rear** of the cabinet containing the fibre WAN and BD switches;
- Provide cabling, a minimum of 24 pairs, i.e. 8x4pr Cat 6A, from MDF to all BD communications rooms;
- Provide cabling, a minimum of 24 pairs, i.e. 8x4pr Cat 6A, between all BD communication rooms;
- Provide cabling, a minimum of 8 pairs, i.e. 2x4pr Cat 6A, from BD to all FD communications rooms;
- Organise telecommunications conduit for carrier cable from the site boundary to the building perimeter. Lead-in carrier copper must be terminated in BD room 1 and distributed to ALL other communications rooms at the rear of WAN rack and mounted on recessed Krone frames as described previously in this document;

Note: These conduits cannot share DSD fibre pits or conduits, except for where legal permission is granted. i.e. for NBN to use DSD fibre pits within a hospital campus, minimising disruption; and

- Organise IDC connections to be patched through MDF to IDFs and IDFs to the services patch panels also mounted at the rear of each IDF cabinet. Advise the PAP which services can be cancelled prior to final building handover.

21.4 Health Directorate Scope

The Health Directorate will:

- Update cost centres for services to allocate charges to for the new service to correct customer; and
- Cancel any unused services before final building handover.

21.5 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- The backbone cabling, Telco boundary pit to WAN cabinet MDF, should be minimum Cat5e and minimum of 25-pair* UTP cable telco style cable (TEC #6462 3 430-35 or equivalent);
- Distribution frames will be mounted on the rear side of the cabinet that contains the fibre backbone terminations FOBOT;
- MDF to be rack mounted in BD room 1 e.g. on Krone 9 or 15 way recessed back mount frame (6450-1-040-00);
- Copper backbone cables in FD communications rooms may also terminate in racks on Krone 9 way recessed back mount frame;
- Dedicated services such as fire alarms will be directly cabled to the MDF as per Australian standards;
- All IDC blocks are to be 'high-band' Cat6_A type (COMMSCOPE 6468 5 070-00 or similar) for both lead-in and internal cabling;
- All MDF and IDF termination locations are to be provided with IDC documentation books;
- All MDF and IDF termination blocks are to have hinged labelled holders with identifying label, i.e. "BD 0.1 to FD 3.2".

* This may change depending on incoming requirements of consumer PABX specification.

22. Video Conferencing

22.1 Summary

The site may have requirements for video conferencing capabilities. Currently DSD provide video conferencing equipment at a monthly charge for Health Directorate sites. This equipment uses the DSD network to communicate with other sites and as such does not require additional Telco lines or “time charged” services.

22.2 DSD Scope

DSD will:

- Workshop with ACT Health to determine the optimal solution and implementation of requirements;
- Shared Services ICT will be responsible for configuration, activation and commissioning of the video conferencing system;
- Ensure infrastructure connectivity requirements for video conferencing are included in the Conceptual Solution design document;
- Provision network switch ports for the video conferencing equipment; and
- Organise configuration and commissioning of the video conferencing system, if DSD standard system is used.

22.3 Head Contractor Scope

The Head Contractor will:

- Provision cabling and data outlets to provide connectivity for the video conferencing equipment;
- Conduct a workshop with DSD project management team to finalise requirements; and
- Conduct a design workshop with DSD to finalise the video conferencing architecture.

22.4 Health Directorate Scope

The Health Directorate will:

- Determine and document requirements for video conferencing. Provide these requirements to DSD at 50% FSP; and
- Organise OPEX for ongoing funding.

Note: The requirements for video conferencing must be provided to DSD, prior to the Conceptual Solution design stage. Failure to do so may result in additional costs and potential implementation of a non-optimal solution.

22.5 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-02 Communications Cabling Infrastructure 2019.

Note: Significant changes or a new video conferencing system must be reviewed by the 'DSD Infrastructure Hub' team. Following the review, the system must be endorsed by the DSD CIO.

In the event the existing system is not leveraged, there will be additional time spent due to the following:

- Review and endorsement of the system;
- A separate design required specifically for the new system, which will also include review of integration with other Health systems. The network infrastructure requirements for the new system must be provided to DSD Infrastructure team prior to the design process; and
- Appropriate design approval processes will need to be followed for the endorsement infrastructure requirements for the system design by the Architecture Design and Review Panel.

23. Patient Information & Entertainment System

23.1 Summary

The Patient Information and Entertainment System (PIES) constitute a range of services available to the consumer with the objective of improving the quality of their stay and recuperation. There are multiple PIES components as follows:

- Information such as patient education and information, tickertape messaging;
- Entertainment such as Free-to-Air (FTA) content delivered to TV over IP; and
- Hospital Services such as environmental adjustments, for example room temperature or lighting.

Based on the project requirements all the features mentioned above may not be required. However, the system must be able to support all the PIES functionalities mentioned above in future.

23.2 DSD Scope

DSD will:

- Review the proposed solution by the Head Contractor and provide feedback;
- Review the capacity of the solution to be expanded in future to provide other components of PIES such as Information access, additional Entertainment services and Patient Information services; and
- Ensure infrastructure connectivity requirements for PIES are included in the Conceptual Solution design document.

23.3 Head Contractor Scope

The Head Contractor will:

- Review agreed scope for PIES and conduct a design workshop with DSD to finalise the PIES architecture;
- Provide an IPTV (Internet Protocol Television streaming and broadcast) – digital content delivered to TV over IP. The solution must include live free-to-air (FTA) television and time-shifted television;
- Document and provide the PIES solution to DSD at 50% FSP;
- Provide all the components required for the FTA solution such as cabling, head-end components, televisions (agreed in consultation with DSD) and any other component, not mentioned in this section, necessary to provide FTA solution;
- Provide all relevant software licenses for the proposed FTA system;
- Install and configure the system to comply with the project business requirements and system specifications; and

- The solution must be robust and have the expansion capability to include other components of PIES such as Information, additional Entertainment services and Patient Information services.

Note: The expansion of the solution **must** not require total replacement of the PIES system head-end infrastructure. The system must be capable of add-on “modules” for the head-end infrastructure. The proposed solution must consider end-devices that will be capable of supporting functionality provided by the add-on modules; and

Note: The requirements for Patient Entertainment must be provided to DSD at the ‘Business Requirements Specifications’ documentation stage. Failure to do so may result in additional costs and potential implementation of a non-optimal solution.

23.4 Standards, Specifications and Patterns

The project must comply with the following Health Directorate standards:

- St-02 Communications Cabling Infrastructure 2019; and
- St-13 Patient Entertainment and Information System.

Appendix A – Approved CommScope® Systemax® Certified Contractor List

Approved Structured Cabling Contractor List

Structured Cabling Systems	Contact	Address	Suburb	Telephone	Mobile	Email
Fredon Industries Pty Ltd	Paul Jones	1/119 Gladstone Street	Fyshwick ACT 2609	(02) 6131 9300	0414 811 561	pjones@fredon.com.au
Intravision Pty Ltd	Derek Bawden	Unit 1, 19-25 Kembla Street	Fyshwick ACT 2609	(02) 6162 0077	0408 279 587	rick.bawden@intravision.com.au
MRB Communications Pty Ltd	Bill Boyton	Unit 14, Molonglo Mall	Fyshwick ACT 2609	(02) 6239 2959	0413 832 033	bill@mr.com.au
Multisystem Communications Pty Ltd	Adrian Whitaker	Unit 2, 48 Hoskins Street	Mitchell ACT 2911	(02) 6242 4199	0428 689 171	admin@multisys.com.au
Pathway Communications Pty Ltd	Andrew Peel	1/133 Gladstone Street	Fyshwick ACT 2609	(02) 6228 1237	0414 564 700	Andrew@pathwaycomms.com.au
Programmed	Andrew Jessup	40 Hoskins Street	Mitchell ACT 2911	(02) 6242 3000	0407 709 105	andrew.jessup@allied.com.au
Pro-Tech Services Pty Ltd	Steve Papoutsis	20 Sheehan Street	Pearce ACT 2706	(02) 6286 1979	0404 003 910	griffo@protechservices.com.au
Stowe Australia Pty Ltd	Kane Emery	Unit 5&6, 19-25 Kembla Street	Fyshwick ACT 2609	(02) 6126 2999	0434 668 525	Kane.emery@stoweaustralia.com.au

Table 4 - DSD Approved Structured Cabling Contractor List

Approved Underground Fibre Cabling Contractor List

Underground Fibre	Contact	Address	Suburb	Telephone	Email
Ecowise Services Pty Ltd	Michael Holyland	93 Tennant Street	Fyshwick, ACT 2609	(02) 6285 7666	Michael.holyland@ecowise-services.com.au
MRB Communications Pty Ltd	Bill Boyton	Unit 14, Molonglo Mall	Fyshwick, ACT 2609	(02) 6239 2959	bill@mrbs.com.au
Wavelength Pty Ltd	Willie Dockerty	Lvl 1, 227 Mona Vale Road	St. Ives, NSW 2075	(02) 9988 0596	willie.dockerty@wpl.net.au

Table 5- DSD Approved Underground Cabling Contractor List

Appendix B – Glossary of Terms

References

- Multiple standards referenced throughout this document

Glossary of terms

Term	Definition
AMHU	Adult Mental Health Unit
BD	Building Distributor
BEP	Building Entry Pits
BMCS	Building Management Control System
BRS	Business Requirements Specifications
BSSGSC	Business Support Systems Governance Steering Committee
CCTV	Closed Circuit Television
CMB	Cable Management Bracket (horizontal and vertical)
CP	Consolidation Point
CUFO	Cabling Underground Fibre Optic
DALI	Digital Addressable Lighting Interface
DLP	Defect Liability Period
DO	Data Outlet
EA&HC	Enterprise Architecture and Hybrid Cloud
EPO	Emergency Power Off
FAP	Fibre Access Points
FD	Floor Distributor
FIP	Fire Information Panel
FOBOT	Fibre Access Break Out Trays
FSP	Final Sketch Plan
FTA	Free-to-Air
HA	High Availability
ICT	Information and Communications Technology
IDF	Intermediate Distribution Frame
MD	Main Distribution
MDF	Main Distributor Frame
MGN	Medical Grade Network
MUTO	Multi-user Telecommunications Outlet
NVR	Network Video Recorder
PABX	Private Automated Branch Exchange
PAP	Principle Authorised Person
PIES	Patient Information & Entertainment System
POE+	Power Over Ethernet Plus
PSP	Preliminary Sketch Plan
RTLS	Real Time Locations Service
RU	Rack Unit
SNMP	Simple Network Management Protocol
DSD	DSD
TCH	The Canberra Hospital

Term	Definition
UPS	Uninterruptible Power Supply
UTP	Unshielded Twisted Pair
VLAN	Virtual Local Area Network
VoIP	Voice over IP
VSS	Virtual Switching System
VV&T	Validation Verification and Testing
WAN	Wide Area Network
WAP	Wireless Access Point

Table 6: Glossary

Note: other terms not listed here can be found in the DSD Glossary of Terms.

Amendment history

Version no.	Issue date	Amendment details	Author
0.1	01/03/2019	First Draft - Retired Ver 5.1 dated 23/08/2016 – Author Nitin Saxena	Mark Moerman
0.2	10/02/2019	Peer review	David Richards
0.3	16/07/2019	Updated standard references	Raj Mohan
0.4	26/07/2019	Updated standard references	Raj Mohan
2019.0.5	22/10/2019	Review and updated several sections to document the latest requirements and scope	Nitin Saxena
2019.1.0	23/10/2019	Review and submit for CIO endorsement for release	Mark Moerman
2019.1.0	24/10/2019	CIO Approval to release	Mark Moerman

Table 7: Amendment history

Note: this is a CONTROLLED document. Any hardcopy of this document is not controlled and should be checked against intranet versioning to ensure that it is up to date.

Appendix C – List of Standards and Specifications

NOTE: Please contact the Senior Director, ICT Infrastructure, Digital Solution Division for the latest approved standards and any queries on the listed Standards and Specification. The following list maybe incomplete as additional Standards may have been developed following update and approval of this document.

#	Standard/Specification	Version	Description
1	St-01 Medical Grade Network	2019	Architecture description of the physical implementation MGN requirements. Applies to section: Section 10 – Network Infrastructure
2	St-02 Communications Cabling Infrastructure	2019	Structure cabling and fibre cabling requirements. Applies to sections: Section 4 – Wide Area Network In-Ground Optical Fibre Section 5 – Building Backbone Fibre Cabling Section 6 – Structured Data Cabling
3	St-03 Fibre lead-Ins for Campus and Offsite Buildings	2019	Base-12 fibre –Minimum fibre provision. Applies to section: Section 4 – Wide Area Network In-Ground Optical Fibre.
4	St-04 Wireless Network 2019	2019	Wireless network architecture. Applies to sections: Section 10 – Network Infrastructure Section 19 – Wireless Network.
5	St-05 Communications Room Building Infrastructure and ICT requirements	2019	Communications Room requirements Applies to sections: Section 6 – Structured Data Cabling. Section 7– Communications Rooms.
6	St-06 Comms Room and UPS-Batt Layout	2019	UPS Dual Bus - Reticulation of Primary & Secondary buses to FD rooms. Applies to section: Section 8– Uninterruptible Power Supply Infrastructure.

#	Standard/Specification	Version	Description
7	St-07 Cabinet Physical Layout Cabinet Separation and Governance	2019	Physical data cabinet layout and requirements. Applies to section: Section 7– Communications Rooms.
8	St-08 Security ICT Standard	2019	Specification for several security systems such as Duress, CCTV, Electronic Access Control, Intrusion Detection and Key management Safe. Applies to sections: Section 11 – Fixed Duress System Section 12 – Mobile Duress System Section 15– Access Control Section 17– Closed Circuit Television.
9	St-09 BMCS ICT Specifications	2019	Governance – Horizontal Comm’s Rooms-Building Distributer room layout. Applies to section: Section 6 – Structured Data Cabling. Section 14 – Building Management and Control System.
10	St-10 Lighting Control System ICT Specification	2019	DALI Control Lighting System-Health Directorate Specification Applies to section: Section 16– Digital Addressable Lighting Interface.
11	St-11 Fire Systems ICT Specifications	2019	Fire system specifications and communication requirements. Applies to section: Section 7– Communications Rooms.

Table 8- List of Standards and Specifications

Appendix D – Sample Departures Document

RETURNABLE SCHEDULE 10 – ICT DEPARTURES

The Health Directorate offers Vendors the opportunity to provide proposed departures from (including qualifications to) the terms and conditions of the contract(s) in the pursuit of greater value for money.

The Health Directorate may consider the effect of any proposed departures on overall value for money including associated risk.

The Vendor must provide in the table below a brief explanation of each proposed departure including such matters as:

- the document and section/clause number from which the proposed departure is made;
- the nature of the proposed departure;
- how the Vendor will deliver the alternative approach (if relevant);
- the rationale for any proposed departure (where departures are minor drafting changes, which do not impact on the Health Directorate's preferred risk allocation or other contractual provisions, the reason for the departures should be provided as 'minor drafting' or similar);
- the effect of the proposed departure on the Health Directorate (both positive and negative effects) including any effect on price and value for money generally;
- the cost implications if the Health Directorate does not accept the Tenderer's proposed departures;
- whether and how other contractual provisions or requirements of the Health Directorate are impacted by the proposed departure.

Without limiting the Health Directorate's ability to request further information generally, the Health Directorate may require the Vendor (including within a specified time and in a specified format) to provide further information or clarification in relation to any aspect of the Tenderer's proposed departures.

Without limitation, the Health Directorate will not entertain any departures from the terms and conditions of the contract(s) raised during negotiations with any Vendor that were not listed in this Schedule (including any included elsewhere but which do not appear here).

Add additional lines as required.

Vendors Details:

Provision of the Following Services:

Option 1 - GENERAL MATTERS DEPARTURES

Clause/ Section number	Title/description	Vendor proposed departure and rationale	Effect on price	Effect on program	Value for money explanation	Other supporting information

Option 2 – DECLARATION OF NO DEPARTURES

I..... (Name) of..... (Insert Vendor name) declare there are no departures from the Specifications.

Signed.....

Dated.....

Appendix E - Sample Vendor System Requirements Template

Please contact the DSD Infrastructure Hub project manager for the latest copy of the template.