National Defence
Défense nationale

OFFICE OF THE DEPUTY MINISTER
Director Land Command Systems Program Management

CANADIAN
ARMED FORCES

APPENDIX A5

SoS Engineering and Integration Facility

LAND C4ISR

SYSTEM OF SYSTEMS ENGINEERING AND INTEGRATION

SUSTAINMENT SERVICES

Canada

1. SCOPE

1.1 The Department of National Defence (DND) requires a facility, known as "The SoS E&I Facility", for the purposes of Engineering and Integration (E&I) support of the Land C4ISR Capability under the Land C4ISR Functional Groupings and other related contracts.

1.2 The SoS E&I Facility must be supplied by the Contractor and will be Government operated. It will be based on Contractor Owned Government Operated (COGO) model.

1.3 The Contractor will, wholly and solely, be responsible for the following Operating and Maintenance costs but not limed to; Property Tax, Building Insurance, Janitorial Services, Utilities, Security, Maintenance, Snow Removal, Supplies Amortization of Capital Expenditures, and Property Management.

1.4 The SoS E&I Facility must be a fully fitted commercial premises, which is setup, furnished and ready for use by Government personnel, users, contractors, and visitors, as per Government's mandate under the Land C4ISR and other related contracts. On the contrary, Government Property may be provided, but not limited to, Government Furnished Equipment (GFE), Government Supplied Material (GSM), and Government Furnished Information (GFI) to carry out the Engineering and Integration work.

1.5 The SoS E&I Facility can be one building or multi-buildings in a single campus environment accessible within a maximum of 500 meters and can be single or multiple story. The Contractor will have full autonomy to choose the building design as long as it meets all DND requirements.

1.6 An overview of a notional design is provided in figure one (1) (see attachment 1), this notional design is based on a single building and single story configuration. Note that this design is not to scale and only shown as an example.

2. SoS E&I FACILITY SUPPORT REQUIREMENTS

2.1 The Contractor must satisfy the following deliverables but not limited to:

2.1.1 Maintain continuous communications with real property operations contracts on all building related issues and providing written maintenance reports and invoices on a monthly basis;

2.1.2 Maintain refrigeration and AC systems in accordance with all current regulations including Federal Halocarbon Regulations (FHR) and provide all related paperwork to real property operations (including any leaks and annual inspections);

2.1.3 Ensure all areas must be free of dust, dirt, soil and debris on equipment, furnishings, windows, walls, waste containers, and all carpet and floor surfaces. The entire area must appear visibly and uniformly clean.

2.1.4 Provide an emergency contact by telephone on a 24/7 basis – response time to be within two (2) hours;

2.1.5 Provide emergency maintenance;

2.1.6 Assess the condition of the building and its systems and review all existing warranties and manufacturer's instructions within 30 days of acceptance of this contract;

2.1.7 Formulate a preventative maintenance schedule for all building systems and equipment in accordance with each respective manufacturer's recommendation;

2.1.8 Maintain the building, including preventative maintenance on the building and equipment;

2.1.9 Ensure that maintenance and repairs are performed by certified technicians and contractors;

2.1.10 Ensure that maintenance and repairs do not interfere with the building users during normal working hours between 0700 – 1700 hours;

2.1.11 Ensure that new equipment is compatible with the existing building systems including load requirements;

2.1.12 Ensure that warranty is initiated against any new equipment and done in accordance with the provisions of the warranty;

2.1.13 Ensure regular snow clearing of all entrance ways, sidewalks and parking areas; also to ensure sidewalks and entrance ways are maintained and safe for use by all users;

2.1.14 Ensure regular outdoor maintenance and landscaping;

2.1.15 The Contractor must hold a valid Facility Security Clearance at all times during the performance of the Contract as outlined in the Contract.

3.   FACILITY PHYSICAL REQUIREMENTS

3.1   GENERAL

Category	Requirement
Location	Canada's National Capital Region (NCR), within 25km radius of the National Printing Bureau.
Access and Security	Physical security from 0600-1800 hrs. and key pad access for outside hours. Additional support may be requested in Additional Work Requirements. An alarm system must be in place 24 hrs. a day, seven days a week. If the alarm system has started the Contractor must notify the Department of National Defence (DND) immediately. The alarm system must be maintained by the Contractor until the situation is resolved. Access to all areas must adhere to the provincial and federal policies, whichever is more stringent, for accessibility. Separate elevators must be provided for personnel and for equipment movement if the SOS E&I Facility utilises multiple floors.
Amenities	The Contractor must provide all required amenities and utilities for the SoS E&I Facility. All amenities and utilities must be easily accessible and sized to accommodate optimum occupancy. Amenities and utilities include, but are not limited to the following: Kitchenette (Fridge(s), microwave(s), coffee makers and potable water); Washrooms; Safety Wash stations in accordance with provincial regulations and guidelines The SoS E&I Facility must be a fully fitted commercial premises that must also include amenities such as, but not limited to, Wi-Fi, conference-calling capabilities, shared and private workspaces, computers and laptops, whiteboards, and full administrative services. The facility must also provide complete IT support to DND.
Facility Maintenance	The Contractor must provide the facility, which includes but is not limited to: i. Security Inspections, Alarm Response and Security Escorting ii. Building Maintenance, Inspections and Repairs iii. Janitorial iv. Snow Removal; v. Potable Water Supply vi. Emergency Environmental Spill Response The Contractor must perform daily inspections and report on deficiencies. Repairs must be conducted regularly without affecting Canada's ability to perform work. If it is not feasible, the Contractor must coordinate the repairs with DND in order to minimise the impacts. The Contractor must ensure the following are cleaned on a daily basis. For the classified areas, the Contractor must provide a level 2 security cleared personnel who will be escorted by personnel as designated by DND to do their duties. The Contractor must supply all necessary items to maintain the facility, this can include but not limited to: toilet paper, paper towels, hand soaps, hand sanitizer, disposal bags, etc. to provide complete sanitation throughout the entire facility. Supplies must be sufficient to last until the next maintenance cycle even if the building is used at maximum occupancy. Janitorial/Custodial closets must be accessible outside of working hours for DND and Canadian Armed Forces (CAF) personnel.
Parking	The Contractor must provide parking for maximum occupancy for both permanent and visitor personnel. The parking provisions must be in accordance with the zoning provisions of the geographic area of the SoS E&I Facility. Parking, queuing and loading spaces and all driveways and aisles leading to those spaces must be provided in accordance with the provisions of the applicable by-law.

Canada

Category	Requirement
Power	Power must also be provided with 100% Generator and Uninterruptible Power Supply (UPS) Backup. Power integration including automatic transfer switching and meeting all safety and regulatory requirements is the Contractor's responsibility. All areas of the SoS E&I Facility must have sufficient power for all equipment, with a minimum of 50% redundancy and be scalable for growth. Sufficient grounding must be provided for all equipment. This must include lightning protection for all external points. Power must be isolated in accordance with Royal Canadian Mounted Police (RCMP) *Security Operations Centre Design Security Guide* processing standard in the secure area. Power cable management must be provided in a manner to safely isolate cabling as applicable from communication and sensitive equipment.
Furniture	The Contractor must provide all furniture including tables and chairs for all areas of the SoS E&I Facility. SoS E&I Facility Storage shelving minimum specification: Steel/Metal shelving. Each section of shelving to be 36"x18"x54" (91 cm x 46 cm x 137 cm) with minimum shelf capacity of 800lbs 363 kg). Unless otherwise stated, each workstation is 1m x 1m.
Health and Safety	The Contractor must report all accidents to the designated Technical Authority (TA) immediately who is reachable 24/7. The Contractor must identify all hazardous material and label in accordance with the Workplace. Workplace Hazardous Material Information System (WHMIS) and copies of the Material Safety Data Sheet (MSDS) must be supplied to the TA and available on-site at all times.
Humidity and Temperature	As per the Provincial Ministry of Labour Health and Safety Guideline for Humidity and Temperature for each area (Sufficient Heating, Ventilation, and Air Conditioning (HVAC) provisions must be provided to allow for a shirt sleeve work environment when all equipment is fully operational. Redundancy must be sufficient to allow HVAC equipment to continue operating at a level that allows all equipment to be operational and that must meet occupational health and safety workplace limits through any single point of failure mode.
Lighting	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. Unless otherwise specified.
Acoustic Dampening	Must follow Canadian Center Operational Health and Safety standard for noise control and acoustic dampening for all areas.
Antenna Platform	The SoS E&I Facility must have safe Roof access and antenna, accessibility by two (2) people at any time. The platform on the roof of the facility must be configurable to host various communications and sensor antennas and devices. The platform to be maximum 9m^2 and must hold no more than 600lbs.
Shipping and Receiving Loading Docks	The SoS E&I Facility must provide shipping and receiving capability including a loading dock. The SOS E&I Facility must be able to accommodate cube vans and small trailers but there must be adequate clearance for larger vehicles such as Light Armoured Vehicle (LAV) or Leopard 2 tank (LEO 2) as well.
Primary, Alternate, Contingency, Emergency plan (voice)	The SoS E&I Facility must be equipped with Voice over internet protocol phones, public address system, cell phone number list, etc.
Cable Management	All functional areas at the SoS E&I Facility must have cable management procedures for the environment (i.e. in server rooms there should be overhead cable trays). Cable management must include both overhead cable trays as well as false floors and all cabling must have patch ability.
Spill response	The Contractor must put in place an emergency environmental spill response plan for the SoS E&I Facility, specifically for the vehicle bay and vehicle compound. As a contingency, the Contractor must respond and handle an environmental emergency and must handle any vehicle spills and must dispose of all hazardous materials and residue in accordance with existing provincial and/or municipal regulations and/or bylaws. A disposal manifest will be delivered to the TA to ensure the waste has been accepted by a proper facility.

3.2 ADMINISTRATIVE AREA

Requirements	Reception Zone	Administrative Office Area	Presentation Room	Conference/Multi-Purpose Rooms
Description	Reception Zone must be designed for people to go through security verification and be provided with an access badge and/or an escort. This area is the only area that people can enter without an appropriate security clearance. The reception area must have a contemporary color scheme with ample lighting, décor and overall suitable appearance to leave a remarkable first impression. It must always be clean and uncluttered, with furnishings spaced to ensure accessibility, such as wheel chair access. The reception desk must face the front door, but far enough so it doesn't act as a barrier to the space.	Administrative Office Area must be able to house and support all Land C4ISR capability personnel (DND, other government departments (e.g. PSPC, DRDC, NRC, etc.) and third party (i.e. Other contractors and Allies personnel)There is an access requirement for various Unclassified SoS E&I Facility test environments, remote access to servers and own company networks by an open internet.	Presentation room must be in the front facing area of the SoS E&I Facility. It is where large scale demonstrations, presentations, familiarization events, support to military exercise and large discussions are conducted. It requires access to all Unclassified SoS E&I Facility networks as well as internet and Defence Wide Area Network (DWAN).	Conference and Multi-Purpose Rooms must be designed for coordination between various Land C4ISR stakeholders either in a conference, test or Military exercise environment settings. They have similar connectivity requirements as the Presentation room with the addition of Video Teleconferencing (VTC) capability. There must be a three (3) unclassified conference/Multi-Purpose rooms.
Personnel	The SoS E&I Facility must allow for a maximum of two (2) Commissionaires at any given time, to be supplied by the Contractor, to control access to the laboratory. This area must be large enough to accommodate up to 15 persons waiting to be cleared and processed for access to the facility.	The SoS E&I Facility must provide cubicle space for a minimum of 100 personnel total (inclusive of all prime and sub-contractors and DND personnel). The SoS E&I Facility must provide additional office space for 15 transient personnel, this will be known as swing space.	The SoS E&I Facility must provide ability to house up to 60 personnel seated and 40 personnel around the perimeter.	The SoS E&I Facility must have two rooms that must be able to house up to 15 personnel each. The third room must be able to house up to 25 personnel.
Size (Dimensions)	Must be a minimum of 50m².	Must be a minimum of 1200m² that can support different cubicle configurations. Must support six (6) Single offices which must be a minimum of 10m² each for use by supervisors. Must support cubicles ranging from 4-9m² each. Must support small collaboration spaces for discussions that don't require a conference room.	Must be a minimum of 160 m² that can be divided into two equal areas.	Two rooms must be a minimum of 30 m² each. The other room is 50 m².
Physical Configuration	Must provide access control via building pass. Must provide a desk (monitors) facing the front entrance door, in order to monitor and control access to the building. Seating area for 4-6 guests. Must provide a coat closet and cell phone cabinet for 25 guests.	Must include cubicles, closed-door offices, closed-door quiet rooms, swing spaces and open discussion areas. Closed-door offices must provide six (6) separate single offices for use by DND personnel. Provide at least 2 quiet rooms for 4-5 people each.	Must include two (2) presentations systems, one (1) per each divided area. Must be able to be divided by use of a folding, sound insulated storable divider in order to gain two separate areas. When separated, each presentation area must be accessible by their own doors.	Flexible configurations for conferences, military exercises, and other functionalities. In a conference room setting, ten (10) personnel at main table and additional personnel at back bench. VTC setup to include (Computer, Power, UPS, Projector Screen, Briefer's Monitor, Camera, Microphone and Speakers.)

Requirements	Reception Zone	Administrative Office Area	Presentation Room	Conference/Multi-Purpose Rooms

Network Configuration	Network connected to:
	  video security system;
	  security clearance system;
	  internet access and
	  telephone
		Network connected to the Unclassified Area
		  Internet
		  DWAN
		  Voice over Internet Protocol Telephony Service
		  Configurable SoS E&I Facility UNCLASS Network
		  Document management services, including multi-functional devices (printer, scanner), plotters and shredders		

Security Considerations	The SoS E&I Facility must have an entrance and reception zone. The facility must be accessible between 0700 hrs and 1700 hrs. Access by permanent SoS E&I Facility staff should be made available 24/7 and, as required access to other DND staff or Contractors. The Contractor must ensure access to the SoS E&I Facility via the use of access card gates and cards or pad sensors to control and monitor movement.	Controlled access and centrally monitored		
Furniture	The supplied furniture must allow for commissionaires to be seated at their desk as well as to see the clients they are servicing.	Provide a flexible furniture configuration		
Lighting	The SoS E&I Facility lighting requirements and Levels must adhere to the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. Incorporate a dimmable lighting system conducive to display presentations and reading of documents	
Power	Electrical power must conform to the National and Provincial Building codes. 120V Alternating Current the only required power in this area. Must include a backup power system to allow un-interrupted work in case of power outage			
Cable Management	Cables must be routed and managed per industry standard using CAT6e cables.			

3.3 UNCLASSIFIED AREA

Requirements	The Lab	Networks Operations Center	Server Room	Storage Room
Description	The Lab must enable engineering, integration, installation and testing on actual Land C4ISR Capability Products, both in controlled lab environments and on various CAF vehicles and platforms. It must support multiple Land C4ISR Capability baselines including the Fielded Baseline, for which it acts as the reference implementation, while simultaneously supporting engineering baselines that are being integrated and/or tested. Must include flexibility to allow Land C4ISR Capability Integrated Product Team (IPT) participants to add, optimize and improve designs including equipment, applications, services and platforms.	The Networks Operations Center (NOC) must enable monitoring and control of the networks within the SoS E&I Facility.	Server Room area must be exclusively devoted to servers and computer networking devices in support of Land C4ISR capabilities.	Storage Room area must house and provide easy access to Land C4ISR related equipment. Storage Room must be collocated with the Unclassified Area.
Personnel	The lab must accommodate two (2) permanent staff and scale up to forty (40) temporary staff working concurrently at peak periods.	Must include working space for up to a maximum of 14 personnel.	This is an unoccupied area	This is an unoccupied area
Size (Dimensions)	The lab must be a minimum usable area of not less than 570m².	The lab must be a minimum size of 70m². Must include an integral server room with a minimum area of 10m².	Must provide a minimum usable area of not less than 60m².	Must provide a minimum usable area of not less than 60m².
Physical Configuration	The lab space must be configurable to accommodate different Land C4ISR Capabilities that include, but are not limited to: Must accommodate data terminals of various configuration. Must accommodate racked vehicle platforms. Must have external penetration points for GPS and radio antennas. Must have an exhaust fan collocated with a work bench. Must provide sufficient space and power to host Military radios.	The lab space must have sufficient cubicle space for 14 workstations. Must host a sharable large screen, white board and a collaborative meeting table.	The lab space must host at least ten (10) – 42U Universal Rack with external width of 23.6", height of 78.74" and depth of 41.34"and commercial switch racks, with a potential for 100% growth. Ceiling must be a minimum of nine (9) feet high. Must ensure easy access to the front and the back of the server racks for server replacement and maintenance. Must not incorporate any windows with the possible exception of the server room door. Must allow the server racks to be configured to a hot aisle and a cold aisle configuration.	The storage room must have double doors entry for access by trolley jacks for pallets. Doors must open outwards. Central area to store up to two (2) pallets.

Requirements	The Lab	Networks Operations Center	Server Room	Storage Room
Network Configuration and Information Technology	The lab must support the following networks simultaneously: Open Internet; DWAN; and Up to four (4) instances of the Land C4ISR Capability Baseline. The SoS E&I Facility must have document management services, including multi-functional devices (printer, scanner) and shredders. The SoS E&I Facility must incorporate a cable pass through connecting with the Classified Area. The SoS E&I Facility must provide ability to host a variable radio frequency attenuation and isolation. This must be used to enable the radios to functionally interoperate while the systems are in test. The SoS E&I Facility must Include a provision for a sub-set of radios antennas to be connected to enable over the air transmission outside of the building.	Must include an integral communication closet capable of hosting internal and external networking connections. The Contractor must ensure continued access to Internet, the DWAN and all SoS E&I Facility Local Area Networks (LANs) in each cubicle and meeting table. Document management services, including multi-functional devices (printer, scanner).	Must include DWAN Hub/Point of Presence (PoP), Internet Hub/PoP, and all SoS E&I Facility LAN Hubs/PoPs. All networks must be patchable. Must facilitate 3rd party supplied fiber optic networking infrastructure to SoS E&I Facility. Must include an integral communication closet capable of hosting internal and external networking connections.	N/A
Security Considerations	The lab must meet the minimum clearance for Canadian Controlled Goods and International Traffic in Arms Regulations (ITAR) regulations.	The lab must meet the minimum clearance for Canadian Controlled Goods and International Traffic in Arms Regulations (ITAR) regulations.	Must provide an autonomous keypad entry.	Must provide an autonomous keypad entry.
Furniture	All furniture (including cubicle walls and dividers) must be movable in nature without the use of tools.	Provide a flexible furniture configuration.	N/A	Must provide commercial grade shelving.
Lighting	DND lighting requirements and Levels must adhere to the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. Lighting should be zoned to permit different lighting levels at different points in the lab. Lighting should be dimmable.	DND lighting requirements and Levels must adhere to the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. Incorporate a dimmable lighting system conducive to display presentations and reading of documents.	DND lighting requirements and Levels must adhere to the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.	DND lighting requirements and Levels must adhere to the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.
Power	The SoS E&I Facility must provide sufficient power at 120V, 60Hz with sufficient amperage to power all equipment. It must have flexible power outlets or sufficient power outlets in the floor to accommodate movement of equipment for varied test configurations. It must include a backup power system to allow un-interrupted work in case of power outage.	Must include a backup power system to allow un-interrupted work in case of power outage.	Must provide sufficient power and grounding to accommodate the server racks. Must include a backup power system to allow uninterrupted work in case of power outage. Must include a powered controlled access system, including a lock key backup, in case of a power outage.	A minimum of one (1) x 110v receptacle for charging batteries.
Cable Management	The SoS E&I Facility must have overhead cable management capable of separating network and RF Cables. It must have flexible cable management system to allow for flexible lab configurations. This can be overhead or in-floor or a combination of both.	Must provide the ability to incorporate network cable and power cable management systems.	Must provide appropriate network cable and power cable management systems connected to the other areas in the Unclassified Area.	N/A

3.4   CLASSIFIED AREA

Requirements	Secure Reception Zone	The Secure Lab	Cyber Security Operations Center	Secure Server Room	Secure Conference/Multi-Purpose Room	Secure Storage	COMSEC Vault
Description	Reception Zone must be a well-thought out and planned area that must be conducive to welcome and process personnel to ensure appropriate clearance before entering the facility. This area is the only area that personnel can enter without an appropriate security clearance.	The Secure lab must be fully equipped to enable engineering, integration, installation and testing on actual Land C4ISR Capability Products, both in controlled lab environments, on various CAF vehicles and platforms. It must be fully equipped to enable Cyber Security engineering, integration, installation, testing, and security assessments on the Land C4ISR cyber capabilities. It must be fully equipped to support multiple Land C4ISR Capability baselines including the Fielded Baseline, for which it acts as the reference implementation, while simultaneously supporting engineering baselines that are being integrated and/or tested. Must include flexibility to allow Land C4ISR Capability IPT participants to add, optimize and improve designs including equipment, applications, services and platforms.	The CSOC must be fully equipped to enable monitoring and control of cyber operations in support of Land C4ISR capability.	The Server Room must have an exclusive area devoted to servers and computer networking devices in support of Land C4ISR capabilities.	The SoS E&I Facility must provide a Secure Conference/Multi-Purpose Room for facilitating secure discussions between various Land C4ISR stakeholders. This room may also be used to extend test or Military exercise environments. It must have similar connectivity requirements as the Presentation room with the addition of Secure VTC (SVTC) and DND secure network capability.	Secure Storage is an area that must provide storage, and safeguard of up to CLASSIFIED level II documentation, and equipment. The secure storage area must be collocated with the Classified area.	COMSEC Vault is an area that provides storage, and safeguard of COMSEC documentation and equipment.
Personnel	It must include an area to allow for a minimum of five (5) personnel in order to sign in and be processed for access concurrently.	It must accommodate two (2) permanent staff and scale up to 40 transient staff working concurrently at peak periods.	It must include office space for 20 permanent personnel and four (4) transient personnel	This is an unoccupied area	It must have space for ten (10) personnel with space for an additional 15 seated personnel around the peripherals.	This shall be an unoccupied area.	This shall be an unoccupied area.
Size (Dimensions)	It must provide a minimum usable area of not less than 20m²	It must provide a minimum usable area of not less than 750m²	It must include an integral server room of a minimum area of 150m². Must include an integral communication closet of a minimum area of 10m².	It must provide a minimum usable area of not less than 60m²	It must provide a minimum usable area of not less than 50m².	It must include a minimum usable area of 120m²	It must include a minimum usable area of 25m²

Requirements	Secure Reception Zone	The Secure Lab	Cyber Security Operations Center	Secure Server Room	Secure Conference/Multi-Purpose Room	Secure Storage	COMSEC Vault
Physical Configuration	The door must be able to self-close and be operational in the direction of egress. There must be sufficient storage for IT equipment (i.e. phones) prior to entering the lab for up to 25 personnel.	Qty two (2) x classified Build environments for Coalition testing (CIAV and CV2E) - Servers and Clients (15-20). Qty two (2) x classified HQ Domain Integration. Environments (at separate caveats) (CANUS, FVEY) with TacNET modules and racked server, 15-20 clients each, 10-15 TacNET modules each and 1/2 rack of servers each. Cyber Security Lab with one (1) x classified Build environments. Servers and Clients (15-20) Link testing. Qty four (4) x benches with clients on benches and room for modules four (4). EW testing (2 x racks) for 2-3 vehicles +antennas and dummy loads and 6-9 clients. Secure SoS testing area (could also be a multi-purpose testing area) with; 15-20 DTs 2 server x racks Presentation Screens Qty 6 x vehicles in racks (with RTs and SATCOM) ISTAR Sensor testing 2-4 benches*, room for MIL sensors and Eqpt 10-12 Data Terminals on benches. *benches are for two person working concurrently. Benches allow work stations on top and transient cases stow below.	It must include exit doors that are automatically self-closing and be opened with the minimum of effort. It must provide sufficient space for 24 workstations. (approximately 4 feet x 2 feet) It must host a sharable large screen, white board and a collaborative meeting table.	It must accommodate at least 8 - 42U server racks and commercial switch racks, with a potential for 100% growth. Ceiling must be a minimum of nine (9) feet high. It must provide an easy access to the front and the back of the server racks for server replacement and maintenance. It must not incorporate any windows. It must allow the server racks to be configured to a hot aisle and a cold aisle configuration as per industry standard.	It must incorporate a reception zone which consist of an inner door and an outer door and is accessible with a controlled access card as well as a key lock backup in case of power outage It must incorporate an integral audio visual system for presentations. Must accommodate a classified VTC capability. (DND Supplied)	It must have a double door entry for access by trolley jacks for pallets. Doors must open outwards. Central area to store up to 2 pallets. It must be able to house up to three (3) Secure Dasco vertical cabinets, 115 tactical radios of various designations, 30 laptops and a varying number (task dependant) of hard drives. 4x4x8 feet open floor storage (for example cases of hard drives and modules). Must include a door with three separate locks It must be automatically self-closing and be in the direction of egress travel. Must not include any windows.	It must be able to house one (1) Secure Dasco vertical cabinet. It must include a single door of solid construction with three separate locks. It must be automatically self-closing and must also be opened with the minimum of effort and be in the direction of egress travel. It must not include any windows.

Requirements	Secure Reception Zone	The Secure Lab	Cyber Security Operations Center	Secure Server Room	Secure Conference/Multi-Purpose Room	Secure Storage	COMSEC Vault

Network Configuration	It must have a phone for users to call for assistance and access.	It must support the following networks simultaneously:
		  Internet
		  Defence Wide Area Network (DWAN)
		  Up to four (4) instances of the Land C4ISR Capability Baseline.
		  Consolidated Secret Network Infrastructure (CSNI)
		  Canadian Force Experimental Network (CFXNet)
		  It must include external connection points (secured) for vehicle connectivity into the secure lab.
		  It must have network management and control within the secure lab (Patch panel concept).
		  It must incorporate a cable pass through connecting with the Classified Area.
		  Must provide ability to host a variable radio frequency attenuation and isolation. This must be used to enable the radios to functionally interoperate while the systems are in test.
		  It must include a provision for a sub-set of radios antennas to be connected to enable over the air transmission outside of the building.
		  Document management services, including multi-functional devices (printer, scanner) and shredders.
			Must support the following networks simultaneously:
			  Internet
			  DWAN
			  Up to four (4) instances of the Land C4ISR Capability Baseline.
			  CSNI
			  CFXNet
			  link to Army Network Operations Centre (ANOC)
			  Document management services, including multi-functional devices (printer, scanner).
				Must include classified LAN hubs PoP.
				  All networks must be patchable. Must facilitate 3rd party supplied fiber optic networking infrastructure to SoS E&I Facility classified area.
				  Must include an integral communication closet capable of hosting internal and external networking connections.
					Must include external connection points (secured) for vehicle connectivity into the secure lab
					  Must support the following networks simultaneously:
					  Open Internet
					  DWAN
					  CSNI
					  CFXNet
						N/A	N/A

Requirements	Secure Reception Zone	The Secure Lab	Cyber Security Operations Center	Secure Server Room	Secure Conference/Multi-Purpose Room	Secure Storage	COMSEC Vault
Security Considerations	It must include a centrally monitored intrusion alarm system and must be configured as a separate zone from the Classified Area.	It must meet the DND/CAF Information Technology Security Standard (ITSS) for Emission Security (EMSEC) Zones and RED/BLACK Separation. It must meet Technical Communications Inspection (TCI) certification in accordance with National Defence publication INFOSEC 2(f) - COMSEC Material Control Policy, Standards and Procedures, dated 26 Apr 2019 It must meet the minimum clearance for Canadian Controlled Goods and ITAR regulations.	It must adhere to the RCMP *Security Operations Centre Design Considerations Guide* (GCPSG-003). Access to this space must be controlled.	It must be located within the confines of the Secure Lab and meet the RCMP standard for secure storage rooms (G13-01). It must include a centrally monitored intrusion alarm system incorporating a motion detection capability. It must include a keypad mounted inside the room in order to activate and deactivate the alarms system. The alarm must be separately disarmed from the Classified area, may be separately armed if the Classified area is disarmed, and armed whenever the Classified area is armed. The keypad must have a backup key entry to mitigate power outages.	Accreditation to the RCMP standard for Sensitive Discussion Areas (SDA). It must adhere to the RCMP *Guide to the Preparation of Physical Security Briefs* (G1-005). The room must be have a centrally monitored intrusion alarm system and must be configured as a separate zone from the Classified Area.	Must be located within the confines of the Secure Lab and meet the RCMP standard for secure storage rooms (G13-01). It must include a centrally monitored intrusion alarm system incorporating a motion detection capability. It must include a keypad mounted inside the room in order to activate and deactivate the alarms system. The alarm must be separately disarmed from the Classified area, may be separately armed if the Classified area is disarmed, and armed whenever the Classified area is armed. The keypad must have a backup key entry to mitigate power outages.	Must be located within the confines of the Secure Lab and meet the RCMP standard for secure storage rooms (G13-01). It must include a centrally monitored intrusion alarm system incorporating a motion detection capability. It must include a keypad mounted inside the vault in order to activate and deactivate the alarms system. The alarm must be separately disarmed from the Classified area, may be separately armed if the Classified area is disarmed, and armed whenever the Classified area is armed.
Furniture	Must accommodate the storage for IT equipment (i.e. phones) prior to entering the lab for up to 25 personnel	All furniture (including cubicle walls and dividers) must be movable in nature without the use of tools.	Provide cubicle spaces (ranging between 4m² and 9m²) for up to 20 permanent staff with flexible furniture configuration for collaborative work.	N/A	It must include a conference table(s) and seating for personnel listed above in Personnel section.	Must use shelving to store what is included in physical configuration.	Dasco Cabinet, Shelving that meet the physical configuration.

Requirements	Secure Reception Zone	The Secure Lab	Cyber Security Operations Center	Secure Server Room	Secure Conference/Multi-Purpose Room	Secure Storage	COMSEC Vault
Lighting	DND lighting requirements and Levels in the Work Place must adhere to the Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. Lighting should be zoned to permit different lighting levels at different points in the lab. Lighting should be dimmable.	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. Lighting should be zoned to permit different lighting levels at different points in the lab. Lighting should be dimmable.	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.	Incorporate a dimmable lighting system conducive to display presentations and reading of documents.	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.	Reference DND lighting requirements, Levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.
Power	It must have minimum of qty one (1) standard 110v receptacle.	It must provide grounding points for proper vehicle grounding and bonding in accordance with the Canadian Electrical Code. It must provide sufficient power at 120V, 60Hz with sufficient amperage to power all equipment listed. It must have flexible power outlets or sufficient power outlets in the floor to accommodate movement of equipment for varied test configurations. It must include a backup power system to allow un-interrupted work in case of power outage.	It must provide isolated power in order to satisfy the security level isolation. Must include 100 % generator and UPS backup.	It must provide power and grounding to accommodate the server racks. It must include a backup power system to allow un-interrupted work in case of power outage. It must include a powered controlled access system, including a lock key backup, in case of a power outage.	It must include a backup power system to allow un-interrupted work in case of power outage.	It must have a minimum of 1 x 110v receptacle for charging batteries.	It must include a backup power system to alarm sensor in case of power outage.
Cable Management	N/A	It must incorporate a two tier overhead cable management system that connects to the server room and allows cable management throughout the Secure Lab. It must have overhead cable management capable of separating network and RF Cables. It must have flexible cable management system to allow for flexible lab configurations. This can be overhead or in-floor or a combination of both.	It must incorporate a two tier overhead cable management system that connects to the server room and allows cable management throughout the Secure Lab. It must have overhead cable management capable of separating network and RF Cables. It must have flexible cable management system to allow for flexible lab configurations. This can be overhead or in-floor or a combination of both.	It must have a flexible cable management system and a power management system with connectivity to the other areas within the Classified Area.	It must incorporate a cable pass through connecting with the Classified Area,	N/A	N/A

3.5   VEHICLE AREA

Requirements	Vehicle Garage	Vehicle Equipment Storage Room	Vehicle Compound
Description	Vehicle Garage must be an enclosed area where tracked and wheeled vehicles can be parked, stored and accessed for connectivity, testing and configuring in support of Land C4ISR activities. Vehicle Bay must be close for RF connection with SoS E&I Facility, roof and Vehicle Compound. The SoS E&I Facility must be able to accommodate cube vans and small trailers but there must be adequate clearance for larger vehicles such as LEO 2 as well. The SoS E&I Facility must have at least two loading docks to accommodate full-sized truck and semi-trailer combinations of 89' in total length. The apron area must be sufficiently big for a truck to maneuver and positions its trailer. The loading docks area must be of 405 feet in depth in order to handle these large trailers. The trucks must be able to marshal directly to the warehouse loading door for direct on-loading and offloading without the help of a forklift. It must be considered that some of the older industrial buildings are becoming less relevant for distribution centers due primarily to limitations with road and traffic infrastructure. In addition to being able to marshal into the building the trucks and larger military vehicles such as the LEO 2 must be able to get to the building without any problems	The Vehicle Equipment Storage Room is an area that houses and provides easy access to secure vehicle equipment and must be co-located within the Vehicle Bay.	Vehicle Compound must be a secure gated area where tracked and wheeled vehicles can be parked, stored and accessed for connectivity, testing and configuring in support of Land C4ISR activities. The Vehicle Compound must be able to be used as an antenna farm during testing and exercising.
Personnel	It must include office space for up to four (4) personnel	This is an unoccupied area	This shall be an unoccupied area.
Size (Dimensions)	It must include a minimum area of 650m²	Must be a minimum of 30m²	It must be a gated secure compound with space for vehicles and the International Organization for Standardization (ISO) shelters and parking minimum of 3200m² It must incorporate an Antenna compound with the minimum space requirement of 200m² It must be able to accommodate a minimum of 20 Military vehicles at any one time.
Physical Configuration	It must host a minimum of four (4) offices. A minimum of six (6) Military vehicles at any one time. Must be rated to withstand wheeled and tracked vehicles up to 70 tonnes. Overhead Vehicle Doors Must be a be minimum of 3.5m wide to accommodate vehicles up to a LAV 6 (Length 7.62m, Width 2.78m, Height 3.16m) One Door must be a minimum of 5m wide to accommodate LEO2 chassis vehicles.	The ability for locker and heavy weight shelving.	The gated compound must have an area for the storage of vehicle / Support Engineer Vehicle (SEV) ancillary equipment. The vehicle hardstand must be rated to withstand wheeled and tracked vehicles up to 70 tonnes.
Network Configuration	The Office Spaces must have the same network configuration as the Administrative Office Area. The Vehicle Garage must be able to access SoS E&I Facility Unclassified and Classified networks through appropriate, configurable patch panels, however not concurrently. It must be connected to the external vehicle compound.	N/A	The Vehicle compound must be able to access SoS E&I Facility Unclassified and Classified networks through appropriate, configurable patch panels, however not concurrently.
Security Considerations	Must provide direct access to the Unclassified and Classified areas.	It must provide an autonomous keypad entry.	It must incorporate access which can easily accommodate, access for armoured vehicles.
Furniture	Must incorporate movable work benches for each vehicle.	It must provide a minimum use of shelving to store what is included in physical configuration.	N/A

Requirements	Vehicle Garage	Vehicle Equipment Storage Room	Vehicle Compound
Lighting	Lighting must comply with levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-39. It must be equipped with lighting to permit testing of vehicles at night. (Note: Fluorescent lighting is not acceptable for this application due to ambient electrical interference.	Lighting must comply with levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039.	Lighting must comply with levels in the Work Place - Canada Occupational Health and Safety Regulations, Part VI - 928-1-IPG-039. It must have specific compound perimeter security lighting. It must be equipped with lighting to permit testing of vehicles at night. (Note: Fluorescent lighting is not acceptable for this application due to ambient electrical interference.
Power	In addition to standard electrical power, each vehicle bay must have one (1) outlet providing 28VDC Mil Standard Power for providing shore power to vehicles.	The Electrical power must conform to the National and Provincial Building codes.	The Gated Compound must provide the appropriate connections for 120V AC power provision to the Canadian Forces Power Distribution System (Hubble connectors).
Cable Management	It must meet the DND/CAF ITSS for EMSEC Zones and RED/BLACK Separation. Must meet TCI certification. It must provide the partial overhead cable trays to facilitate vehicle connectivity to the main building areas. It must allow direct access to the roof of the structure to allow for personnel and RF cables to be run from the Vehicle to the roof of the building for remote antenna usage.	N/A	N/A