CITY OF BALLARAT

VICTORIA POLICE

Public Place CCTV System

Standard Operating Procedures

May 2018

INDEX

1. Introduction

This protocols and procedures document is designed to complement the project's Memorandum of Understanding, by regulating the management, operation and use of the Public Place CCTV System located within the Central Business District of Ballarat.

1.1 Program Background

Council Plan 2017-2021

The Council Plan is a strategic document outlining what the City of Ballarat will do to help achieve Council's and the community's vision of Ballarat as a proud city that is bold, vibrant and thriving.

The plan describes Council's priorities and outcomes for its four-year term and how these will be resourced. It will also help reinforce Ballarats position as the capital of Western Victoria over coming decades. In comparison to previous years, Council Plan 2017-2021 is a streamlined document that will provide a clear, easy to understand and overarching vision, mission and purpose as well as goals, priorities, outcomes, progress measures, and key facts and figures.

The plan has been divided into four goals:

Liveability: Improve the quality of life for our community

Prosperity: Advance our economic position as the capital of Western Victoria

Sustainability: Protect, maintain and enhance our built and natural assets

Accountability: Provide strong and decisive leadership, and transparent governance

Council's Municipal Health and Wellbeing Plan articulates the prevention of violence and injury as priority area for action, including the

- reducing the prevalence of family violence and increasing gender equity,
- increasing community safety; and
- reducing the rate of alcohol and other drug related harm.

The Ballarat Community Safety Advisory Committee, an Advisory Committee of Council established in 1998 is proactive and works with community wide stakeholders to identify areas of concern. The committee works in partnership with Victoria Police, and other community stakeholders.

Council endorsed the investigation of the use of CCTV as an option to enhance and protect community safety in October 2005. Since the 2005 resolution, Council undertook two key pieces of work, including

1. An assessment of the need for public place CCTV; and a
2. Public Place Technology report.

These two documents informed Council in relation to the need for CCTV, possible coverage, cost, governance arrangements and system maintenance.

A subsequent Council report received in 2007 resolved to endorse the installation of a Public Place CCTV system within Ballarat's late night entertainment precinct subject to budgetary procedure.

Council's Public Place CCTV System (Stage One) was completed in November 2008 following a successful grant application to the Federal Government National Community Crime Prevention Programme ($150,000.00) and financial contribution from Council ($200,000.00).

A subsequent minor extension (Stage Two) which was funded by Council was completed in 2009/2010. Further funding secured through the Federal Government Safer Suburbs Funding ($100,000.00) and State Government Public Safety Infrastructure Fund ($200,000.00), together with an additional allocation of $200,000.00 has allowed for completion of this final Stage Three phase. A further grant was received from the Federal and State Governments to

1. Integrated the existing Bridge Mall Traders CCTV system into the Public Place CCTV; and

2. Deploy additional CCTV cameras at the Little Bridge Street Bus Interchange and Bakery Hill precinct.

An independent Governance Audit of Council's CCTV documentation was conducted in 2016, with minor amendments being undertaken to the Memorandum of Understanding(MOU) with Victoria Police and Standard Operating Procedures. An infrastructure audit was also undertaken in 2016 to determine the lifespan of CCTV cameras deployed in 2008 and system capacity for future camera deployment.

1.2 Program Objectives

The CitySafe Safety Camera Public Place CCTV System aims to:

- Improve the sense of safety for users Central Business District;
- Ensure a broad understanding by all stakeholders of the amenity of the Central Business District;
- Ensure that the CCTV system makes a positive contribution to emergency management in the area;
- Ensure that the community has confidence in the accountability and transparency which underpins the CCTV program;
- Make a positive contribution to discussions on planning and service delivery processes for effective growth of Central Business District; and
- Ensure that camera placement is effective.

The parties to the Memorandum of Understanding joint objectives are:

- Increase public confidence and the perception of safety within the precinct;
- Reduce the incidence and impact of crime; and
- Promote a shared sense of responsibility for community safety

2. Program Specifications

2.1 Camera Locations

The Public Place CCTV System has a number of cameras installed within the Central Business District, as per Schedule Two of the Memorandum of Understanding (MOU)

The location of the cameras are detailed in Schedule Two of the Memorandum of Understanding

2.2 Camera Specifications

Schedule Eight refers to the Technical Specifications

2.3 Control Room and Monitor Location

Control Room

Level Of Security – Access restricted key lock and/or swipe card restricted
Those with access – Sergeant level and above
Logging active monitoring and downloading – Hard copy log book

Location of Monitors

Sergeant's Office: 42' LCD monitors with separate work station
Open access to police members only

3. Privacy and Best Practice

The CitySafe Safety Camera Public Place CCTV system is committed to:

- Ensuring the privacy of individuals is protected
- Ensuring the camera program is used for its designated purpose only, and
- The protection of the rights of individuals

Project partners will comply with all laws and regulations applicable to the operations of the CitySafe Safety Camera Public Place CCTV system program and will ensure that, to the best of its ability:

- The equipment will only be used for the purposes of recording matters or material relevant to the safety, security, protection and well being of the public

- All material, information and knowledge will be treated in a confidential manner and all parties will exercise due care and responsibility to prevent any improper disclosure or use

- All images to be released remain the property of the program and will only be released in accordance with images distribution policy (See Section 4)

- All persons who are provided with image copies are bound to ensure that the copy of any image is not further copied and not shown publicly.

4. Management of Images

Victoria Police Standard Operating Procedures form the basis for system compliance.

STORAGE OF IMAGES

Images will be stored for 30 days, unless otherwise copied and stored following a request for images from either a member of Victoria Police or a member of the public (in line with 'Distribution of images conditions outlined below).

COPYING OF IMAGES

Images will be copied and stored as per Victoria Police Standard Operating Procedures **(Schedule C)**

DISTRIBUTION OF IMAGES

Distribution of images will be tightly controlled and will be managed in line with best practice within public space surveillance systems.

Images are only available for use for evidentiary purposes. They will not be available for any Council by-laws or other management issues and are not to be accessed by Council officers or elected officials, except by following the standards procedures for any citizen making a request.

If a person other than a serving member of Victoria Police, wishes to access images, an application under Freedom of Information is to be made to the City of Ballarat through normal procedures. This will ensure that the assessment of the request is made in a consistent manner and is recorded appropriately. The City of Ballarat responsible officer (see Section 5.1) will ensure that copies of the images are made and stored as per the procedures manual.

5. Governance

5.1 RESPONSIBLE OFFICERS

City of Ballarat Responsible Officers	
Technical and Infrastructure:	Title: Executive Manager, Property Services and Facilities Telephone No: 5320 5560
Community Relations and Safety:	Title: Community Safety and Wellbeing Officer Telephone No: 5320 5804

Victoria Police Responsible Officers	
Technical and Access:	Title: Officer in Charge Ballarat Police Station Telephone No: 5336 6000
Community Relations and Safety:	Title: Officer in Charge Ballarat Police Station Telephone No: 5336 6000

5.2 Project Control Group (PCG)

The Project Control Group(PCG) has ongoing responsibility for overseeing and managing the project during its installation and implementation. It is established to oversee the installation and development of protocols, other project documentation, and to address any system and relational matters which emerge. This group will have changing foci and meeting arrangements as there will be different requirements as the project evolves.

OBJECTIVE

- To oversee the installation and implementation of the CCTV system;
- To oversee the management of the CCTV system and ensure that Code of Practice, SOPs, MOUs and other standards and agreements are complied with

STRUCTURE

- Responsible officers from Victoria Police and Council (See Section 5.1)
- Other member of Community Safety Advisory Committee and/or local representative

REPORTING

The PCG will report to the Ballarat City Council and Community Safety Advisory Committee, which will have responsibility for determining ongoing reporting to broader stakeholder groups. The PCG will provide an annual written report to the Ballarat City Council and Community Advisory Safety committee on the project's progress and any issues which require further advice or discussion.

5.3 Privacy Officer

The purpose of a Privacy officer is to provide independence to the project, with particular reference to complaints and the assessment of compliance with privacy legislation. Council's Privacy Officer has been appointed to this position.

As complaints of this nature are serious, and need to be investigated, the position will be ex officio and managed through the General Manager, Community Development, who will determine the appropriate level of response. The PCG will be informed on a need to know basis but will be informed that a complaint has been lodged and this will be reported to the Ballarat City Council and Community Safety Advisory Committee. In the first instance the complaints will be referred to the General Manager, Community Development prior to being referred to the Privacy Officer for consultation and recording.

6. Communication and Reporting

Media

Victoria Police members will be the 'point of contact' for the media relating to information collected from the surveillance camera system connected to any criminal or anti-social incident. Any media requests regarding the system infrastructure will be provided to Council's Media Unit, and the appropriate officer will be assigned for comment.

Complaints

Information regarding complaints will, in most situations, remain confidential. The Privacy Officer, as Governance Officer for the project, will provide a report to the Ballarat City Council and Community Safety Advisory Committee on an annual basis regarding any complaints which have been handled during the previous year. Any decision regarding the need for information to be made public in relation to a complaint will be made by the General Manager, Community Development.

Signage

Signage will be in keeping with heritage requirements, and will include:

- Information in venues to inform patrons that the entertainment precinct is under regular surveillance;
- Information in the streetscape, on poles and other fixtures;
- Information in the local media

7. Evaluation Framework

The most recent Public Place CCTV System evaluation was undertaken in December 2014 and was based on the below framework.

- Improve the sense of safety for all users of the entertainment precinct area
- Ensure that there is a broad understanding by all stakeholders of the amenity of the entertainment precinct area
- Ensure that the CCTV system makes a positive contribution to emergency management in the area
- Ensure that the community has confidence in the accountability and transparency which underpins the CCTV program
- Make a positive contribution to discussions on planning and service delivery processes for effective growth of entertainment precinct
- Ensure that camera placement is effective

SCHEDULE ONE - ATTACHED

SCHEDULE TWO CCTV SYSTEM

1. CCTV Cameras Installation

Council has installed a total of 32 CCTV Cameras (Stage 1-3) to monitor the activities of the public at the location/s specified in Schedule 2. A further 56 cameras are owned and operated by Bridge Mall Traders. These cameras are integrated into the public place CCTV system and can be viewed at the Victoria Police at the Ballarat Police Station. A local monitoring location is also established in the Bridge Mall Centre Management Office.

A stand - alone system is located at the Wendouree West Recreation Reserve. The server is housed inside the Forest Rangers Soccer Clubroom and is managed by Council's Facilities Management area. Access to the system is password protected and accessible only by Council's Facility Management area. Footage is downloaded and supplied to Victoria Police on request to Council's Facilities Management area. Training on the use of the system was provided by the supplier on installation at the site.

2. Location/s

Camera locations are show on the attached Plan and new cameras detailed in the Memorandum of Understanding.

3. Hardware and Software

Details of the hardware and software specifications are included in the Standard Operating Procedures.

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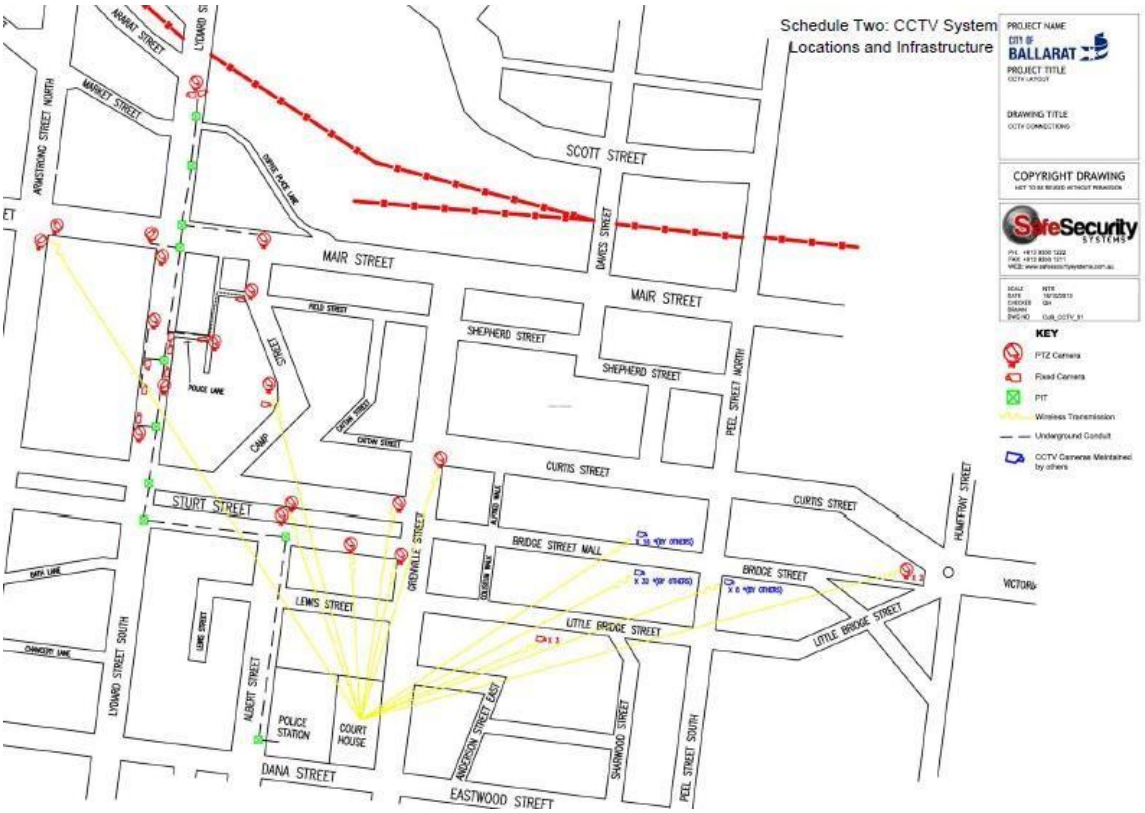
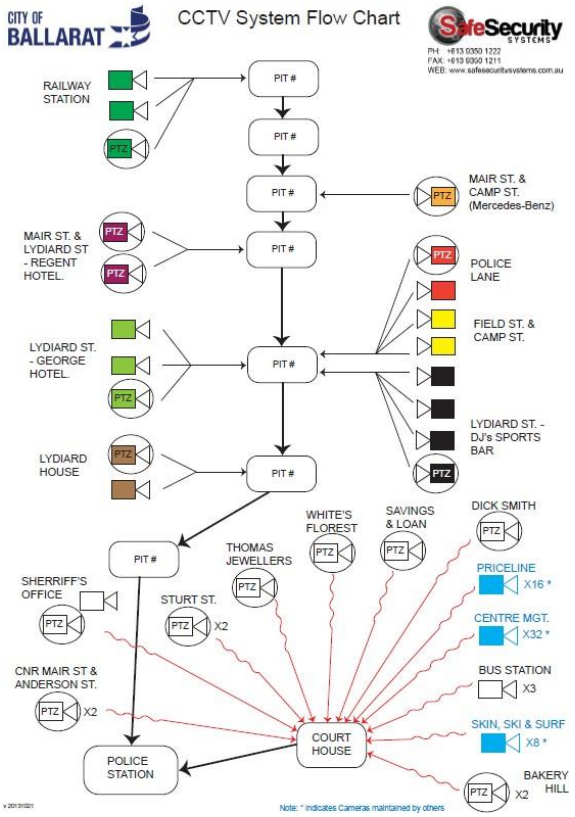
Schedule Two





Annexure 2

UNCLASSIFIED

ANNEXURE 2

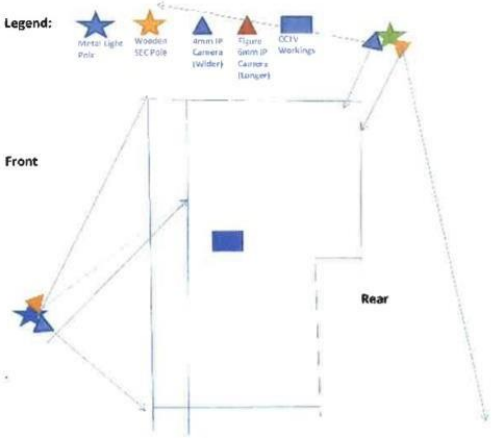
Schedule Two – Wendouree West Recreation Reserve

Annexure 3

UNCLASSIFIED

ANNEXURE 3

Wendouree West Recreation Reserve



CITY OF BALLARAT

VICTORIA POLICE

Victoria Police Operating Procedure
Ballarat Public Place CCTV Cameras

1. Introduction

The Public Place CCTV Camera System came into effect on Friday 14th November 2008. The CCTV Cameras are located at the following locations:

- Between Lydiard St between Sturt St and Mair St, Ballarat Central
- In Police Lance, Ballarat Central
- In Mair Street between Camp St and Armstrong Street
- Camp St
- Sturt Street between Lydiard St and Grenville Street
- Bakery Hill
- Little Bridge Street Bus Interchange

The City of Ballarat is responsible for signage in all areas where Public Place CCTV Cameras operate.

The Public Place CCTV System Control Centre is located at the Ballarat Police Station, 20 Dana St, Ballarat. The system can be monitored in the Sergeant's Office and the Section Sergeant can take manual control of the cameras if required in the Public Place CCTV Camera Control room.

Instruction guide and user manual are located with the system. The data is continually stored for a period of 30 days.

2. Aim

The Ballarat Public Place CCTV System objectives are

- Improve the sense of safety for all users of the entertainment precinct area
- Ensure that there is a broad understanding by all stakeholders of the amenity of the entertainment precinct area
- Ensure that the CCTV system makes a positive contribution to emergency management in the area
- Ensure that the community has confidence in the accountability and transparency which underpins the CCTV program
- Make a positive contribution to discussions on planning and service delivery processes for effective growth of the entertainment precinct
- Ensure that camera placement if effective

3.0 Standard Operating Procedures

The Standard Operating Procedures (SOP's) have been prepared to ensure all persons follow procedures to ensure the safeguarding and integrity of the Public Place CCTV System Program. The operation of the system is governed by strict guidelines and procedures to safeguard the integrity and accountability.

Digital copies of incidents are made available only to authorised police members and civilians who meet the criteria of the Protocol and agree to comply with the requirements for handling, use and return of images.

1. The application to view or copy the CSSC will be approved only if:
   The applicant is a lawyer acting on behalf of a person alleged to have committed an offence which may have been recorded.

2. The applicant is a lawyer acting on behalf of the Victorian or Australian or Statutory Authority against a person alleged to have committed an offence which may have been record.

3. The applicant is a lawyer acting on behalf of a person who alleges they have been a victim of an offence which has been recorded.

4. The applicant is a victim of an offence and will be representing themselves in a court of law or Tribunal in relation to an offence which may have been recorded.

The release of information is subject to the following:

Victoria Police Manual (Policy and Guidelines)

- Court Processes
- Appropriate use of information
- External information disclosure
- Release of information to the media
- Public information release

Police Application to View / Copy CSSC:

A register is maintained at the Control Centre.

Any member who views or makes request for Ballarat Public Place CCTV System footage **must** record this request in the register / log.

The following details are to be entered:

- Member / Date of making entry:
- Location of Incident:
- Date and Time of Incident:
- Nature of Incident / Reason for Request:
- LEAP Incident number:
- Incident Fact sheet – if applicable:
- Required for a L.P.I.R. – YES/NO:
- Investigating member details:
- Date Copied / Viewed:
- Copied by Member:
- Copy Given to:
- Value: YES/NO:

If Ballarat Public Place CCTV System footage is copied the file will be copied and exported onto the computers *"My documents \ Ballarat Camera Footage"* folder. This becomes the **Primary Image**.

Primary Image: ***The first instance in which data is recorded in memory.***

The file will then be burn from the computers *"My documents \ Ballarat Camera Footage"* folder on a CDROM. This becomes the **Original image**.

Original Image: ***Bit for bit duplication of primary image.***

Details are to be recorded and entered into the **CCTV REGISTER** where the original will stored in a secure cabinet.

A **Working Copy** is to be made available to the investigating member.

Working Copy: ***Can be in many forms, not necessary in the same format as the original image i.e e-mail***

Images are not to be shown to any person except a member of the Victoria Police involved in the investigation of the alleged offence. Or where appropriate, to a witness to the alleged offence for the purpose of confirming their identity or the identity of the alleged offender.

The investigator is to maintain a record sheet. The following details are to be recorded each time the image is viewed:

- Date / Time:
- Member viewing:
- Reason for viewing:

At the completion of the investigation and when finalised, the investigating member is to supply a report detailing the value / success of the CSSC. The **Working Copy** is to be returned and stored with **Original** in the **CCTV REGISTER**.

Contact Information:
The Ballarat Public Place CCTV System is overseen by:

Police Service Area Manager – Ballarat
Ballarat Police Station
20 Dana St,
Ballarat. 3350
(P) 53366060
(F) 53366116

Portfolio Holder:
The portfolio holder is to be of the rank of Sergeant or above and must ensure strict compliance with the Standard Operating Procedures.

Officer in Charge
Ballarat Police Station
20 Dana St,
Ballarat. 3350
(P) 53366050
(F) 53366330

Infrastructure components
The Ballarat Public Place CCTV System is maintained by the City of Ballarat, Executive Manager, Property Services and Facilities.

Schedule D – Complaint Form

CITY OF BALLARAT

VICTORIA POLICE

Public Place CCTV Camera Program
Complaint Form

This form is to be completed and forwarded to the General Manager, Community Development, in the event of a complaint is made regarding the program. The General Manager, Community Development will then coordinate an appropriate response.

NAME OF APPLICANT: _____

ADDRESS: _____

_____

TELEPHONE NO: _____

DATE OF APPLICATION: _____

FORM OF COMPLAINT:

Correspondence ☐
Telephone ☐
In person ☐

COMPLAINT MADE TO:

Name: _____

Title: _____

Contact details: _____

Details of complaint:

_____

_____

_____

Details of action taken (including the names of any person contacted and dates of each contact):

_____

_____

_____

ACTION TAKEN:

Complainant contacted by phone ☐
Correspondence forwarded to complainant (Attach) ☐
Complainant responded to effectively ☐

Signature _____ **Date** _____

Schedule E – Use of Recoded Image Questionnaire

CITY OF BALLARAT

VICTORIA POLICE

Public Place CCTV Camera Program
Outcomes Questionnaire

Please complete and file for Victoria Police Report to the City of Ballarat CCTV Audit Committee. Please tick appropriate boxes.

Police ☐ Civilian ☐

1. Applicants name: _____

2. Date: _____

3. Details of application:

Videotape (Emergency – Police only)	☐
Videotape (Non - Emergency)	☐
Photograph (Emergency – Police only)	☐
Photograph (Non - Emergency)	☐
Viewing a videotape or photograph (Emergency – Police only)	☐
Viewing a videotape or photograph (Non - Emergency)	☐

4. Purpose

Please answer by ticking Yes or No.

	Yes	No
• Used as part of police investigation	☐	☐
• Used to prepare defence	☐	☐
• Used in an evidentiary capacity for Court	☐	☐
• Used to identify suspect(s)	☐	☐

5. Outcomes/results

- Successful prosecution ☐
- Unsuccessful prosecution ☐
- Successful defence ☐
- Unsuccessful defence ☐
- Other type of outcome ☐

Please describe: _____

_____

6. Have there been any other results not listed below? If so, please indicate:

_____

_____

7. Is there anything you wish to comment on further, for example an idea to improve the Public Place CCTV Camera Program?

_____

_____

Thank you for completing this questionnaire.

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Connley Walker

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Independent Consulting Engineers
Specialist Security and Risk Consultants

SPECIFICATION FOR

CITY OF BALLARAT

PUBLIC PLACE CCTV SYSTEM EXTENSION

Document number: 273111126001 Date of issue: 2nd February 2012 Revision: 1

CITY OF BALLARAT

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SECTION 1 GENERAL INFORMATION

SECTION 1 GENERAL INFORMATION

1.1 GENERAL

This Specification details the requirements for the supply, installation and commissioning of extensions to the public safety camera system on behalf of the City of Ballarat.

1.2 DEFINITIONS

The following definitions shall apply to this specification:

Approval:	Shall mean approved or approval by the Principal, Superintendent or Consultant. Approvals granted to the Contractor shall not reduce or remove any of the Contractor's obligations under the specification or contract.
Authorities:	Shall mean statutory bodies or inspectors of such bodies having jurisdiction over the works under relevant current regulations and statutes.
Consultant:	Shall mean Connley Walker Pty Ltd
Contract:	Shall mean the Contract between the Principal and the Contractor for the construction and completion of the works.
Contractor:	Shall mean the Contractor who secures acceptance of a tender by the Principal and includes any staff, sub-contractors or agents of the Contractor.
Instructions:	Shall mean instructions to the Contractor issued by the Principal, Superintendent or Consultant.
Principal:	Shall mean the City of Ballarat.
Program:	Shall mean the program of works prepared by the Contractor and agreed by the Principal
Site:	Shall mean various locations as described by the scope of works.
Superintendent:	Shall mean Connley Walker Pty Ltd
Tenderer	Shall mean the respondent to the invitation to tender.
Works:	Shall mean the whole of the description of the works.

1.3 CONDITIONS OF QUOTATIONS

In consideration for the evaluation of the quotations, the quotations and subsequent clarifications or corrections are to be contractual offers and not invitations to treat. Quotations are to remain valid for a period of six months from the date of submission.

1.4 SUBMISSION OF QUOTATIONS

Quotations are to be submitted in accordance with the instructions provided in the invitation to provide a quotation.

1.5 DOCUMENTS TO BE SUBMITTED

One printed and electronic copy of the tender submission shall be submitted. Electronic copies shall be in Microsoft Word, rich text format or PDF and shall be submitted on a CD. In the event of any discrepancies between the printed and electronic copies, then the Principal or Consultant may make a determination as to which copy is to be used.

The tender submissions shall be in the format of the Tender Forms included in this Specification.

1.6 ALTERNATIVE OFFERS

Alternative offers may be provided with quotations. These must be accompanied by a fully compliant quotation.
Quotations that include their own contract conditions or terms and conditions will be considered non-compliant.

1.7 CONFIDENTIALITY

The content of this specification shall remain confidential at all times before, during and subsequent to the tender process. No portion of this documentation may be copied or reused for any purpose without written permission from Connley Walker Pty Ltd.

1.8 POST TENDER NEGOTIATIONS

Tenderers may be invited, as part of the tendering process, to submit a best and final offer in relation to all or certain aspects of their respective tender submissions.

SECTION 2 DESCRIPTION OF THE WORKS

SECTION 2 DESCRIPTION OF THE WORKS

2.1 GENERAL

This Specification details the requirements for the supply, installation and commissioning of extensions to the Public Place CCTV System on behalf of the City of Ballarat.

2.2 THE SITE

The Site of works includes the following locations:

- Ballarat Police Station.
- Various outdoor locations as described in the drawings.
- Bridge Mall.

2.3 SCOPE OF WORKS

2.3.1 General

The Scope of Works is to supply, install, and commission and provide training for the following services:

- Digital video server and associated equipment at Ballarat Police Station.
- External CCTV cameras as described in the drawings and specification.
- Wireless links for the transmission of CCTV signals.
- Power reticulation.
- Cabling reticulation.
- Trenching.

The Scope of Works includes all works and items necessary to supply, install, and commission and provide training for the services, including but not limited to:

- Compliance with site industrial and induction requirements including all site work permit requirements.
- Compliance with site occupational health and safety requirements.

In addition to the Scope of Works listed above, a maintenance contract may be entered into at the discretion of the Principal.
The Scope and Quality of Works shall be defined by the requirements of this Specification and the applicable standards. Where an applicable standard requires works to be carried out that are not formally documented in this specification, then these works are to be carried out by the Contractor unless the Consultant or Superintendent has provided a written exemption. No additional claims for extra time or costs will be accepted for these additional works.
Specifications are provided within this document for the minimum requirements of equipment that is to be provided for the additions. Alternative equipment may be offered that has minor variances but these will need approval. It is recommended that this approval be sought prior to close of tenders.

2.3.2 Works by the Contractor

The Contractor shall carry out all works necessary to enable full use of the systems provided under the Scope of Works unless specifically detailed as

works by others. The works shall be complete in every respect and not require any additional works for the systems provided to be fully operational.
The Contractor shall ensure that all equipment is provided with all hardware and software to make it fully operational. Unless specifically identified as works by others, this shall include all:

- Power supplies and power outlets.
- Cooling fans, heaters, ventilation and any other measures necessary for the equipment to operate within equipment manufacturer's specified operational temperature range within the environment where it is to be installed.
- Computer hardware and software.
- User keyboards and controls.
- Racking and equipment cabinets.
- Joinery necessary for the installation and operation of the equipment.
- Licenses for all software and hardware for it to operate in the specified manner without the need for additional licensing at any time.

2.3.3 Works by Others

Any works not specifically listed as works by others shall be the responsibility of the Contractor. There are no works by others within this scope of works.

2.3.4 Working hours

Any works involving the use of hammer drills or equivalent noise level shall be subject to Council approval.
The Contractor shall make allowance to carry out any works that may be of a disruptive nature to the local businesses in the area to be conducted outside their trading hours. It shall be the responsibility of the Contractor to determine what works may be considered disruptive, the available access to areas of the site and include full allowance for this in their offer.
The Contractor shall make allowance for their works being carried out in an environment where they may experience unpredictable delays in gaining access to parts of the work. It is expected that the Contractor has fully informed themself of the working environment and is fully familiar with it. No claims for costs shall be applicable for delays to the Contractor in gaining access to the site or parts thereof.

2.4 QUALITY OF THE WORKS

2.4.1 General

It is the intent of this specification that all works carried out by the Contractor will be complete in all respects. Any works necessary to make the works complete shall be the responsibility of the Contractor unless specified as works by others. All works shall be carried out in accordance with the relevant standards and be of the highest quality.
All equipment provided under the Scope of Works shall be new. Any modifications carried out to any equipment that is not in strict compliance with the manufacturer's documented installation and configuration instructions shall be subject to approval by the Consultant. Any approved modifications to any equipment shall be fully documented in plain English descriptions in the Technical Manual.

2.4.2 Personnel

The Contractor shall provide sufficient personnel to deliver the Works. Personnel shall be subject to approval. The Consultant or Superintendent may remove approval of individual personnel at any time.

All Personnel carrying out works on the project shall have the appropriate experience, licenses, registrations and qualifications required of their trade or profession.

The Contractor shall appoint a Project Manager who is experienced in similar projects that have been successfully completed. The Contractor's Project Manager shall not be changed during the Works without approval and shall have sufficient experience to be able to ascertain if the works carried out are fit for purpose.

2.4.3 Fit for Purpose

All equipment provided or works carried out shall be fit for the purpose of the end users of the system as deemed by the Consultant. Any discrepancies between the specified Scope of Works and the Contractor's experience in the requirements of similar systems shall be detailed in the tender submission.

2.4.4 Existing conditions

The Contractor shall fully inform themselves of any and all existing conditions at the Site prior to the tender submission. No claims for extra time or costs will be accepted for matters relating to existing conditions. In providing a tender response it shall be deemed that the Contractor has either visited the site to fully inform themself of the scope of works or that they are accepting the risk of any additional works that are required to meet with the intent of the specification but are not specifically identified within the scope of works.

In reviewing the existing site, the Contractor shall fully inform themselves of, among other things of the existing:

- Joinery and the requirements for alterations to aesthetically suit the specified scope of works.
- Cable access.
- Interfaces to other systems and any additional works required to fully maintain the interfaces.
- Compatibility of existing equipment and any modifications required to maintain existing functionality. (e.g. power through coax to cameras, PTZ control signalling).

2.4.5 Consistency

All works provided by the contractor shall be of consistent type and quality. Equipment provided shall be of the same manufacturer and model for similar items. Installation of equipment shall be of a consistent method.

2.4.6 Design

Where the Contractor is providing any works of their own design, configuration or manufacture, then it shall be subject to approval. The Contractor shall seek such approval through the submission of shop drawings. Shop drawings shall be provided in a quantity and format advised by the Consultant or Superintendent.

This shall apply to but not be limited to:

- Cabling routes and support systems.
- Equipment housings, mounting details and fixtures.

- Equipment locations.
- In ground works.
- Joinery, including choice of materials and finishes.
- Racking equipment and layouts.

Where approval is not provided, the Contractor shall follow the instructions of the Consultant or Superintendent. Failure to obtain approval shall not be cause for any claims for costs or extensions of time.

2.4.7 Applicable Standards

The works must comply with the requirements of all relevant laws, codes, regulations and specifications including, but not limited to:

AS 4806.1-2006	Closed circuit television (CCTV) - Management
AS 4806.2-2006	Closed circuit television (CCTV) - Application guidelines
AS 4806.3-2006	Closed circuit television (CCTV) - PAL signal timings
AS 4806.4-2008	Closed circuit television (CCTV) - Remote video
AS/NZS 3008	Electrical installations - Selection of cables
AS1044	Limits of electromagnetic interference
AS1768-1991	Lightning protection
AS/NZS3000:2007	Electrical Installations

All legislative and regulatory requirements.

2.4.8 Permits

Where applicable, the Contractor will be responsible for obtaining all necessary planning and building approvals required and the Consultant will provide a Registered Building Practitioner sign off where required.

2.4.9 Quality Plan

Contractors shall submit a Quality Plan prior to commencement of works. This shall be in accordance with ISO9000. The Contractor's quality plan shall be subject to the approval of the Superintendent.

2.5 PROJECT PLAN

2.5.1 General

Tender submissions shall include a preliminary project plan. This shall reflect the specified milestone dates and provide an indication of how they will be achieved. Upon award of the contract, the Contractor shall be required to provide a detailed project plan that indicates all tasks to be carried out to achieve the specified Scope of Works and milestone dates. The project plan shall be subject to approval by the Superintendent.

Project plans shall be in Gantt Chart format and shall clearly illustrate all critical tasks and a critical path.

2.6 PROJECT ADMINISTRATION AND MANAGEMENT

The Contractor shall make allowance for all project administration and management in relation to the works. This shall include, but not be limited to:

- Development of a detailed project plan for approval. Where the project plan is in dispute, the Contractor shall follow the instructions of the Consultant or Superintendent to resolve the dispute. Failure to obtain immediate approval of the project plan shall not delay the commencement of works or alter the

date for practical completion. When the project plan is approved, it shall not be altered in any way unless a formal extension of time is granted to the Contractor.

- Provision of weekly progress reports that indicate works carried out in the previous week, works to be completed in the following week, identification of any slippage from the approved works program and explanation of how any slippage will be corrected by the next week. The weekly progress reports shall include a copy of the project plan in Gantt chart format indicating progress to date against each task.
- Attendance at project meetings at a time, frequency and location determined by the Consultant.
- Attendance on site for any inspections required by the Consultant or Superintendent.
- Compliance with site works permit, safety, induction, OH&S, industrial relations or other site requirements.
- Provision of all documentation associated with the works in a timely manner.
- Provision of staff and contractor training records.

Where the Consultant or Superintendent considers that insufficient or inadequate project administration or management is being provided, they may at their discretion provide additional involvement. The Consultant or Superintendent may audit the Contractor's project documentation at any time without notice to satisfy themselves that the project management and administration is sufficient and adequate.

2.7 SPECIAL REQUIREMENTS

The following special requirements are in addition to the requirements of the contract.

2.7.1 Warranty

The Contractor shall provide a warranty for the Scope of Works and any variations to the Scope of Works. The warranty period shall commence from the date of practical completion for the entire works as indicated on the certificate of practical completion. Parts of the works that are handed over for use by the Principal prior to practical completion shall have a warranty that commences from the date of practical completion of the entire works. The warranty shall provide for repair or replacement of any equipment or systems that fail to operate in accordance with the manufacturer's specifications or with this specification.

The warranty shall not be void or limited if:

- Others perform maintenance on the equipment supplied under the scope of works.
- Others modify the configuration or location of equipment without opening any equipment.

The Contractor shall respond to warranty claims by commencing rectification works at the site within four (4) hours of notification. The Contractor shall have access to sufficient spare parts to complete any repairs within twenty-four (24) hours of notification of a warranty claim.

The warranty shall include all materials and labour provided by the Contractor in the execution of the Scope of Works.

If the Contractor fails to provide the specified warranty then the Principal may engage others to carry out rectification works at the Contractor's cost.
The warranty shall not limit any of the Contractor's liabilities in relation to damages caused as a result of the works or in relation to items that have defects of manufacturing, design or installation.

2.7.2 Warranty period

A twelve month warranty is to apply to all items supplied and installed under this scope of work.

2.7.3 Intellectual property

The Contractor acknowledges that any documentation or data provided or produced by the Contractor in the course of providing the Scope of Works shall be licensed to or become the intellectual property of the Principal. The Contractor warrants that any documentation or data they provide does not infringe any copyright, confidentiality agreement or patent.

2.7.4 Confidentiality

The Contractor shall keep confidential at all times details of any aspect of the Scope of Works and the Site. The Contractor shall accept full liability for remedying any breach of confidentiality by their staff, contractors or agents and will remedy any breach of confidentiality as instructed by the Consultant or Superintendent.

2.7.5 Approvals

Any approvals granted by the Consultant or Superintendent to the Contractor shall not relieve the Contractor from complying with the Specification unless the Consultant or Superintendent specifically details such approval as an exemption to the Specification.

2.7.6 Consultant and / or Superintendent fees

The Contractor shall be directly liable for any Consultant and / or Superintendent fees (including GST) that occur as a result of needing to repeat commissioning tests or inspections due to incomplete works.

2.7.7 Protection of equipment

It shall be the responsibility of the Contractor to provide protection and insurance of equipment on site until a certificate of practical completion has been issued for the entire Scope of Works. This shall include both the Contractor's own equipment, any of the works where possession or title has passed to the Principal prior to practical completion and that provided under the Scope of Works. Where damage or loss of equipment occurs for any reason, the Contractor shall not hold any person or entity liable unless they were directly responsible for causing such damage or loss.
In the event of the Contractor damaging equipment or other assets at the site, they shall immediately notify the Consultant or Principal. The Contractor shall then make good the damage at their own cost as directed by the Consultant or Principal

2.7.8 Variations

The Contractor shall provide the Superintendent with full and frank disclosure of all costs associated with any variation claim. This disclosure shall include copies of supplier quotations and invoices. Variations that are not subject to unit rates shall be paid on the basis of the agreed Contractor's labour rate for

variations plus materials. Materials shall be priced on the basis of verified cost plus a an agreed percentage mark up. If the Contractor elects to use sub-contractors for variations works then this shall not affect the calculation. Sub-contractor invoices shall not be included as a single cost but shall indicate hours worked and materials at the sub-contractor's cost. Multiple mark ups on costs shall not be permitted for variations unless clearly identified as part of the Contractor's tender offer.

2.7.9 Nominated sub-contractors, equipment and suppliers

There are no nominated sub-contractors, equipment or suppliers in relation to the scope of works. Mention of a particular sub-contractor, equipment or supplier in the Specification is by way of clarifying the nature or quality of the works or equipment to be provided.

SECTION 3 REQUIREMENTS – CCTV SYSTEM

SECTION 3 REQUIREMENTS - CCTV SYSTEM

3.1 GENERAL

The existing CCTV system is to be expanded to include additional external CCTV cameras and associated infrastructure and recording.

3.2 EXISTING SYSTEM

The main components of the existing system include:
1 x IndigoVision Control Center.

2 x IndigoVision NVR200 Raid Array network video recorder.

2 x IndigoVision analogue to digital encoders.
5 x 4 Channel IFS Fibre tranceivers.
2 x Dell workstations.

The above head end equipment is installed within a rack in the communications room of the Ballarat Police station. The remote cameras are connected to the head end equipment via a 48 core single mode fibre that is installed as shown in the drawings.
The existing system is more fully described in the drawings.

3.3 ADDITIONS TO THE EXISTING SYSTEM REQUIRED

The existing system is to be expanded to include additional outdoor cameras as indicated in the drawings. The additional cameras will be connected back to the Ballarat Police station via a combination of direct connections to the existing fibre network and wireless connections to the fibre.
The expansion will require the installation of additional infrastructure that will include (but not be limited to) the following:

- 1 x IndigoVision NVR-AS 3000 RAID Array with 4 x Hard Disks (RA6000).
- Wireless mesh network nodes connected to the fibre.
- Power connections to the wireless nodes and cameras.
- Cameras and associated equipment as shown in the drawings.
- Splicing of existing fibre and the installation of outdoor housings and patch panels as required.
- Any additional licensing as required for a fully operational system.

The existing fibre network has spare capacity for the addition of the new cameras and wireless nodes. To reduce the requirement for splicing existing fibres, the Contractor may disconnect the tamper alarm reporting at existing camera equipment cabinet locations to free up additional spare fibres.

3.4 NETWORK VIDEO RECORDER

3.4.1 Requirements

The Contractor shall supply, install and commission an IndigoVision NVR-AS 3000 RAID Array with 4 x Hard Disks (RA6000) within the spare space of the CCTV rack in the communications room of the Ballarat Police Station.

3.4.2 Configuration

The network video recorder shall be configured as an additional recorder on the existing IndigoVision Control Center. The configuration shall include programming of all new cameras into the system and the update of maps to indicate the new cameras.
The Contractor shall be responsible for the provision of all additional works required for the installation of the recorder including rack hardware and power outlets.

3.5 FIXED IP CCTV DOME CAMERAS

3.5.1 Requirements

Fixed dome cameras shall be IndigioVision 9000E Fixed IP Dome cameras or an approved equivalent that meets with the following minimum requirements.

Image Sensor	1/3” Progressive CMOS, 690 HTVL effective, > 500 TVL typical
Active Pixels (HxV)	0.4 Megapixel
Sensitivity (50IRE, F1.2)	Day/Night: 0.1 lux color / 0.01 lux mono
Lens	Auto-iris, Vari-focal, M14 mount with focal length to suit the required scene.
ICR Filter / Day/Night	Mechanical IR Cut Filter
Gamma	0.45
Gain Control	Automatic or fixed manual setting across a 40dB range
Scan Mode	4SIF Progressive; 2SIF/SIF Non-interlaced
Dynamic Range	WDR: 120dB Max, 102dB Typical
SNR	> 50dB
Synchronization	Internal
Back Light Compensation	On* or Off
White Balance Mode	Auto; Manual; Indoor; Outdoor
Iris Control	Auto-iris DC drive lens as standard
Shutter Speeds	Auto from 1/60 (NTSC) or 1/50 (PAL) to 1/30,720
Electrical	Operating voltage: Power over Ethernet (802.3af Class 0) or 24V AC/DC (DC Power Supply separately orderable) Power consumption: 24V @ 0.33A / 10W max Heater/Fan Power consumption (Environmental variant only): 30W; 12V DC Power Supply included.
Video Compression	Full frame rate, full color: H.264 (ISO 14496-10); 25/30fps guaranteed
Video Bit Rate	User-configurable bit rates from 32Kbps up to 6Mbps
Resolution	SIF: 352 x 288 pixels (PAL); 352 x 240 pixels (NTSC) 2SIF: 704 x 288 pixels (PAL); 704 x 240 pixels (NTSC) 4SIF: 704 x 576 pixels (PAL); 704 x 480 pixels (NTSC)

Video Output	NTSC/PAL composite video, 75 Ohms 1V p-p, BNC cable harness
Binary Input/Output	2 opto-isolated inputs ; 1 solid state opto-isolated relay output
Network interface	IEEE802.3 and IETF standards: 10/100 Base-T Ethernet, TCP, UDP, ICMP, IGMP, SNMP, HTTP Embedded Linux firewall; Up to 16 simultaneous unicast video users plus unlimited multicast users
Time	Embedded real-time clock, NTP client
Recording	9000E 25/30 fps recording at 4SIF
Housing	Diecast Aluminium Alloy with Polycarbonate dome
Ingress Protection	IP66
Operating Temperature	-30 to 50oC/-22 to 122oF
Mounting Options	Wall and Ceiling Mountable exit collar included for solid surfaces

3.5.2 Configuration

Two dome cameras are to be installed at the far end of under each bus shelter on the edge closest to the road. They are to be configured to view their respective shelter and the other bus shelter camera.

3.6 FIXED IP CCTV STANDARD HOUSING CAMERAS

3.6.1 Requirements

Fixed standard housing cameras shall be DvTel Pro-Elite Altitude CF-2100 Series Fixed Camera or an approved equivalent that meets with the following minimum requirements.

Image Sensor	1/3” Sony ExView (Day/Night Color) CCD Sony SuperHAD II WDR (Day/Night WDR) CCD
Sensor Resolution	PAL: 752x582
Scanning Mode	Deinterlaced
Sensitivity	Color: 0.2 Lux @ F1.4 / Night Mode: 0.03 Lux @ F1.4
White Balance	Auto (On/Off)
Automatic Gain Control (AGC)	On/Off
Backlight Compensation (BLC)	On/Off
Automatic Electronic Shutter (AES)	NTSC: 1/60 to 1/100,000 PAL: 1/50 to 1/110,000
Flickerless Mode	On/Off
Iris Control	DC Auto
Day/Night Mode	Auto / On/Off
Mechanical IR Cut Filter	Yes
IR Sensitivity	Yes: 680 to 1100nm
Signal to Noise Ratio (SNR)	≥50dB

Compression	H.264 (MPEG4-Part 10), MPEG4 (ISO), Dual Stream selectable
Frame Rate	PAL: 2 x 25 FPS in all Resolutions and Compression Modes
Resolution Range	Scalable from CIF to D1 NTSC: 352x240 to 720x480, PAL: 352x288 to 720x576
Bandwidth	Configurable between 64 Kbps and 6 Mbps
Network Protocols	Transport: RTP (Unicast/multicast), UDP (Unicast/multicast), TCP Others: DNS, HTTP server, IGMP V1/V2, Telnet client and DHCP client*
Ethernet	10/100 Base-T Auto sensing, Half/Full Duplex (RJ45)
Standards	RS-422/485 4 wires, RS485 2 wires TX or RX
Connectors	Terminal block
Operating Mode	Transparent serial port supports any asynchronous serial protocol
Configuration	Remote: Via Web Access, Telnet, or Supported Video Management Software
Lens Mount	C or CS Lenses with manual or DC Auto-Iris
Enclosure	Metal case with ¼-inch UNC-20screw mount on top and bottom
Operating Temperature	32°F to 122°F (0°C to 50°C) Outdoor installation requires optional environmental housing
Storage Temperature	-4° to 158° F (-20° to 70° C)
Humidity	95% (non-condensing)

3.6.2 Configuration

The cameras shall be installed in accordance with the drawings. Outdoor camera housings shall be provided with a viewing window that is recessed from the front of the housing in a manner that provides minimum build up of dust, rain or exposure to sunlight. The camera housings shall be provided with silicon gel satchels of sufficient quantity to prevent any dew forming on the viewing window. The housings shall be fitted with heaters, fans and adequate ventilation to prevent any build up of frost.

3.7 PTZ IP CCTV CAMERAS

3.7.1 Requirements

PTZ cameras shall be IndigioVision 9000 PTZ IP Dome cameras with 36x optical lens or an approved equivalent that meets with the following minimum requirements.

Zoom	36x optical + 12x digital
Lens	3.4mm to 122.4mm, F1.6 to F4.5
Scan Mode	Interlaced
Horizontal View Angle	1.7o to 57.8o
Day/Night	Yes
Wide dynamic range	Yes

Image Stabilizer	No
Min Sensitivity	F1.6, 50 IRE 0.1 lx (color), 0.01 lx (mono) PAL at 1/3 sec
Resolution	>540 TVL
Sensor	¼”
Signal/noise ratio	>50 dB
Shutter/Iris/Focus	Automatic with manual override
Manual Shutter Speeds	1 to 1/10000 sec.
White Balance/Gain/IR Filter	Automatic
Video Compression	Full frame rate, full color: H.264; (ISO 14496-10): 25/30fps
Video Bitrate	User configurable from 32Kbps to 6Mbps
Multi-Streaming	Up to 16 simultaneous unicast video users plus unlimited multicast users
Resolution	4SIF: 704 x 576 pixels 2SIF: 704 x 288 pixels SIF: 352 x 288 pixels (PAL)
Network Protocols	TCP, UDP, IGMP, SNMP, HTTP, FTP, NTP
Network Interface	Compliant with IEEE 802.3u, 100BASE-TX Fast Ethernet
Network Security	Embedded firewall with encryption
Time	Embedded real-time clock, NTP client
Presets	250
Preset Accuracy	0.05o
Preset Tours	100 each with 20 presets
Pattern/Mimic Tours	4 each with up to 1 minute
Privacy Zones	24 User Defined
Pan Range	360o continuous rotation
Tilt Range	-5o (above horizon) to +90o (vertically down)
Pan/Tilt Speed	0.001o/s to 360o/s
Preset Move Speeds	200o/s
Picture Freeze Option	Yes
Housing	Vandal Resistant
Storage Temp	-20oC (-4oF) / +70oC (158oF)
Sustained Min/Max Temperature	-20oC (-4oF) / +50oC (122oF)
Absolute Maximum Temperature	+60oC (140oF) for periods of 1 hour
Ingress Protection	IP67

3.7.2 Configuration

The cameras shall be installed in accordance with the drawings.
The cameras shall include all accessories for a complete installation where applicable, including but not limited to:

- Pendant PTZ Dome Corner Mount Bracket.
- Pendant PTZ Dome Wall Mount.

- Pendant PTZ Dome Swan-Neck Mount.
- Pendant PTZ Dome Dark Tint Lens Cover.
- Pendant PTZ Dome Sun Shroud.

3.8 WIRELESS NETWORK

3.8.1 Requirements

The Contractor shall supply, install and commission a Firetide wireless mesh network using HotPort® 7000 (7010/7020) Wireless Mesh Nodes to allow the cameras to connect to the existing fibre network.
The Contractor will be responsible for any splicing and patching of fibre required to connect any node to the fibre.
The Contractor shall be responsible for providing all ancillary equipment associated with the system.

3.9 CAMERA LOCATIONS

Cameras are to be installed in accordance with the drawings. The final exact locations will be determined on site in consultation with the Contractor and with the building owners that the cameras are to be attached to.
The following shows the locations of the cameras on the buildings.

1 On corner	
2 On corner	
3 On corner at low level looking right	

4 On corner	
5 Looking down lane	
6 Building on right	
7 Building on right	

8 On sign	
9 On sign	
10 On light pole	
11 On corner	

12 On corner	
13 On corner	
14 Under near end bus shelter roof	
15 Under far end bus shelter roof	

3.10 POWER

Power for the cameras and wireless nodes will generally be available from the building or object that the cameras are attached to by negotiation with the building owners. The Contractor shall provide the connection to the power.

3.11 BRIDGE MALL TRADERS SYSTEM INTEGRATION (OPTION)

The Contractor shall provide a connection of the CCTV system to the Bridge Mall Traders CCTV system.

3.11.1 Existing system

The existing system comprises:

- 16 analogue CCTV cameras connected to a 16 input DVR located at the "Best and Less" store in the Bridge Mall.
- 8 analogue CCTV cameras connected to an 8 input DVR located at the "Skin, Ski and Surf" store at Bakery Hill.
- 23 CCTV cameras (one of which is a PTZ) connected to an 32 input DVR located at the Bridge St Mall Centre Management Office at 62A Bridge Mall.
- Wireless links between the three sites listed above so that all cameras are viewable from the Centre Management Office.
- Software at the Centre Management Office for viewing the local and remote DVRs.

3.11.2 Integration of system

Integration of the Bridge Mall traders system to the Council CCTV system shall include provision of the following:

- Connection of the 16 cameras from the loop out connections of the 16 channel DVR at the "Best and Less" store in the Bridge Mall to a radio link such that all cameras are individually viewable at the Centre Management Office.
- Connection of the 8 cameras from the loop out connections of the 8 channel DVR at the "Skin, Ski and Surf" store at Bakery Hill to a radio link such that all cameras are individually viewable at the Centre Management Office.
- Connection of 47 cameras (16 from the "Best and Less" 8 from the Skin, "Ski and Surf" and 23 from the Centre Management Office DVR to a radio link to the Ballarat Police Station. A line of sight radio pathway is available between these sites.
- Provision of the radio links for the above connections including all necessary items including but not limited to wireless nodes, antennas, power etc.
- 1 x IndigoVision NVR-AS 3000 RAID Array with 4 x Hard Disks (RA6000) in the rack at the police station to accommodate the Bridge Mall cameras.
- Provision of 3 x 24" LCD monitors in the Sergeant's room of the Ballarat Police Station to the left of the existing two 42" monitors for the display of the Bridge Mall cameras.
- Relocation of the existing two 42" monitors in the Sergeant's room of the Ballarat Police Station to the right to allow room for the new 24" monitors.

The radio links are to provide the same quality of picture as specified for the additional Council camera links detailed in this specification.

SECTION 4 REQUIREMENTS CABLE AND EQUIPMENT INSTALLATION

4.1 GENERAL

The Contractor shall install all cabling and equipment in accordance with AS/NZS3000- Electrical Installations and in accordance with the additional requirements detailed in this section.

4.2 CABLING

4.2.1 General

Cable and cable support systems shall not penetrate firewalls unless approved by the Principal.
All metallic fixing accessories including fixings shall be galvanised, nickel, or cadmium plated as appropriate.
Non-ferrous metallic fixings and accessories shall not be permitted unless approved.
Girder clips shall not be permitted within 2500mm of ground level or access platforms. Conduit clips such as Clipsal Series No. 280 or similar type shall not be permitted.

4.2.2 Cables in ceiling space

Cabling in ceiling space shall be provided on cable trays or dedicated catenary wires. Cables shall be attached to the catenary wire every 1200mm as a minimum.

4.2.3 Cables in risers

Cables in risers shall be installed on cable trays.

4.2.4 Cables in fire stairs

Cables in fire stairs shall be installed in galvanised steel conduit.

4.2.5 Cables in plant rooms and car parks

Cables in plant rooms and car parks shall be installed in galvanised steel conduit below 1800mm and either on cable tray or PVC conduit above that level.

4.2.6 Underground cabling

The contractor shall be responsible for all excavation, cable protection backfill, internal reinforcing and surface restoration and the installation of surface cable markers.
All excavation and backfill shall be by hand tools. The use of mechanical or power assisted tools shall be permitted only when approved.
Before proceeding with any excavation work, the contractor shall ascertain details of any underground services existing in the area.
Where excavations are required near footings, foundations, concrete floors, etc. the contractor shall ensure that the earthworks under and in the above vicinity of same is not disturbed and that all backfill is well consolidated.
Unless otherwise approved, the contractor shall arrange his installation so that all trenches are excavated and backfilled on the same day.
The contractor shall ensure that adequate safety precautions are observed at all excavations, by the provision of safety barriers, warning notices, shoring, etc.
Cables under roadways shall be laid in approved ducts. These ducts shall project 300mm beyond the kerb lines unless otherwise specified and are to be supplied and installed by the contractor.

All cables (direct in ground) shall be laid at a minimum cover depth of 800mm or 900mm for HV cables in a bed of clean sand, with a minimum cover of 75mm all around the cable. Precast concrete protection slabs, or equivalent, with a minimum 40mm side cable overlap, shall be laid end to end, along the full buried length of the cable, and the trench backfilled and consolidated to finished ground level.
A plastic warning strip 150mm wide and 0.25mm thick with an appropriate warning message shall be laid continuously along the route of the cable approximately 300mm below ground level and vertically above each cable.
LV power cables shall be laid at 230mm centres and HV cables at 600mm centres, unless specifically stated otherwise. All other cables may be laid side by side.
Cable route identifying markers shall be installed at 15m intervals and at each change of direction. Cable markers may take the form of markings in wet concrete directly above a cable, baked enamel notices set back a prescribed horizontal distance from the cable route, markers brass set into concrete slabs in the ground over the cable, or other approved means.
High voltage cable joints shall be identified by such means as casting a block of concrete at ground or road level above the joint and inscribing in the wet concrete; feeder name, joint, number of cables, depth of laying.
Ground level concrete (where required over cables in plant areas) shall be a weak mix trowelled off to form an adequately strong surface and coloured red for identification.

4.2.7 Cable pits

Cable pits shall be provided in accordance with the following:

- At any change in direction of underground conduits.
- At any junction of two or more underground conduits.
- At every 100 meters along a straight underground conduit.
- Be provided with sufficient drainage provisions to suit the soil conditions.
- Be fitted with keyed access.

4.3 CABLE TRAYS

Cable trays shall conform to the following requirements:

- Be perforated.
- Be made from 2mm mild steel sheet.
- Have reinforced edges.
- Have one coat of rust preventative paint and one coat of stove enamel finishing paint.
- Be supported at not greater than 1200mm spacing on purpose made frameworks formed from standard "Unistrut" P1000 section channel complete with purpose made angle pieces, intersection pieces and support clamps where required.
- Frameworks shall be supported directly from the structural floors or wall via 10mm "RAWLBOLT" fixings.
- Attached to each support by countersunk headed screws and nuts at the outside edges and at 600mm centres between.

- When installed at less than 1800mm above floor level or external to a building, the tray shall be protected by a removable 2.0mm thick sheet steel enclosure.

Cables shall be attached to the cable trays by cable clamps positioned at centres not exceeding the following:

(a) At 1200mm when supported horizontally by cable tray

(b) At 600mm when supported vertically from cable tray

(c) At 750mm in all other instances

(d) All cable clamps shall be approved

4.4 CATENARY WIRING

Catenary wiring shall conform to the following requirements:

- Be supported at intervals not exceeding 1200mm.
- Be tensioned with turnbuckles and clamped with U-bolts.
- Cables shall be attached to catenary wires at intervals not exceeding 300mm.
- Be supported directly from the structural floors or wall via 10mm "RAWLBOLT" fixings. Adhesive fixings are not to be used.

4.5 CONDUITS

4.5.1 General

All conduits shall be installed on the "draw in loop in" system. No wiring shall be installed until all the conduits have been installed.
All conduits shall be of a size to suit the cables enclosed or 20mm whichever is the larger and shall be run so as to enable cables to be "drawn in" after erection. Fix conduit in position before wiring is drawn in. Installation shall be such that a draw wire may be installed into any conduit after installation is completed. Each section shall be in long lengths, straight, free from rust and scale or foreign matter.
Conduits shall be neatly run and securely fastened by means of approved saddles at intervals not exceeding 1200mm. Adhesive fixings are not to be used. Saddles shall be provided within 150mm of all fittings or terminations. All burrs and sharp edges shall be removed from ends and screwed bushes shall be fitted to the ends of conduit runs.
During installation, the ends of conduits shall be temporarily plugged to prevent the ingress of dirt.
The direction of conduit run shall be parallel to the walls, floors and ceilings.

4.5.2 PVC Conduit

PVC conduits shall conform to the following additional requirements:

- Joints shall be glued and made water proof with a glue approved by the conduit manufacturer.
- Be UV protected when installed outdoors.
- Be HD type when installed underground.

4.5.3 Steel conduit

Steel conduits shall conform to the following additional requirements:

- Running threads shall be painted with aluminium paint.
- Wherever practicable and no threads shall be visible after erection other than running joints.

4.5.4 Conduit fixing

Conduits shall be neatly run and securely fixed by means of preferred saddles. Surface conduits shall be as inconspicuous as possible throughout the run and shall be run truly horizontally or vertically.
Fastening in concrete or brick floors, walls or ceilings shall be by means of preferred expansion type masonry anchors. Wood plugs shall not be permitted.
Rigid PVC conduits shall be saddled at intervals not exceeding 1m and in such a manner as to allow movement of the conduit due to temperature variations.
Expansion joints shall be installed in all PVC conduit runs, at intervals not exceeding the manufacturer's recommendations.
All joints shall be weather-proofed and if required all inspection fittings shall be fitted with water tight gaskets.
Any sets in conduit shall be made in such a manner as not to distort the walls of the conduits.
All conduits terminating at a surface box, switch, or other item of plant shall be securely jointed with a locknut and bush. Where two or more conduits terminate together, they shall be parallel and shall be cut to equal lengths. Conduits 25mm diameter and under shall be fixed at not more than 150mm and conduit 32mm diameter and over shall be fixed at not more then 300mm from such termination.
Conduits shall be kept clear of other pipes and shall be at least 75mm clear of gas pipes, and pipes containing hot fluids. Conduit shall not be run above and parallel to pipes which become hot when in service.

4.5.5 Conduit condensation draining

All conduits shall be self draining to the low points of the installation. Condensation shall be prevented from entering terminal boxes and isolators.

4.5.6 Flexible conduit and fittings

Preferred Flexible conduit shall be installed for all final connections to motors, to control equipment and where conduits are subject to change due to vibration. Rigid conduit to control equipment shall be run to a junction box adjacent to the item of equipment, and thence in flexible conduit to the equipment. Where subject to damage, steel flexible conduits shall be installed. Flexible conduit connections shall be not less than 250mm or more than 750mm in length. Where isolating switches are required they may take the place of junction boxes.

4.5.7 Damage

Any conduits damaged during delivery or installation will be rejected and shall be removed from the site by the contractor. All metallic conduits shall be free of rust and scale.

4.6 CABLE DUCTS

Cable ducting shall be installed with a minimum number of sets and/or bends, in straight runs either vertical or horizontal. Matching prefabricated fittings shall be used.
Cable ducts shall conform to the following requirements:

- Be made from 1.6mm galvanised mild steel sheet.
- Be fitted with easily removable covers.

- Be given one coat of undercoat paint and coat of stove enamel finishing paint.
- Be supported by "Unistrut" P1000 section channel, supported off the building structure at not greater than 1500mm intervals.

4.6.1 Joints

All joints including covers shall be free of sharp edges liable to cause damage to wiring and to personnel. Butt joints shall have smooth internal sleeves.
Non-conductive ducts shall have an approved expansion type joint for each 4m length throughout the run where straight runs of over 4m in length are installed.

4.6.2 Covers

Where ducting is mounted with the cover on the side of or underneath the duct, removable cable retaining clips shall be provided at intervals not exceeding 1.5m arranged such that covers may be removed and replaced without interference from the enclosed cables.

4.6.3 Fixing

Ducts shall be adequately supported at intervals not exceeding 1.5m so that the sag between supports does not exceed 3mm with cables installed.

Ducts shall be fixed to brackets using gutter bolts or equipment with the head inside the duct.

Fabricated support brackets shall be constructed of mild steel then galvanised or alternatively, mild steel, prepared as described in section "Painting and Corrosion Protection", and suitably designed for the installation and support of the ducting.

Conduits radiating out from the duct shall be securely fixed with locknuts to the duct.

4.6.4 Duct Sizing

Ducts shall be adequately sized for the installed cables, with provision for 30% spare capacity in cross-sectional area along the duct length.

4.6.5 Multiple Runs

Where multiple runs of cable duct are required, suitably constructed hanger brackets designed to support two or more cable ducts may be installed.

However, the method of mounting ducts shall permit a free flow of air around each duct such that adequate cooling of the contained cables is achieved.

4.6.6 Earthing

Every section of metal duct shall be effectively earthed in accordance with AS3000.

4.7 CABLE TYPES

Cable sizes shall be determined in accordance with AS/NZS3008.

4.8 ELECTROMAGNETIC INTERFERENCE

The Contractor shall coordinate the installation of equipment and cabling with other trades on site and with existing services such that it is installed at a sufficient distance from other services so as not to receive any electromagnetic interference from them.

The Contractor shall fully inform themselves of any existing or proposed services on site that may cause electromagnetic interference to the cabling or equipment. The Contractor shall ensure that any equipment installed as part of the scope of works does not cause any electromagnetic interference with other services. The Contractor shall be responsible for remedying any electromagnetic interference caused or received by their equipment.

4.9 LIGHTNING PROTECTION

The Contractor shall provide lightning protection in accordance with AS1768.

4.10 PATCHING PAINTING AND MAKING GOOD

The Contractor shall patch, paint and make good any area affected by the works. This shall include but not be limited to:

- The reinstatement of the fire rating of any area affected by the works.
- Patching and resurfacing any joinery affected by the works.
- Modification of any joinery affected by the works to make it fit any new equipment to the satisfaction of the Superintendent.

SECTION 5

DOCUMENTATION, COMMISSIONING & TRAINING

5.1 GENERAL

All documentation provided by the Contractor relating to the Scope of Works shall become the intellectual property of the Principal. This is to include all data relating to systems, equipment and their interfaces. All data that relates to the configuration and programming of equipment provided is to be in a manner that will enable non-technical personnel to obtain an understanding of it. The documentation provided by the Contractor shall become the intellectual property of the Principal.

5.2 MANUALS

5.2.1 General

The manuals to be provided by the Contractor shall be complete. All information that may be required for the maintenance and operation of the system shall be provided in plain English descriptions. Information that does not directly relate to the Scope of Works shall not be included.
Manuals shall be provided as A4 plastic ring binders and a complete copy of the manuals shall be provided on CD in either Microsoft Word, rich text format or as PDF.

5.2.2 Operational Manual

The Operational Manual shall be provided in a format that will allow non technical personnel to learn understand and operate the systems provided. The Contractor shall provide three copies of the Operational Manual. These shall be printed on A4 paper and provided in three ring binders. The contents of the Operational Manuals shall be as follows:

- Index.
- Description of all systems, their function and purpose.
- Description of how to operate each system.

5.2.3 Technical Manual

The Technical Manual shall be a complete record of the systems provided and shall provide plain English descriptions of all systems, equipment, configurations and programming. The Contractor shall provide three copies of the Technical Manual. These shall be printed on A4 paper and provided in three ring binders. The contents of the Technical Manuals shall be as follows:

- Index.
- Description of all systems, their function and purpose.
- Individual technical manuals of all equipment.
- Maintenance requirements and procedures of all equipment.
- Listings of all programming and configurations.
- Plain English descriptions of all configurations.
- Complete cable termination schedule.
- Details of all manufacturers and distributors of equipment.
- Serial numbers of all items of equipment.
- List of all drawings provided.

- Electronic copies of all drawings in an approved format and medium.
- A listing of all access codes for any system, software or firmware including but not limited to the master, technician, and general user codes. No access codes, registration numbers, passwords or similar items of any type shall be withheld.
- A detailed description of all software scripts, macros or configurations provided for the works with sufficient detail for them to be identified and modified as required.

5.3 DRAWINGS

5.3.1 As Built Drawings

"As Built" Drawings shall be provided by the Contractor prior to commissioning. The drawings shall provide the following information:

- Schematic drawings of each system showing all major components.
- Schematic drawings showing the systems interfaces.
- Schematic drawings showing any redundancy in the systems.
- Building plans indicating the location of all devices, equipment housings and cable routes.
- Dimensioned drawings of all riser equipment layouts.
- Equipment rack layout drawings.

"As Built" Drawings shall be provided in A0 size prints and in AutoCAD 2000 format on CD unless otherwise specified.

5.4 SOFTWARE

5.4.1 General

The following is to be provided:

- Original copies of software.
- Licenses for all software.
- Software backup of all programming, macros and configuration on CD.

5.5 TESTING AND COMMISSIONING

5.5.1 Final Testing

Prior to final commissioning, the contractor shall provide documented results of all final testing. This shall be in accordance with the Contractor's approved Quality Plan. All items of equipment shall be tested prior to commissioning for correct installation and function. The results of all testing shall be included in the final testing documentation.

5.5.2 Commissioning

The Contractor shall allow sufficient time in the Works Program for complete testing of all equipment and systems.
During commissioning, the Contractor shall demonstrate to the Consultant that the entire Scope of Works has been completed in accordance with the specified Description of the Works.
The Contractor shall provide all necessary staff and equipment to carry out the commissioning.

The Consultant may order any tests to be carried out during the commissioning.
In the event of any test failing during the commissioning, rectification works shall be immediately carried out by the Contractor to enable re-testing during the commissioning period.
In the event of the time for commissioning taking longer than indicated in the Works Program due to failed tests, then the Contractor shall reimburse the Consultant for the additional time required to complete the tests.

5.6 TRAINING

The Contractor shall provide training to any and all persons nominated by the Superintendent. The Contractor shall provide full training attendance records for any training carried out. Any incidental training carried out during the works that is not in accordance with the approved training program shall not be considered as part of the required training.
A minimum of two operator training sessions of two hours each shall be provided.

S1. WORKING INSTRUCTIONS

S2.1 SCHEDULES

S2.2 REGULATIONS AND FEES

S2.3 TESTS

S2.4 CERTIFICATES OF COMPLIANCE

S2.5 HERITAGE VICTORIA REQUIREMENTS

S2.6 FIRE AND SMOKE STOPPING

S2.7 SCAFFOLDING, HOISTING AND LIFTING

S2.8 PLINTHS AND SUPPORTS

S2.9 PROTECTION OF PROPERTY

S2.10 OHS AND TRAFFIC MANAGEMENT

S2.11 WELDING, CUTTING OR GRINDING INSITU

S2.12 FALSE ALARMS

S2.13 SITE NOISE CONTROL AND DISRUPTION

S2.14 ELECTROMAGNETIC COMPATIBILITY

S2.15 EQUIPMENT POSITION

S2.16 WORKING IN AN OPERATING ENVIRONMENT

S2.17 PERFORMANCE OF CONTRACTOR PERSONNEL

S2.18 BEHAVIOUR ON SITE

S2.19 DAMAGE TO ADJACENT PROPERTY

S2.20 INTERRUPTION OF EXISTING SERVICES

S2.21 SITE REGISTER

S2.22 REPORTS

S2.23 SITE MEETINGS

S2.24 ASSOCIATED WORK

S2.25 CODES AND STANDARDS

S4.5 DOCUMENTATION

S4.6 TRAINING

S4.7 DEFECTS LIABILITY

S4.8 MAINTENANCE SERVICES

S4.9 SPARE PARTS

S4.10 CONSUMABLES

Schedules

The schedule of rates for variation shall apply to any additions or deletions requested during the project to the work as specified in this documentation and as shown on the drawings. The prices shall include all labour, engineering, administration costs, profit, etc., associated with the supply, installation, commissioning, testing and training, including making good and defects liability, of the specified items.

Regulations and Fees

Obtain all necessary permits, consents, approvals and certificates from all authorities having jurisdiction over any part of the work of this contract. Pay all royalties and costs relating to patent rights, trade marks, or other protected rights. Comply with all regulations and by-laws of the authorities and fully indemnify Ballarat City Council against any claims arising there from.

Tests

Carry out complete commissioning, testing and balancing/calibration of all systems and equipment. All testing and commissioning work shall be carried out by qualified persons.

The extent of the testing and commissioning for the complete security installation shall be in accordance with any requests from Ballarat City Council or nominated representative.

Certificates of Compliance

At the time of Practical Completion, and as a condition thereof, provide Certificates of Compliance for all works carried out under this contract.

The Security Services Contractor shall confirm in writing that the System is in accordance with manufacturers requirements. A copy of which shall also be included in the Operation and Maintenance Manuals.

Heritage Victoria Requirements

A large number of buildings within Ballarat City Council are listed with the Heritage Council of Victoria. The Tenderer is to be advised that some works will take place in and around these buildings. Ballarat City Council will be responsible for obtaining all permits in relation to works in these buildings. The Tenderer will be required to undertake works in accordance with all Heritage Victoria work guidelines. Please refer to the Heritage Victoria website for preliminary information www.heritage.victoira.com.au.

Any and all costs, including all associated legal fees that arise from damages incurred due to the Security Services Contractor failure to follow Heritage Victoria guidelines or negligence will be the sole responsibility of the Security Services Contractor.

Fire and Smoke Stopping

Ensure that all duct, piping, and wiring penetrations through fire resistant elements are protected by fire dampers, fire stop collars or fire resistant packing such that the required fire resistance of the element is maintained.

Penetrations through smoke walls, etc., shall be effectively sealed.

Scaffolding, Hoisting and Lifting

Provide all cranage, lifting, hoisting, protection, hoarding, scaffolding and the like, associated with the works of the Contract to the requirements of the Health and Safety Organisation, Victoria and any other relevant Authority.

Plinths and Supports

Provide metal-edged 100mm high concrete plinths for all switchboards installed in plant rooms. Provide all necessary concrete fill.

Plinth metal edging shall be painted an approved colour.

Provide all necessary galvanised steel brackets and supports required for the correct operation of the plant as specified.

Details of all proposed supplementary supports shall be submitted for approval to the Superintendent prior to fabrication.

Protection of Property

Protect all new works from damage. Also protect all access ways, roads, footpaths, building facades, etc. in use during the Contract.

Any work, new or existing, damaged as a result of the activities of this Contract or the personnel employed on it, shall be replaced or repaired to the extent assessed and to the approval of the Superintendent without cost to Ballarat City Council including any costs for false alarms to the Fire Service.

Supply drop sheets or other approved protection for equipment, tools, plant and instruments throughout. The Security Services Contractor is responsible for any damage which may result from neglecting to provide adequate protection. Replace all equipment damaged prior to the installation being handed over to Ballarat City Council.

All "making good" work shall comply with the requirements for new work of a similar nature and shall match and align with any corresponding existing works.

OHS and Traffic Management

A key element of this process, in addition to normal Statutory Occupational Health and Safety Procedures, is the complete safety of the Public at all times, whether it is day or night.

All of the project's external works will be executed in pits within the road and footpath areas and on roads and footpaths against poles and buildings, at height. As such, it is a requirement of this Tender that the Contractor utilises all safety aspects and protection procedures to allow for continuous free movement and access to these very public areas. Suitable traffic management plans will be required to be submitted to the Council (for each area of works) prior to any works talking place.

Welding, Cutting or Grinding Insitu

All operations shall be carried out in accordance with A.S. 1674 Cutting and Welding Safety Code.

Special precautions must be taken where work in or near hazardous locations is unavoidable, e.g. flammable solvents, gases or combustible dusts are present, on tanks, ovens, ducting or near spray shops. Refer to Australian Standard for particulars.

Never use equipment damaged in any way. Regular inspection is necessary. Replacement of hoses at least annually is highly desirable.

Advise the locations and sizes of all openings, conduits, inserts, etc. required for the installation of Security Services on the shop drawings.

Supply conduits, inserts and fittings as required for these works.

Check and verify the correct positioning and sizes of all openings, fittings and door swings related to this Specification.

Bear all costs incurred in the repositioning and/or relocating of any fitting or opening, due to receipt of incorrect location details and/or omission of location details.

False Alarms

Fire Brigade call outs due to false alarms which are directly caused by the Security Services Contractor will be cost borne by the Security Services Contractor.

False alarm charges shall be levied when:

(i) It has been proven that the Security Services Contractor is responsible, and

All avenues of appeal against the charges have been followed.

Site Noise Control and Disruption

Programme and carry out work to minimise noise and disruption around the works area. Permission shall be obtained before carrying out work involving high level noise.

Existing services shall only be interrupted after obtaining permission via the Superintendent for the work to proceed.

Any works deemed to be critical or noisy that are likely to affect normal operation of the area shall be conducted outside normal business hours. Direction is to be sought from the Superintendent.

Compressor sets shall be fitted with effective acoustic canopies and engine exhaust silencers, and jack hammers shall be fitted with effective silencers.

The work shall be carried out in such a manner as to cause the lease inconvenience to the public and/or building occupants.

Blasting will not be permitted.

Comply with the recommendations set out in Appendix 'E' of AS 2436, Guide to Noise Control on Construction, Maintenance and Demolition Sites.

Electromagnetic Compatibility

All equipment and/or appliances provided are to be designed so that no interference will be caused with any radio or other electronic transmitting or receiving equipment in the same locality.

Equipment Position

The layout of equipment shown on the drawings is diagrammatic only, and exact locations shall be determined and agreed on site with the Consulting Engineer and Ballarat City Council's nominated representative. The Contractor will bear all costs associated with relocating equipment found to be mounted in an inappropriate location.

Brief descriptors have been placed on the attached drawings to provide an indication of mounting requirements. Upon awarding of contract, the Security Services Contractor is to make an allowance for a thorough walkthrough of the CBD with the Consulting Engineer and Ballarat City Council's nominated representative to sight exact camera mounting locations and orientations, including cable run paths.

Equipment shall be symmetrically located in relation to other equipment and devices, building facades and general aesthetic treatment.

Working in an Operating Environment

The Contractor shall note that the some of the works comprising this contract are to be carried out in and around fully operational building(s) and public spaces. The works shall be carried out so that there is no disruption to the services during normal operating hours.

In relation to the Police Complex, given the varying functions and activities performed within the building(s), works may not always be able to be carried out during normal working hours (e.g., 8:00 am to 5:00 pm). The Contractor shall liaise with the Victoria Police liaison to identify suitable times within which the required works are to be undertaken.

Clearly identify within the tender response, the allowance made for overtime works.

The Contractor shall make necessary arrangements in the tender price for any works that are carried out outside the hours mentioned above. All work which does not affect the functionality of the site such as installation of cabling can be carried out during normal operational hours as long as the noise of the works does not cause interference to the occupants. If complaints are received due to noisy work, the Contractor shall immediately stop work and carry out the noisy work outside normal hours.

Performance of Contractor Personnel

The Contractor shall warrant that all work executed within the scope of the Contract will be undertaken by competent personnel and that Contractor employees will be suitably trained, qualified and endorsed by the required relevant authorities.

The Contractor shall be responsible for the personal performance and presentation of each and all employees whilst they are on site in execution of the Contract.

At all times the Contractors' employees shall be neatly attired in a standard company uniform which visibly displays the company name and/or logo in a manner and of a standard acceptable to the Superintendent. At all times their conduct shall be of a professional nature as to reflect credit on the Contractor.

The Superintendent may request the Contractor to improve the standard of conduct and/or presentation of employee(s) on reasonable opinion that the standard requirements are not being achieved.

In the event of unacceptable standards of conduct and/or presentation not being consistently maintained by the Contractors' employees, the Superintendent may request the Contractor to replace the employee(s) with more suitable personnel.

Such provision shall also apply to any sub-contractors engaged on these works.

Behaviour on Site

The Contractor shall ensure that all employees, sub-contractors and tradespersons are informed that:

- SMOKING IS PROHIBITED within all buildings;
- SEXUAL HARASSMENT is illegal and regulations relative to such harassment will be enforced, and that any person who, in the opinion of the Superintendent or the Principal, contravenes these regulations will be dealt with under the General Conditions of Contract or appropriate legislation.

Radios, CD and tape players are not permitted.

Damage to Adjacent Property

Be responsible for and shall make good any damage to adjoining surfaces, finishes, buildings, grounds, roads, footpaths, crossovers, street channels, street kerbs, or any other adjoining property that arises out of or can be attributable to the execution of the Works.

Interruption of Existing Services

Before isolating any section or a service (electricity, water, gas, etc.,), notify the Superintendent, seventy-two (72) hours prior in writing to the interruption and describing the nature of the work to be done the time and expected duration. All interruptions shall be kept to the absolute minimum and only at such times as shall be agreed to by Superintendent. Allow for all out of hours costs necessary to prevent disruption to the operation of the area.
Be responsible for the full liaison with the relevant authorities. Similarly, give due notice of intended reconnection of services.

Site Register

Establish and maintain a Site Register. The Site Register shall be kept on site and shall record the following minimum:

- Hot work permits

- Fire alarm system isolations
- Services isolations
- Approval of samples
- Approval of shop drawings
- Consultant visits
- Authority visits
- Staff visits

The Site Register shall be available for inspection at all site meetings.

Reports

Submit to the Superintendent complete records for the monthly progress report to the Principal, giving numbers of all staff and sub-contractors employed on site and other relevant information.

Site Meetings

Site meetings shall be chaired by the Consulting Engineer, who will take the Minutes. Site meetings shall be held generally at fortnightly intervals, or more often if determined necessary by the Superintendent, for the full duration of the contract.

At the first site meeting, provide:

- A copy of the Contractor's Safety Plan, inclusive of work method statements;
- A preliminary project programme, including a shop drawing schedule nominating proposed submission dates;
- A list of names of proposed personnel, including vehicle registration number.

Samples as nominated herein for approval

Associated Work

The Principal will from time to time engage other Contractors to perform works in and around the CBD.

Make all necessary arrangements and ensure that works are clearly scheduled and identified in sufficient time to co-ordinate with other contractor's works.

Codes and Standards

Notwithstanding that stated herein, the entire installation shall fully comply with the regulation of the following authorities having jurisdiction over such works:

- Victoria Building Regulations incorporating Building Code of Australia;
- Country Fire Authority;
- Local water authority;
- Office of Gas Safety, and the local gas supply company;
- Local electricity network provider;
- Occupational Health & Safety Organization.

Together with all relevant Australian Standards and all Amendments to those Standards.

Health and Safety

All works shall be undertaken in accordance with the Occupational Health & Safety Act and all applicable Occupational Health & Safety Regulations, Standards and Guidelines. Contact WorkSafe Victoria if unsure about which regulations, standards and guidelines apply.

Prior to commencement of any works, identify any hazards or work sequences that may be a risk to the health and safety of site personnel or the public. Undertake a job safety analysis (JSA) or similar formal risk assessment procedure to determine whether the risks may be eliminated, substituted, isolated or protective equipment is required, and formally record the results. JSA's shall form part of a comprehensive OH&S Plan for the project. Ensure all relevant personnel are fully aware of the OH&S Plan, and institute a system of monitoring for compliance.

Certificates of Compliance

Provide a Certificate of Electrical Safety from a licensed electrician for all electrical works undertaken in conjunction with these works.

Site Disputes

The Contractor shall be responsible for resolving all on-site disputes and ensuring minimum interruption to the progress of the works.

Programme

Tenderers shall provide a programme of works with regard to proposed time frame for the design and installation works. This programme shall be used as the basis for discussion and agreement when the tender is awarded.

Prior to commencement of any physical works on site, prepare a scope of works detailing proposed work methods, indicative time scales etc for approval by the Consulting Engineer and Superintendent.

Temporary Hoardings, Barriers and Signage

Provide, maintain and clear away at completion all hoardings, barriers, scaffolding, coverings etc. required for protection of persons and to clearly delineate and separate the work site from the remaining occupied area.

Suitable signage shall be provided to explain the works and direct the public around hoarded or barricaded off areas.

Personnel Protection

Where there is a risk of injury to building occupants or the public, the working area must be defined, a barrier erected and notices displayed to prohibit access by personnel other than those authorised by the Contractor and the Principal. Access for occupants must be maintained to certain areas.

Contractor's Movements and Actions on Site

General

Exercise control over staff, workmen, sub-contractors, suppliers, etc. with regard to their movements on the site, and ensure that the applicable traffic and parking regulations within the site are complied with at all times.

Parking Restrictions

Vehicles are permitted to stand in authorised areas only. Persons parking or standing in unauthorised area will be subject to prosecution.

Contractors' Parking Areas

Specific parking areas may be allocated to the Contractor and his agents together with appropriate Parking Permit Cards which must be displayed at all times on the vehicles' windscreens. It is the Contractor's responsibility to obey all parking regulations and make allowances in the event of parking permits not being provided.

Parking, Access and Responsibility For Damage

The Superintendent shall define on a contract document, parking areas and routes of access to the site after due consultation with the Principal. Permission to use routes or areas other than those so defined shall be given only in special circumstances. In general, movement of construction traffic through areas already occupied by the Principal is to be avoided.

Contractors and sub-contractors workmen must not venture into buildings without the express permission of the Principal.

Contractor's Temporary Services

Due to the multiple external locations of works, no provisions are made for temporary power and water for the Contractor's use. The Contractor is therefore to make all allowances for these items. Note that the use of any small power units, e.g. generator will be classified as a noisy item and be subject to clause S2.13.

Signs

No signs, notices, signposts or advertisements on or near the site shall be erected, except where specifically allowed by the Principal. Applications for signage shall be submitted to the Superintendent in writing, clearly identifying the location, size and wording on any proposed signage.

Disposal of Contaminants

Properly dispose of all solid, liquid and gaseous contaminants in accordance with all statutory requirements.

Disposal of Refuse

Remove from site all refuse, including food scraps and the like, resulting from work under the contract.

Refuse which is dropped from upper floors shall be discharged in hoppers, shutters, chutes or refuse buckets which are covered or of a design to confine the material completely and prevent dust emission.

Cable Installation

Allow sufficient cable length at each device location for ease of fit off and to enable the device to be moved within 4 meters of agreed position. All cabling installation will be in line with relevant Australian Standards as well as Heritage Victoria requirements (where applicable). All conduits are to be painted to match its surroundings, final colour choice to be determined onsite by the Principal.

The following wiring methods shall be used as a guide:

Areas with Removable Tile False Ceilings:

Cables to be run on cable tray/ tied to catenaries when taking off to the field outlets in ceiling space.

All cabling to be concealed throughout.

Submit shop drawings showing the proposed wiring route and wiring method for the Consulting Engineer approval prior to installation.

Plant Rooms, Switch rooms, etc.:

Cables can be in surface mounted LD PVC conduit above 3.0 meters. Conduits below 3.0 metres must to be in steel conduit. The use of steel anaconda (flexible) conduit is to be approved by the Consulting Engineer prior to installation. Fasten all conduit using double sided saddles.

Acoustic Requirement

Where required, all wiring through walls shall be acoustically sealed to match the acoustic properties of the wall.

Fire Resistant Cables

Fire resistant cables shall have a certification of WS52W to AS/NZS3013, halogen free and meet the specifications of AS/NZS3000, AS/NZS1668, AS2220 and AS1670. Cables shall be of 0.6/1KV grade for power and 250/440V grade for fire alarm and communication systems.

PVC Cabling

The cabling installation shall comply with AS/NZS3008 and AS/NZS3000.

PVC insulated and PVC sheathed (PVCPVC) cables shall comply with AS/NZS 5000, of 0.6/1KV, V75 grade. XLPE insulated and PVC sheathed (XLPEPVC) cables where applicable shall comply with AS/NZS3198, of 0.6/1kW R90 grade.

Use single or multi-core cables with copper conductors and colour code, each core using standard approved colours.

Run cables straight and true, parallel with, or perpendicular to the main axis of the building.

Rate the cable to match the rating of the circuit protective device and equipment.

Through joints in cables will not be acceptable.

Clip or saddle cables to approved supporting systems, generally on cable trays and catenary wires.

Where cables are installed within a removable ceiling tile system install the cables in a manner that they will not interfere with the removal of the tiles.

Cables are not to be tied to or touch ductwork or pipes. Manufacturer's cable bend radius must not be exceeded.

Conduits

General

Install conduits vertical or horizontal and parallel to the main axis of the building.

The minimum diameter of conduit used shall be 20mm.

Install draw-in boxes in accessible positions.

Terminate conduits at the filed end, in switch or outlet boxes of the same material as the conduits. All switches and boxes must be tamper proof.

Sharp edges shall be smoothed prior to drawing-in wires.

All conduits must be securely fixed using double sided saddles.

P.V.C. Conduit

PVC conduit shall be rigid, heavy or light duty as appropriate, complying with AS/NZS 2053.

Form sets using an internal bending spring of approved type and size.

Use approved jointing cement to all conduit connections.

Armoured Conduit

Armoured conduit using screwed fittings, shall be used to protect security and camera cabling that is mounted externally below 4 meters.

Treat threaded joints on metal conduits with aluminium paint or other rust preventative to ensure good electrical continuity.

Make sets using a standard proprietary bender of proportional size to the conduit being used. Any sets, which do not retain a substantially circular section or which open seams, joints or welds, will be rejected.

Mini-Trunking

Provide white PVC mini-trunking as specified.

Trunking shall be rectangular or square in section with the following dimensions:

- For vertical droppers to equipment = Width of trunking shall be 25mm throughout.
- For horizontal run along ceiling = Width of trunking shall be 40mm throughout.

Provide all turning pieces and junction lever as required.

Provide separate trunking for power and communication cables.

Cable Trays

Cable trays shall be perforated galvabond sheet steel with 50mm sides, ACS Supa Tray 50 or equal complete with all bends, tees, risers, splice plates etc.

Support and fix the tray at intervals not exceeding 900mm. Install trays parallel to main axis of the building.

Attach cables to the tray using approved cable fasteners.

Sharp edges shall be smoothed prior to installation of cables.

Where trays cross building expansion joints they shall be so installed not to resist relative movements of building sections and not to cause likely damage to the cables carried on the tray.

Ensure earth continuity of all cable trays.

Steel Cable Duct

Steel cable duct shall be galvabond sheet steel complete with clip-on or screw fixed (quick fit) lids as appropriate.

Provide all necessary bends, crosses, tees, connector fixings etc. for a complete installation.

Concealment of Wiring and Conduits

All wiring and conduits shall be run concealed in ceiling spaces, hollow walls, cast in solid walls, stud partitioning, brick cavities, service ducts, bulkheads or fixed joinery unless otherwise specified.

If the Contractor considers that a section of the wiring cannot be concealed, he shall advise the Superintendent, who will issue a direction as to the installation of that particular section of the wiring.

Any wall chases must have the approval of the Superintendent.

Fire Penetrations

Penetrations through fire-rated walls and floors shall be sealed after cables and wires are insitu. Fire seals shall be in accordance with tested fire stopping methods in accordance with AS1530 Part 4, and to the approval of the Building Surveyor and WorkSafe Victoria.

General Installation Requirements

Fixings and Anchors

Wooden plugs shall not be used for fixing anywhere on this site. Fixings into masonry or concrete for lightweight items may be fixed using at least two plastic plugs similar to "Expandet" type.

Items heavier than one kilogram shall be fixed on to masonry or concrete with two or more metal expansion devices of the "Loxin" or similar type of adequate size. The expansion anchor shall be properly set before attempting to hold the item with the anchor.

Equipment suspended from structure shall be by means of mild steel rods or angle iron.

Corrosion Protection

All small metallic parts shall be plated or of non-corroding material. Where small parts are visible, such as switchboard hinges, they shall be chrome plated. Other small items shall be galvanised, cadmium plated or passivated. All external ferrous items exposed to weather shall be galvanised.

Ferrous brackets or steelwork located out of doors shall be hot dip galvanised. Where used internally they may be painted. The metal shall be properly cleaned and prepared, then as a minimum shall be primed and painted with two finishing coats.

Aluminium brackets, cable ladders and other items shall be anodised.

Earthing

The earthing system shall be to the requirements of the Supply Authority and as specified in AS/NZS3000 SAA Wiring Rules.

Earth all metal enclosures, sheathing of cables, metal conduits, where applicable, and all parts of a metallic system forming part of a wiring system, using earth clips, conductors or other approved means.

Comply strictly with Rules 5.5 through to 5.9 inclusive of AS/NZS3000 relating to types, sizes, installation, and connection of earth conductors.

SECURITY SYSTEM DESIGN

General

The design and installation of Security Services must be in accordance with industry best practice standards with emphasis on flexibility, adaptability to future growth and environmental sustainability.

The proposed product must be able to be supported (e.g., installation, servicing and maintenance) by a number of Security Integrators (i.e., is not Integrator specific).

The Security system and equipment must be designed with a high degree of operational reliability, be sound, shall facilitate ease of maintenance and be fit for the purpose for the proposed environment.

Sufficient flexibility shall be incorporated in the design to provide for easy system expansion and installation in the future. The design will enable modification of security services to suit Ballarat City Council needs as they change throughout the life of the project.

Allow for a minimum of 25% spare capacity within all head end components. This is to include:

- Processing power of all computers;
- Digital recording system, including hard drive space;
- Network infrastructure, including spare ports and bandwidths;
- Physical space within racks to accommodate required equipment.

Standards and Codes

Notwithstanding that stated herein, the Security Services design, installation and operation shall comply with all relevant standards, codes and regulations of the Authorities having jurisdiction over such works, including but not limited to the following minimum:

- The Building Code of Australia; including specific state amendments.
- All relevant Australian Standards and Codes.
- Relevant State or Territory Government regulations and other statutory authorities
- WorkSafe Victoria Acts & Regulations

AS 1939:	Classification of degrees of protection provided by enclosures of electrical equipment
AS2342:	Procedures for the development, testing and implementation of public information and safety symbols and symbolic signs
AS 2990:	Quality systems for engineering and construction
AS 3548:	Electromagnetic interference, limits and methods of measurement of information technology equipment
AS 4252:	Electromagnetic compatibility
AS 4360:	Risk Management
AS4806.1:	Closed circuit television (CCTV)–Part 1: Management and operation
AS4806.2	Closed circuit television (CCTV)–Part 2: Application guidelines
AS4806.3	Closed circuit television (CCTV)–Part 3: PAL signal timings and levels
AS 60529:	Degrees of protection provided by enclosures (IP code)
AS/ACIF S009:	Installation requirements for customer cabling (Wiring rules)
AS/NZS 1768:	Lightening Protection
AS/NZS 2053:	Conduits and fittings for electrical installations – All parts and amendments
AS/NZS 3000:	Electrical installations - Aus & NZ Wiring Rules

AS/NZS 3080: Telecommunications installations - Generic cabling for commercial premises

AS/NZS 60065: Audio, video and similar electronic apparatus - Safety requirements

AS/NZS 4680: Hot Dip Galvanised Coatings

Together with all relevant Australian Standards and all Amendments to those Standards.

The installed security systems and components shall not result in long term operational and maintenance issues for Ballarat City Council.

Security System Overview

It is the intent of this specification, to provide Ballarat City Council with a complete installation of finished work thoroughly tested and ready for operation.

Include in the tender all minor details that are not usually shown or specified, but which are necessary for the proper installation and operation of the works.

The general arrangement of works is for pricing purposes only. Construct the works only from approved workshop drawings.

Equipment is to be symmetrically located in relation to other equipment and devices, the building module and general aesthetic treatment.

All documentation relating to or defining Ballarat City Council Public Place CCTV system is strictly confidential. Do not copy the documents, drawings or disclose information to other parties at any time.

Security Services shall utilise the latest technology and include all interface equipment and cabling to other services to make the system fully operational in accordance with the Specification requirements. Works are to include all necessary software to meet the functional and operational requirements specified for each system.

It is a requirement that the Security Services Company and each individual who will work on this project, is registered as required by the relevant State and Territory Security Acts with the industry regulator. Provide evidence of this as part of the Tender.

Scope of Works

The Security Services Contractor is to provide a complete security system that conforms to the technical and performance requirements detailed in this specification. Systems proposed by the Security Services Contractor must be well established in the Australian market with existing installations within Australia and able to be supported (e.g. installation, service and maintenance) by multiple Security Integrators (i.e. non Integrator specific).

The extent of work includes the supply, installation, testing, commissioning, training and subsequent maintenance during the Defects liability period of the work specified herein.

The Security Services Contractor shall be responsible for the provision of all necessary manufactured items, materials, labour, cartage, tools, plant, appliances and fixings necessary for the proper execution of the works, including any all minor and incidental works.

The security system scope of works will generally comprise the following minimum:

- Installation of cameras, lens, housings and all necessary mounting peripherals including brackets;
- Installation of external security cabinets for the housing of all supporting equipment;
- Installation of a fibre backbone infrastructure throughout the CBD, including all underground and above ground works;
- Installation of all necessary control equipment to facilitate the operation and recording of the cameras as outlined in this specification;
- All system programming including recording parameters, user levels, camera tours, monitor sequences, etc.;

- Implementation of a dedicated IP network infrastructure to allow for the intercommunication detailed within this specification, designed to accommodate up to sixty-four (64) cameras;
- Control system software customised as required to provide the functionality of the systems specified;
- Installation of security PC(s) and printer;
- All items and interface equipment and other items to make the systems completely operational in accordance with this Specification;
- Full coordination of the security works with Umow Lai Communication, Ballarat City Council and any Contractors of other works and trades;
- Any additional power distribution and associated power outlets for the cameras and control equipment;
- Provision of sufficient racking complete with power distribution and suitable shelving in accordance with this specification;
- All necessary cabling, low voltage and data cabling;
- Cable support systems and pathways as required throughout the site, including cable trays, conduits and catenaries;
- Provision of detailed shop drawings prior to cabling or equipment installation;
- User/Operator training and Technical training;
- Making good of finishes and of any other services disturbed by these works;
- Testing and commissioning of all equipment, cabling and software;
- Supply of commissioning and testing data prior to inspection testing;
- Comprehensive As-installed drawings;
- Comprehensive Operation and Maintenance manuals; and
- Thirty-Six (36) months defects liability period on all equipment and labour from the date of Practical Completion.

Overview

Ballarat City Council seeks to install a CCTV system throughout the CBD to allow for the remote viewing and monitoring of video images amongst the most popular nightspots. The system is to consist of fixed and PTZ cameras mounted at strategic vantage points. Camera orientation and final positioning will be determined onsite by the Consulting Engineer and Superintendent.

The project is to be staged. Stage 1 will consist of the installation of twelve (12) nominated cameras (refer to drawings), the cabling infrastructure and head end systems. Stage 2 and 3 are to be provided as an option. Dependent on pricing, they may be implemented at the time of Stage 1, delayed to a following year or removed altogether.

Cameras will be mounted on a variety of surfaces, as dictated by the surrounding environment. In addition, as many of the buildings within the Ballarat CBD have heritage status, the Security Services Contractor will be required to adhere to all statutory guidelines in relation to works in these areas.

All cameras will be powered locally. The provision of power is to be coordinated with Ballarat City Council. The Security Services Contractor will utilise coaxial cable to transmit all camera images to a localised security cabinet which will house the power supply and fibre modem.

To facilitate the transmission of images to the central control room, the Security Services Contractor will be required to install a fibre backbone throughout the CBD. The backbone infrastructure will include all cabling, above and below ground, trenching, communications pits, tails and splice enclosures. Currently, the backbone is envisaged to run along the west side of Lydiard St. It will be the responsibility of the Tenderer to fully explore the proposed pathways and absorb all associated costs.

A centralised control point is to be located in the currently designated 'Soft Interview' room within the Ballarat Police Complex. From here, an operator is to have complete control of all camera and system functions. The Security Services Contractor is to provide a complete IP

based solution for the management and recording of all cameras. The system is to comply with all requirements set forth within this specification. The network infrastructure will be designed and installed to accommodate the traffic of sixty-four (64) cameras in line with the parameters detailed.

Refer to the schematic drawing for an indicative equipment layout of the proposed control room. The operator is to be provided with a 19" LCD monitor for display of the GUI screen. The GUI will utilise spanning trees for camera selection as well as a map of the CBD with interactive icons for control. An adjacent 19" LCD monitor will be used as a full screen target monitor. The monitor will be linked to a CCTV keyboard to allow for traditional joystick control of the selected camera. Above the operator, two (2) 42" LCD monitors will provide a video wall of 'real time' video inputs. Camera layouts will be selectable with final choice made onsite Each 42" monitor is to display a minimum of 16 cameras. Control of the two (2) overview monitors will be via the 19" GUI screen.

Recording quality will be as detailed in the specification. Images being viewed live on the target monitor and overview monitors will be a minimum of 4CIF, 12.5ips @ 420 lines.

All cabling within the rack and control room work area is to be appropriately labelled and secured to the satisfaction of the Consulting Engineer. All cabling in and around the work space is to be bundled within a suitable flexible cable management sheath and secured to the relevant equipment. Monitors are to be mounted of the wall using multi-arm adjustable wall brackets to minimise desk clutter.

Options

1. ***The Security Services Contractor is to provide an optional price to replace all full body cameras under Stage 1 works with 1/2" equivalents, including lenses. The 1/2" cameras offered must meet all the requirements detailed in S3.6.2.***
2. ***The Security Services Contractor is to provide an optional price to mount additional overview monitors with the Sergeant Office of the Police Station. This is to include the mounting of two (2) 42" LCD monitors on adjustable wall brackets and a separate workstation PC, to located within the Security rack. The mouse and keyboard are to be located within the Sergeant's Office via KVM extender (final location to be determined onsite). If space within the Security rack is not available, the PC is to be mounted within the Sergeant Office, final location to be coordinated onsite.***
3. ***The Security Services Contractor is to provide an optional price to provide sufficient storage within the Recorder to accommodate 30 days of recording of all Stage 1 cameras at the detailed specifications.***
4. ***The Security Services Contractor is to provide an optional price for the installation of all Stage 2 cameras. This will include all additional field equipment, cabinets, fibre modems, cabling and road works, encoders, storage (14 days), programming and commissioning.***
5. ***The Security Services Contractor is to provide an optional price to provide sufficient storage within the Recorder to accommodate 30 days of recording of all Stage 2 cameras at the detailed specifications.***
6. ***The Security Services Contractor is to provide an optional price to replace all full body cameras under Stage 2 works with 1/2" equivalents, including lenses. The 1/2" cameras offered must meet all the requirements detailed in S3.6.2.***
7. ***The Security Services Contractor is to provide an optional price for the installation of all Stage 3 cameras. This will include all additional field equipment, cabinets, fibre modems, cabling and road works, encoders, storage (14 days), programming and commissioning.***
8. ***The Security Services Contractor is to provide an optional price to provide sufficient storage within the Recorder to accommodate 30 days of recording of all Stage 3 cameras at the detailed specifications.***
9. ***The Security Services Contractor is to provide an optional price to replace all full body cameras under Stage 3 works with 1/2" equivalents, including lenses. The 1/2" cameras offered must meet all the requirements detailed in S3.6.2***

Contract Drawings

The following drawings shall form part of this work:

COB701 – S01 – Site Plan, Legend of Symbols, Schematics, General Notes & Drawing Index.

COB701 – S02 – CCTV Camera Location.

Shop Drawings

Carry out site measurement and prepare and submit detailed working and shop drawings for review and approval prior to manufacture and installation.

Drawings of inadequate standard will not be accepted.

Make any necessary adjustments in conjunction with the Consulting Engineer before manufacture. Check all layouts before and after installation and be fully responsible for the accuracy of the contract works.

Provide shop drawings as follows:

- Closed Circuit Television system configuration;
- Cabling infrastructure configuration;
- System network configuration;
- All rack layouts.

Samples

Submit samples with technical data of the following items for approval prior to installation. Note that acceptance of a sample by the Consulting Engineer does not negate the obligations of the equipment to meet the technical and performance criteria specified and thus be deemed unacceptable once installed.

- Cameras, housing and lens;
- Security cabinets;
- Fibre modems;
- IP encoders;
- All cable types to be used.

Brochures and Technical Data

Submit brochures with technical data of the following items with your tender submission. Where multiple items are illustrated, clearly identify the proposed item for the project:

- All items specified.
- All optional items.

Associated Works by Others

The following section defines the scope and interface of works to be provided by other Service Sub-Contractors. Fully coordinate all works by others, including all interfaces to make the system fully operational as specified.

By Principal

Control Room

The Principal will provide all utilities and amenities associated with the location of the control room within the Ballarat Police Station. Power (240V), lighting and air-conditioning are in place. The existing air conditioner within the Server Room will be relocated to the opposite wall. The existing BMS PC will be relocated into one of the existing IT racks.

All requirements are to be documented as part of the tender response for evaluation by the Principal. Any adjustment required during installation that was not documented prior will be borne by the Security Services Contractor.

External Works

The Principal will assist in the facilitation of all necessary permits and applications for the conduction of road works throughout Ballarat City Council. While assisting in the process, the Principal will not be providing an 'all-access' pass. The Security Services Contractor will be required to submit an application for each work site in accordance with all current statutes and regulations governing external works within Ballarat City Council.

Heritage Works

The Principal will be responsible for submitting and obtaining all permits in relation to works on heritage listed buildings. The Security Services Contractor will be required to submit a detailed equipment and cabling plan to the Principal prior to the commencement of any works so that all affected buildings can be identified.

Any and all costs, including all associated legal fees that arise from damages incurred due to the Security Services Contractor failure to follow Heritage Victoria guidelines or negligence will be the sole responsibility of the Security Services Contractor.

Electrical Works

The Principal will be responsible for providing 240V power local to each security cabinet. Typically, power will be provided to the base of poles or within associated buildings. The Security Services Contractor will be required to liaise with the Principal's nominated Electrical Contractor to determine the final location of all panels. It will be the responsibility of the Security Services Contractor to extend power to each cabinet.

Security System Technical Requirements

Cameras

Camera images are to provide clean, roll-free switching and image stability. The cameras are to be able to perform in very low light levels. The camera must have a wide dynamic range and be able to provide interference free, colour images (non grainy) in all lighting conditions. Cameras that use an auto sensitivity function (that is not menu controlled) to slow down the CCD capture rate below 1/50s in order to produce low light images are not acceptable. All cameras tendered are to be demonstrated to the Consulting Engineer in the field prior to install for evaluation. All associated costs will be borne by the Tenderer.

All cameras are to be identical in make, model and power requirements and be solid state, CCD types. Cameras are to be of reputable manufacture, operating for over the past ten (10) years and offering comprehensive service and repair facilities in each state of Australia. Cameras shall only be Bosch, Ikegami, Panasonic, Pelco, Siemens or Sony. Any alternates the Security Services Contractor wishes to have considered <u>must</u> be submitted for approval with an independently completed test certificate detailing its compliance with all specification requirements (the manufacturer's data sheet is not acceptable). All associated costs will be borne by the Tenderer.

Day/Night cameras are to be fitted with double speed image sensors allowing short and long exposures to be applied on the same image. Varying exposures are to be applied to different lighting conditions within the same image in order to neutralize the effects of bright lights and dark areas. Wide Dynamic Range (WDR) technologies such as Super Dynamic III, DynaView and Xposure are to be used.

When switching to Black and White mode, the IR cut filter in front of the CCD is to be moved out of the way. The use of electronic IR cut-filters is not acceptable.

Additionally, cameras shall incorporate some form of anti-smear technology to cope with the effects of bleeding in the vertical shift register caused by bright lights such as vehicle headlights. Technology employed to be detailed.

Full Body Cameras

All cameras detailed as full body types are to comply with the following minimum requirements:

CCD:	***1/3" Interline transfer Charged Coupled Device(CCD).***

Pixels:	***752(H) x 582(V) effective (approx 470,000).***
Scanning System:	***625Lines 50Hz. 2:1 Interlace.***
Line Frequency:	***15.625Hz.***
Colour Sub Carrier:	***4.433618 MHz.***
Video Output:	***1.0 Vp-p PAL Composite. 75 Ω BNC connector.***
Synchronisation System:	***Internal or Line Lock.***
Colour Mode:	***Auto/Colour/BW selectable.***
	Timeout for switching mode to be adjustable, 1-60 sec.
IR Cut Filter:	***Mechanical removal on CCD switching to B/W mode.***
IR sensitivity Range:	***700-1000nm.***
Horizontal Resolution:	***Minimum 520Lines in Colour, 570Lines in B/W.***
Signal to Noise Ratio:	***Greater than 50dB.***
Minimum Illumination:	***1.0lx @ F1.4 in Colour.***
	0.3lx @ F1.4 in B/W (no sens up, AGC off).
Light Control:	***WDR, ALC or ELC. Variable shutter speed 1/50 – 1/10,000s.***
Automatic Gain Control (AGC):	***Auto/Manual (Low/Medium/High) selectable.***
Auto White Balance (AWB):	***ATW (2000°C - 7500°C) or AWC.***
Back Light Compensation:	***Selectable ON/OFF. SPOT, Multi point – 48 zone grid.***
Digital Noise Reduction:	***ON/OFF.***
Sensitivity Enhancement:	***OFF/Auto/Fixed x2, x4, x10, x16, x32.***
Vibration Removal:	***ON/OFF.***
Pedestal Level:	***Adjustable.***
Aperture Gain:	***Adjustable.***
Lens Type:	***Auto Iris Direct Coupled (DC) or Video.***
Lens Mount:	***C or CS Mount adjustable.***
Menu:	***On screen display. Keypad on camera.***
Communication:	***RS485, Coaxial.***
Operating Temperature:	***-10 °C to +50 °C.***
Operating Humidity:	***Less than 90%.***
Power Supply:	***24VAC 50Hz. Nominal 4W consumption.***
Dimensions (WxHxD):	***Approx. 70 x 65 x 130mm.***
Weight:	***Approx. 500g.***

Vandal Proof Dome Cameras

All cameras detailed as vandal dome types are to comply with the following minimum requirements:

CCD:	***1/3" Interline transfer Charged Coupled Device (CCD).***
Pixels:	***752(H) x 582(V) effective (approx 470,000).***
Scanning System:	***625Lines 50Hz. 2:1 Interlace.***
Line Frequency:	***15.625Hz.***
Colour Sub Carrier:	***4.433618 MHz.***
Video Output:	***1.0 Vp-p PAL Composite. 75 Ω BNC connector.***

Synchronisation System:	***Internal or Line Lock.***
Colour Mode:	***Auto/Colour/BW selectable.***
	Timeout for switching mode to be adjustable, 1-60 sec.
IR Cut Filter:	***Mechanical removal on CCD switching to B/W mode.***
IR sensitivity Range:	***700-1000nm.***
Horizontal Resolution:	***Minimum 520Lines in Colour, 570Lines in B/W.***
Signal to Noise Ratio:	***Greater than 50dB.***
Minimum Illumination:	***1.0lx @ F1.4 in Colour.***
	0.3lx @ F1.4 in B/W (no sens up, AGC off).
Light Control:	***WDR, ALC or ELC. Variable shutter speed 1/50 – 1/10,000s.***
Automatic Gain Control (AGC):	***Auto/Manual (Low/Medium/High) selectable.***
Auto White Balance (AWB):	***ATW (2000°C - 7500°C) or AWC.***
Back Light Compensation:	***Selectable ON/OFF. SPOT, Multi point – 48 zone grid.***
Digital Noise Reduction:	***ON/OFF.***
Sensitivity Enhancement:	***OFF/Auto/Fixed x2, x4, x10, x16, x32.***
Pedestal Level:	***Adjustable.***
Aperture Gain:	***Adjustable.***
Lens Type:	***Integrated Vari-focal Auto Iris Direct Coupled (DC).***
Focal Length:	***2.6 - 8mm. F1.2 – F360 close.***
Camera Adjustment:	***Manual adjustment. 360° Pan. 0 - 90° Tilt. Azimuth adjustment for wall mount.***
Housing:	***Optically clear polycarbonate dome with no distortion in any section. Black inner liner. Die-Cast aluminum housing.***
	Colour to Suit environment. IP 66 and IK10 rated.
Housing Mount:	***Flush or surface mount.***
Menu:	***On screen display. Keypad on camera board.***
Test Connector:	***On board monitor output mini-jack (3.5mm) for installer setup.***
Communication:	***RS485, Coaxial.***
Operating Temperature:	***-10 °C to +50 °C.***
Operating Humidity:	***Less than 90%.***
Power Supply:	***24VAC 50Hz. Nominal 4W consumption.***
Dimensions (DΦxH):	***Approx. 150 x 140mm.***
Weight:	***Approx. 500g.***

PTZ Cameras

All cameras detailed as Pan, Tilt and Zoom types will be of unitised dome construction consisting of integrated camera, lens, receiver and motor. These unitised units are to be mounted in compact domes housings.

The cameras will be fitted with quick release bases allowing the camera module to be removed without the need for specialized tools. It will be possible to replace an existing camera by slotting in a new module without any additional re-programming of the system required. All power, data and video cabling is to be connected at the base and hidden. Connection and disconnection of the camera module will not necessitate this wiring to be touched. It would be advantageous for

user settings (presets, tours, light settings, etc...) to be stored in an EPROM memory module on the base allowing any new camera module connected to utilise this information.

The dome camera manufacturer will included a large range of mounting accessories and housings allowing for multiple types of installations including but not limited to corner mount, pendant mount, parapet mount, pole mount, pressurized, stainless steel, high security and flush mount.

The Security Services Contractor is to ensure that overall latency within the entire system (from camera to CCTV controller) does not exceed 250ms.

All PTZ cameras will conform to the following minimum:

Camera Specifications:	
CCD:	***1/4" Interline transfer Charged Coupled Device (CCD).***
Pixels:	***752(H) x 582(V) effective (approx 470,000).***
Scanning System:	***625Lines 50Hz. 2:1 Interlace.***
Line Frequency:	***15.625Hz.***
Colour Sub Carrier:	***4.433618 MHz.***
Video Output:	***1.0 Vp-p PAL Composite. 75 Ω BNC connector.***
Synchronisation System:	***Internal or Line Lock.***
Colour Mode:	***Auto/Colour/BW selectable.***
	Timeout for switching mode to be adjustable, 1-60 sec.
IR Cut Filter:	***Mechanical removal on CCD switching to B/W mode.***
IR sensitivity Range:	***700-1000nm.***
Horizontal Resolution:	***Minimum 520Lines in Colour, 570Lines in B/W.***
Signal to Noise Ratio:	***Greater than 50dB.***
Minimum Illumination:	***1.0lx @ F1.4 in Colour. 0.3lx @ F1.4 in B/W (no sens up, AGC off).***
Light Control:	***WDR, ALC or ELC. Variable shutter speed 1/50 – 1/10,000s.***
Automatic Gain Control (AGC):	***Auto/Manual (Low/Medium/High) selectable.***
Auto White Balance (AWB):	***ATW (2000°C - 7500°C) or AWC.***
Back Light Compensation:	***Selectable ON/OFF. SPOT, Multi point – 48 zone grid.***
Digital Noise Reduction:	***ON/OFF.***
Lens Type:	***Integrated 30X Zoom lens.***
Focal Length:	***3.8~114mm. F1.4 open.***
Zoom Speed:	***6 sec from near to far.***
Auto Focus:	***ON/OFF. Selectable scale – small, medium, large.***
Digital Zoom:	***10X.***
Dome Specifications:	
Pan:	***360° endless. Speed 0.1°/s - 120°/s manual. 400°/s on preset.***
Tilt:	***-5° to +185°. Speed 0.1°/s - 120°/s manual. 400°/s on preset.***
Presets:	***256 positions recording Pan, Tilt, Zoom, Focus, ALC,***
	Sens, Title.

OSD:	***ON/OFF. Camera name, date/time.***
Proportional Pan/Tilt:	***ON/OFF.***
Digital Flip:	***ON/OFF.***
Preset Image Hold:	***ON/OFF.***
Image Stabiliser:	***ON/OFF.***
Privacy Zone Masking:	***ON/OFF. 4 zone min. User defined sizes.***
Home Position:	***Preset position, AutoPan, Sequence, Patrol.***
Auto Mode:	***OFF, Preset position, AutoPan, Sequence, Patrol.***
Patrol:	***2 Programmable tours comprising 30sec each.***
Camera Mount:	***Quick release mechanical and electrical disconnects. Retractable braided metal safety harness cable for secure attachment of camera module to base.***
Motor:	***Continuous duty, variable speed 24VAC.***
Housing:	***Optically clear acrylic dome with no distortion in any section. Black inner liner. Die-Cast aluminum housing. Colour matched dress ring to hide surface connection. Colour to suit environment. IP 67 and IK10 rated***
Menu:	***On screen display.***
Communication:	***RS485, Coaxial. Protocol to be supported by control equipment.***
Alarms:	***4 Inputs, 2 Output.***
Operating Temperature:	***-10 °C to +50 °C.***
Operating Humidity:	***Less than 90%.***
Power Supply:	***24VAC 50Hz. Nominal 15W consumption.***
Dimensions (∅DxH):	***Approx. ∅155 x 235mm.***
Weight:	***Approx. 2kg.***

Lenses

All lenses used are to be constructed of colour corrected glass optics and have steel body construction. To accommodate any changes in lighting, all lenses are to be identical in make and model and be Direct Coupled (DC) Auto Iris types. Lenses are to be of reputable manufacture that has been operating in the optics industry for over the past ten (10) years. Acceptable types are Computar, Fujinon, Navitar and Panasonic. Final selection of focal length will be made on site by the Consulting Engineer.

All lenses are to be back focused once installed on site with the use of a neutral density filter.

All full body cameras are to be fitted with:

Lens Size:	***1/3".***
Focal Length:	***5 – 50mm.***
Magnification:	***10X.***
F Stop:	***1.3 ~ 360.***
A.O.V:	***52° - 5.6° Horizontal.***
Focus:	***0.8m ~ ∞.***
Iris Control:	***Auto. Direct Coupled (DC).***
Coil Resistance:	***190Ω Drive coil. 1000Ω Damping control.***

Connector:	***Iris control cable 4 pin plug. Minimum 120mm long.***
Focus:	***Manual.***
Zoom:	***Manual.***
Mount:	***CS type.***
Operating Temperature:	***-10 °C to +50 °C.***
Dimensions (WxHxD):	***Approx. 47 x 54 x 60mm.***
Weight:	***Approx. 140g.***

Camera Housings

General

All Camera housings are to conform to the following minimum:

- Minimum internal dimensions to accommodate the camera and lens.
- Fit with tamper locks to prevent unauthorised access.
- Completely sealed to protect against environmental damage and condensation.
- All external housings are to be mounted at a minimum of 5m off ground level. Any housing below this height must be a high security type.

Camera mounting is to conform to the following minimum:

- All cabling to the camera is to be concealed within the mounting bracket.
- Utilise any accessories e.g. ceiling/wall/pole mount brackets, as required by the situation.
- All cameras mounted on brackets are to provide manual adjustment of position of +30° to -90° tilt and 360° pan.
- Be firmly locked into the desired position and be rigidly supported to prevent any vibrations and movement.

The housings tendered are to be demonstrated to the Consulting Engineer prior to install for evaluation.

External Wall Housing

All cameras to be mounted externally on a wall, pole, corner, etc. are to be placed in a housing conforming to the following minimum:

Style:	***Tubular housing mounted on adjustable manual pan/tilt bracket. Mounted on suitable wall bracket.***
Construction:	***1.6 mm extruded aluminum.***
Lens:	***6mm MR10 GE Lexan (Polycarbonate).***
Finish:	***Polyester powder coated. Colour to suit environment.***
Rating:	***IP66, IK10.***
Mounting:	***Upper section flange mounted to fixed ceiling or tiles.***
Camera Access:	***4 x M6 Stainless steel security screws. Flip top construction.***
Cable Entry:	***2 x 20mm PVC cable compression glands.***
Sunshield:	***Adjustable along length of body.***
Thermostatic Controlled Heater:	***7W nominal.***
Thermostatic Controlled Fan:	***7W nominal.***
Optional Mounts:	***Pole, Corner, Extended Wall.***

Internal Dimensions (WxHxD):	***To accommodate proposed camera and lens combination.***
Weight:	***Approx. 4kg.***

Power Supplies

Cameras are to be grouped in cluster to be powered from the same point (circuit) in order to maintain synchronization and avoid ground loops. All power supplies are to be identical in make and model. Power supplies are to have an illuminated master switch with built in circuit breaker for power ON/OFF. Each output is to provide sufficient power, in the order of double the amount required for startup, to run the relevant camera. The Security Services Contractor is to design the power system to take into account any voltage drops caused by run length.

Additionally, all AC power supplies are to use a metal oxide varistor (MOV) for surge suppression. This component will shunt any surge to the neutral and ground lines immediately.

All power supplies are to be mounted with the security enclosures in the field. Each camera is to have an individual figure 8 cable run to it. All cables are to be attached to the power supply through an individually fused power distribution module. The power supply is to utilise LED indicators to clearly show the current status of each channel.

Power Supplies are to be Tactical Technologies or approved equivalent.

Fibre Optic Transmitter/Receivers

Cabling is to be installed as detailing in the cabling section. Video signals are to be connected to a fibre modem at the transmission end as close as possible to the camera. Matching receivers are then to be grouped at the head end.

Fibre modem transmitters that are to support multiple video signals (e.g. 4 channels) are to be installed in a central position in relation to all camera points.

Fibre modem receivers are to be mounted alongside the control and recording equipment. All receiver units are to be rack mount card types, fitted within appropriate card cages and mounted into a 19” rack.

All fibre cables and modems are to be clearly labeled to the approval of the Consulting Engineer. Use a label maker for all labels. Labels shall be white with black writing. Hand written labels are not acceptable. Use self adhesive wrap around vinyl tape with a clear covering over the printed labels.

Minimum specifications are provided below for example model types. As flexibility is extended to the Security Services Contractor for system design, they are to provide full details of the units proposed.

Contact Closures

Provide an eight (8) channel data fibre transmitter and receiver to transmit real-time contact closures as required. The transmitter and receiver are to be an IFS D1315 series or approved equivalent.

Fibre modems are to conform to the following minimum:

Data Channels:	Eight (8) contacts.
Contacts:	24VDC 0.5Amp, 10W, Normally Open.
Response Time:	0.5msec maximum.
Architecture:	One way.
Fibres Required:	One.
Fibre Type:	Single mode 9/125µm.
Wavelength:	1310/1550nm.
Output Power:	400 µw (-4 dBm).
Sensitivity:	2 µw (-27 dBm).
Optical Power Budget:	20dB.
Max. Distance:	60km.
Optical Connectors:	ST.

Power and Data Connectors:	Terminal plug with screw clamps.
LED Indicators:	Power, eight individual channel statuses.
Operating Temperature:	***-40 °C to +74 °C.***
Operating Humidity:	***Less than 95%.***
MTBF:	***> 100,000 hours.***
Power Supply:	***12VDC 50Hz. Nominal 2W consumption.***
Dimensions (WxHxD):	***Surface Mount. 320 x 450 x 130mm.***
Weight:	***Approx. 900g.***

One Channel Video + Bi-Directional Data

Provide a one (1) channel video fibre transmitter and receiver to transmit real-time video and data signals as required. The transmitter and receiver are to be an IFS VDT/VDR 14100 WDM series or approved equivalent.

Fibre modems are to conform to the following minimum:

Video Channels:	One (1) 10-bit digitally encoded video ch. 1Vp-p, 75 Ω.
Bandwidth:	10Hz – 6.5MHz per channel.
Differential Gain:	< 2%.
Differential Phase:	***< 0.7°.***
Tilt:	***< 1%.***
Signal to Noise Ratio:	***67dB @ Maximum optical loss budget.***
Data Channels:	One (1) Bi-Directional RS485.
Data Format:	RS-232. RS-422, 2 wire or 4 wire RS-485.
Data Rate:	DC – 100kbps.
Bit Error Rate:	< 1 in 10^{-9} Maximum optical loss budget.
Operating Mode:	Simplex or Full-duplex.
Fibres Required:	One (1).
Fibre Type:	Single mode 9/125µm.
Wavelength:	1310/1550nm.
Output Power:	400 µw (-4 dBm).
Sensitivity:	2 µw (-27 dBm).
Optical Power Budget:	20dB.
Max. Distance:	60km.
Optical Connectors:	ST.
Power and Data Connectors:	Terminal block with screw clamps.
Video Connectors:	BNC.
LED Indicators:	Power, Transmission, Receiving, Link-Lock.
Operating Temperature:	***-40 °C to +74 °C.***
Operating Humidity:	***Less than 95%.***
MTBF:	***> 100,000 hours.***
Power Supply:	***12VDC 50Hz. Nominal 6W consumption.***
Dimensions (WxHxD):	***Surface Mount. 300 x 450 x 130mm.***
Weight:	***Approx. 900g.***

Two Channel Video + Two Channel Bi-Directional Data

Provide a two (2) channel video fibre transmitter and receiver to transmit real-time video and data signals as required. The transmitter and receiver are to be an IFS VT/VR 7200-2DRDT series or approved equivalent.

Fibre modems are to conform to the following minimum:

Video Channels:	Two (2) 8-bit digitally encoded video ch. 1Vp-p, 75 Ω.
Bandwidth:	10Hz – 6.5MHz per channel.
Differential Gain:	< 2%.
Differential Phase:	***< 0.7°.***
Tilt:	***< 1%.***
Signal to Noise Ratio:	***60dB @ Maximum optical loss budget.***
Data Channels:	Two (2) Bi-Directional RS485.
Data Format:	RS-232. RS-422, 2 wire or 4 wire RS-485.
Data Rate:	DC – 100kbps.
Bit Error Rate:	< 1 in 10^{-9} Maximum optical loss budget.
Operating Mode:	Simplex or Full-duplex.
Fibres Required:	One (1).
Fibre Type:	Single mode 9/125µm'.
Wavelength:	1310/1550nm.
Output Power:	400 µw (-4 dBm).
Sensitivity:	4 µw (-24 dBm).
Optical Power Budget:	20dB.
Max. Distance:	60km.
Optical Connectors:	ST.
Power and Data Connectors:	Terminal block with screw clamps.
Video Connectors:	BNC.
LED Indicators:	Power, Transmission, Receiving, Link-Lock.
Operating Temperature:	***-40 °C to +74 °C.***
Operating Humidity:	***Less than 95%.***
MTBF:	***> 100,000 hours.***
Power Supply:	***12VDC 50Hz. Nominal 6W consumption.***
Dimensions (WxHxD):	***Surface Mount. 320 x 450 x 130mm.***
Weight:	***Approx. 900g.***

Four Channel Video + Two Channel Bi-Directional Data

Provide a four (4) channel video fibre transmitter and receiver to transmit real-time video and data signals as required. The transmitter and receiver are to be an IFS VT/VR 7400-2DRDT series or approved equivalent.

Fibre modems are to conform to the following minimum:

Video Channels:	Four (4) 8-bit digitally encoded video ch. 1Vp-p, 75 Ω.
Bandwidth:	10Hz – 6.5MHz per channel.
Differential Gain:	< 2%.
Differential Phase:	***< 0.7°.***

Tilt:	***< 1%.***
Signal to Noise Ratio:	***60dB @ Maximum optical loss budget.***
Data Channels:	Two (2) Bi-Directional RS485.
Data Format:	RS-232. RS-422, 2 wire or 4 wire RS-485.
Data Rate:	DC – 100kbps.
Bit Error Rate:	< 1 in 10^{-9} Maximum optical loss budget.
Operating Mode:	Simplex or Full-duplex.
Fibres Required:	One (1).
Fibre Type:	Single mode 9/125µm.
Wavelength:	1310/1550nm.
Output Power:	500 µw (3 dBm).
Sensitivity:	15 µw (-18 dBm).
Optical Power Budget:	20dB'.
Max. Distance:	60km.
Optical Connectors:	ST.
Power and Data Connectors:	Terminal block with screw clamps.
Video Connectors:	BNC.
LED Indicators:	Power, Transmission, Receiving, Link-Lock.
Operating Temperature:	***-40 °C to +74 °C.***
Operating Humidity:	***Less than 95%.***
MTBF:	***> 100,000 hours.***
Power Supply:	***12VDC 50Hz. Nominal 6W consumption.***
Dimensions (WxHxD):	***Surface Mount. 320 x 450 x 130mm.***
Weight:	***Approx. 900g.***

Eight Channel Video + Two Channel Bi-Directional Data

Provide an eight (8) channel video fibre transmitter and receiver to transmit real-time video and data signals as required. The transmitter and receiver are to be an IFS VT/VR 7800-2DRDT series or approved equivalent.

Fibre modems are to conform to the following minimum:

Video Channels:	Eight (8) 8-bit digitally encoded video ch. 1Vp-p, 75 Ω.
Bandwidth:	10Hz – 6.5MHz per channel.
Differential Gain:	< 2%.
Differential Phase:	***< 0.7°.***
Tilt:	***< 1%.***
Signal to Noise Ratio:	***60dB @ Maximum optical loss budget.***
Data Channels:	Two (2) Bi-Directional RS485.
Data Format:	RS-232. RS-422, 2 wire or 4 wire RS-485.
Data Rate:	DC – 100kbps.
Bit Error Rate:	< 1 in 10^{-9} Maximum optical loss budget.
Operating Mode:	Simplex or Full-duplex.

Fibres Required:	One (1).
Fibre Type:	Single mode 9/125µm.
Wavelength:	1310/1550nm.
Output Power:	500 µw (3 dBm).
Sensitivity:	15 µw (-18 dBm).
Optical Power Budget:	15dB.
Max. Distance:	45km.
Optical Connectors:	ST.
Power and Data Connectors:	Terminal block with screw clamps.
Video Connectors:	BNC.
LED Indicators:	Power, Transmission, Receiving, Link-Lock.
Operating Temperature:	***-40 °C to +74 °C.***
Operating Humidity:	***Less than 95%.***
MTBF:	***> 100,000 hours.***
Power Supply:	***12VDC 50Hz. Nominal 6W consumption.***
Dimensions (WxHxD):	***Surface Mount. 320 x 450 x 130mm.***
Weight:	***Approx. 900g.***

Rack Enclosure

Provide a 19" rack mount card cage(s) to mount fibre modem cards as required. The card cage is to be an IFS R3-230 series or approved equivalent.

Card cage are to conform to the following minimum:

Card Slots:	Fourteen (14) one-inch modules or seven (7) two-inch modules.
Operating Temperature:	***-40 °C to +74 °C.***
Operating Humidity:	***Less than 95%.***
MTBF:	***> 100,000 hours.***
Power Supply:	***230VAC 50Hz. Step down transformer to power rail for cards. 20VAC @ 4.0A.***
Fusing:	***1A slow blow. Plug in modules individually electronically fused.***
Dimensions (WxHxD):	***19" Rack mount card cage, 3RU.***
Weight:	***Approx. 2.2kg.***

Security Cabinet Enclosures

All field equipment is to be mounted within a secure cabinet. Cabinets will be required to be mounted in a number of locations dependent on the available space, final locations to be determined on site. This will include wall and pole mount. Cabinets will typically be required to store the camera power supplies, fibre modems and UPS unit. The Security Services Contractor is to ensure sufficient internal dimensions to cater for all equipment offered.

Cabinets are to be IP66 enclosures, fully sealed against the ingress of water, dust and insects in an outdoor location. Cabinets are to be fitted with a fan to allow for the circulation of air.Further, cabinets are to vandal proof with a minimum IK rating of 10. Cabinets are to be secured via the use of tamper proof screws and fitted with a tamper alarm that will enunciate on the operators GUI. In addition, to a tamper alarm, a separate alarm is to be connected allowing for the notification of the failure of the fan and UPS.

All cabling within the cabinet is to be appropriately secured and labeled. Cabling left hanging between devices will not be accepted. A data sheet is to be placed on the inside of the cabinet door detailing all relevant information including equipment schematics, cabling data and general notes. The data sheet is to be protected by a plastic pocket.

IP Encoder

IP encoders are to be located within the 19" rack in the Ballarat Police Complex. Video encoders are to be utilised were an analogue camera or signal is required to be transmitted via TCP/IP protocol. For the purpose of bandwidth calculations, the Tenderer is to assume 90% change in scene. Encoders will multi channel. As a guide, eight (8) channel encoders are to conform to the following minimum.

Video Input:	***8 x 1.0 Vp-p PAL Composite. 75 Ω BNC connector.***
Scanning System:	***625Lines 50Hz. 2:1 Interlace.***
Line Frequency:	***15.625Hz.***
Colour Sub Carrier:	***4.433618 MHz.***
Network Connection:	***10Base-T/100Base-TX. RJ-45 connector.***
Network Interfaces:	***IEEE 802.3 and IETF Standards. TCP, UDP, RTP, ICMP, IGMP, HTTP, SNP, FTP, ARP, DNS, DDNS, DHCP, BOOTP, NTP, SNMP, IPv6. SSL based authentication.***
Streaming:	***Multicast. Up to 10 Unicast. Each independent output stream is to display at a maximum of 4CIF, 25ips.***
Multi-streams Ability (per channel):	***Minimum 4CIF – 2 streams.***
	2CIF – 4 streams.
	CIF – 8 streams.
Bit Rate:	***8Kbps – 10Mbps per channel. Scalable.***
Bit Error Rate:	***<1 x 10^9***
Supported Formats:	***MPEG-4 (ISO 14496-2), MJPEG, JPEG. User selectable.***
Supported Image Resolutions (Min.):	***QCIF: 176 x 144.***
	CIF: 320 x 288.
	VGA: 640 x 480.
	2CIF:704 x 288.
	4CIF: 704 x 576.
Frame Rate	***Scalable up to 25fps @ 4CIF per channel.***
Audio Input/Output:	***3.5mm jack.***
Audio Encoding:	***8, 16, 44.1 KHz.***
Data:	***RS-232/RS-422/RS-485. 2 or 4 wire. Up to 115.2Kbps.***
LED's:	***Power, Tx/Rx, connection speed, alarm, audio.***
Alarm:	***8 alarm inputs. 8 relay outputs.***
Menu:	***HTML based; including resolution and compression, network settings, and camera adjustments.***
Timing:	***Embedded real time clock.***
Mounting:	***Rack Mountable (1 per 1RU).***
Operating Temperature:	***-10 °C to +50 °C.***
Operating Humidity:	***Less than 90%.***
Power Supply:	***5-12VDC. Nominal 12W consumption.***
Dimensions (WxHxD):	***475 x 44 x 180mm.***

Weight: ***Approx. 1kg.***

IP Decoder

IP decoders are to be located within the 19” rack in the Ballarat Police Complex. Decoders are to be utilised where a TCP/IP signal is to be converted back into an analogue video or data signal. Decoders are to provide clear, full frame PAL images at 50Hz with no visible stuttering or compression artifacts. Output images are to be indistinguishable from the original camera input and be to the satisfaction of the Consulting Engineer and Superintendent.

Networking Equipment

General

A separate LAN is to be created for the interconnection of all IP based CCTV system components. Though only cameras slated under Stage 1 works are to be installed initially (refer to drawings, twelve (12) in total), the network will be designed and sufficient equipment installed to accommodate the traffic of sixty-four (64) cameras in line with the parameters detailed.

It is the Security Services Consultant’s responsibility to ensure that the network infrastructure is designed and installed correctly to allow for the IP traffic expected by their solution. The specifications provided below are deemed to be a guide only. The Security Services Contractor is to employ a suitably qualified IT professional to ensure the integrity of their network design.

The architecture will at a minimum entail:

- All cameras and encoders are to be connected via TCP/IP to an edge network switch;
- All edge switches will be connected to the core switch(s) by Gigabit fibre connection using a redundant, self healing ring configuration;
- The management PC, Network Attached Storage, client machines, printers and all other peripherals are to be directly connected to the core switch(s) via a Gigabit CAT 6 connection.

Edge Network Switch

All indicated IP cameras and/or encoders are to be linked via TCP/IP as shown on the drawings. Twenty-four (24) port 10/100/1000 Managed Switches are to be used to facilitate networking between cameras and/or encoders and the core switch. All ports are to be clearly labelled numerically. A spreadsheet is to be placed on the door of the rack detailing IP address and name of each unit connected to each port.

The switch must conform to the following minimum:

i. Twenty-four (24) x RJ45 connections.

ii. Four (4) x SFP GBIC slots.

iii. Support 10BASE-T, 100BASE-TX and 1000BASE-T with auto-uplink and auto-negotiate on every port.

iv. Provide LEDs for speed, link, and activity on each port.

v. Support switch latency of < 20µs for 64byte frame.

vi. Support Bandwidth of 48Gbps.

vii. 8000 MAC Address database.

viii. Network Standards IEEE 802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3z.

ix. Layer 2 management.

x. Support IGMP, VRRP, STP, MSTP, RSTP, VLAN , VPN, CoS, BOOTP, DHCP, SNTP, LACP.

xi. 240V Power supply.

xii. 1RU rack mount.

xiii. C-Tick, CE Mark, FCC Part 15 Class A.

xiv. Five (5) year warranty.

Core Network Switch

A twelve (12) port 10/100/1000 Managed Switch(s) is to be used to facilitate networking between the edge switch(s) and all control equipment. All ports are to use a gigabit connection. All ports are to be clearly labelled numerically. A spreadsheet is to be placed on the door of the rack detailing IP address and name of each unit connected to each port.

The switch must conform to the following minimum:

i. Twelve (12) x RJ45 connections.

ii. Twelve (12) x SFP GBIC slots.

iii. Support 10BASE-T, 100BASE-TX and 1000BASE-T with auto-uplink and auto-negotiate on every port.

iv. Provide LEDs for speed, link and activity on each port.

v. Support switch latency of < 20µs for 64byte frame.

vi. Support Bandwidth of 48 Gbps.

vii. 8000 MAC Address database.

viii. Network Standards IEEE 802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3z.

ix. Layer 3 management.

x. Support IGMP, VRRP, STP, MSTP, RSTP, VLAN , VPN, CoS, BOOTP, DHCP, SNTP, LACP.

xi. 240V Power supply.

xii. 1RU rack mount.

xiii. C-Tick, CE Mark, FCC Part 15 Class A.

xiv. Five (5) year warranty.

CCTV Video Management Software

The Security Services Contractor is to supply and install a complete CCTV management software package that will allow the operator full control of the various components within. The entire system is to be controlled via a Graphic User Interface (GUI) front end. The system will encompass a server and client machines for each operator as needed.

The types of systems accepted for this project are Indigo Vision, Bosch BVMS and Verint Nextiva. Offering of any of these products does not negate the requirement to provide a clause by clause compliance statement of the specifications below.

If the Tenderer wishes to propose an alternate system, they are to do so in a separate tender package that is clearly labelled. Alternate CCTV Management Systems will only be considered if provided with the following minimum information:

- Full product description;
- Product development including current version number, initial release date and list of revision numbers;
- Manufacturer's details, years in the market place, number of employees and roles (world wide and Australia), annual turnover, R&D expenditure;
- Number of integrators currently supporting its installation in Victoria (interstate companies servicing Victoria are not acceptable;
- Manufacturer's servicing facilities within Victoria;
- List of comparable sites including referee names and contact numbers.

If considered and prior to acceptance, a fully commissioned system of equal size will be demonstrated to the Consulting Engineer for proof of concept. All associated costs will be borne by the Tenderer, including time based fees ($195 per hour ex GST) and associated travel costs.

Ballarat City Council reserves the right to automatically exclude any tender offering non-conforming equipment without evaluation.

The system will confirm to the following minimum:

i. Provide a rack mount dedicated server to run the GUI. PC specifications are to match manufacturer's recommendations.

ii. The GUI platform will be based on Win2000/XP Professional.

iii. The GUI is to be an independent piece of software that will run on its own dedicated Server. The server will have High Level Interfaces to the all CCTV equipment allowing it to control all functions of these machines. Integral functions will include but not be limited to the ability to control monitor outputs, encoder setup, control of PTZ cameras and ability to review footage from DVRs.

iv. GUI will support the use of maps for all visual interfacing. The GUI programme must support minimum of 1000 maps. Maps are to resizable allowing the user to zoom in and out dynamically. The GUI will have a simple but intuitive layout allowing operators to perform any function of the system including but not limited to PTZ control and setup, playback, parameter setup and output monitor control.

v. The system will provide an interface allowing the connection of a traditional CCTV keyboard with full controls including joystick. It must be possible to select a camera to the target monitor via mouse or entering its number on the CCTV keyboard. The selection of a camera via mouse will instantly pass control to the CCTV keyboard with no further key presses required.

vi. Ability to command and control over 2000 cameras spread across multiple sites. Able to interface to both analogue and digital systems (encoders/decoders to be used if required).

vii. The GUI will provide a dynamic interface allowing real-time updating of all text, position of cameras, alarm statuses, etc. via multi coloured icons. The Security Services Contractor is to consult with the Consulting Engineer to determine final layout and look.

viii. The GUI must allow for the display of multiple cameras from multiple sources on the one screen. Cameras are to be listed in a tree format to the side of the viewing area. Multiple screen layouts are to be provided. Populated layouts are to be able to be saved retaining server and camera number and position for each spot.

ix. PTZ camera direction shall be represented on the map as a dynamic icon that displays each cameras orientation in real time.

x. Ability to display live camera image by the clicking of an icon on the map screen.

xi. Ability to incorporate programmable 'macros'. Each macro is to have a minimum of five (5) steps.

xii. The System will allow the operator to manually record the image currently being displayed on the target monitor. Recording will continue as a single stream as the operator changes camera on the target monitor to track a target. This function shall be provided by a single labelled function key to start and stop recording. During live recording, there must be a visual alert/cue displayed in a corner of the monitor, indicating that the vision is being recording. This alert does not need to be recorded with the images. These recording are to be tagged as alarm events.

xiii. The camera images shall be flagged as an alarm or event to distinguish them from normal time lapse recordings and to reduce the search time.

xiv. One or more image positions on each of the overview monitors is to be defined as an alarm monitor. Any alarms received will automatically switch the associated camera image to an alarm monitor. When an alarm is activated, the

word ‘Alarm’ is to start flashing on the monitor overlaid on the relevant camera and sound an audible alarm. Additionally, the relevant alarm position needs to be highlighted on the map.

xv. The GUI will use password protection to allow login and logout. The user management system will allow for multiple permission levels so as to restrict functionality from certain users. This is to include viewing live images, viewing specific cameras, reviewing recordings, burning recordings, menu access, etc.

xvi. An event log will allow all actions of the system software to be recorded. This must be retained for a minimum thirty-one (31) days. The event log must have the ability to document all operator actions, specifically the burning and removal of footage. The retention of specific actions by the event log is to be user definable.

xvii. Ability to service multiple client workstations via a network switch, minimum of five (5) workstations simultaneously without effecting record rate or system performance.

xviii. The use of drop down boxes or similar for the simple selection of single cameras, sequences and tours to be assigned to monitors.

xix. Programmable ‘Hot’ keys allowing the Principal to perform various user defined tasks with a simple ‘click’. These will include but not be limited to cameras to home position, instant recording and duress alarm.

xx. Ability to respond to alarms by switching cameras, record rates, pop up text messages with instructions, etc.

xxi. Incorporate an Incident Management System (IMS) which allows an operator to enter notes/information in a text box which is then tagged to the relevant video. The interface is to be displayed at the bottom of the main interface screen or popup window via a one click operation. These records are to be stored along with the video. Any copies of the videos that are made for removal on external media are to contain the attached IMS information.

xxii. It shall be possible to display the video images in any combination on the overview monitors (e.g. 25, 16, 8, 4 way split, one quad and graphic display per screen, multi-images per screen, or any other combination). The content and orientation of the information shown on these screens shall be flexible allowing for live video, data, maps and other forms of visual cues to be displayed in a variety of formats. As a minimum, up to sixteen (16) separate live (real time) images at 4CIF each, shall be displayed per overview monitor.

xxiii. All recorders, switchers, control systems and other primary equipment shall be time synchronised to maintain time continuity across all components. The primary server is to be configured as the master in a Network Time Protocol (NTP) configuration.

xxiv. All equipment (where practical) shall be assembled off site and fully tested prior to installation and operation.

xxv. Provide full 32bit SDK for high level integration.

CCTV Workstations

All CCTV workstation hardware will comply with the manufacturer’s recommendations for the required software and task. Hewlett Packard machines are preferred. As a minimum, the systems will conform to the following minimum requirements:

Processor:	***Dual quad core Xeon processor, Intel 5300 series.***
RAM:	***4 GB (Expandable to at least 8GB).***

HDD:	***200 GB (7200 rpm minimum) or greater.***
FDD:	***3.5", 1.4MB.***
DVD-R/RW	***32x read, 8x write, 4x re-write or better.***
OS:	***Windows XP Professional. Latest service pack.***
Video Card:	***Dual screen output with 512MB DDR or greater.***
Keyboard:	***104 Keyboard.***
Mouse:	***MS Optical mouse.***
I/O:	***RJ-45, 2 x RS232, 1 x Printer, 2 x USB 2.0 (front panel).***
Networking	***Support 10/100/1000 BASE-TX.***
Chassis:	***Rack Mount.***

Rack Mount KVM Drawer

A draw mounted eight (8) port KVM switch is to be mounted in the CCTV rack to facilitate the viewing and setup of the CCTV management server, DVR(s), storage units and other PCs deemed necessary by the Consulting Engineer. All ports are to be clearly labelled. The unit is to conform to the following minimum:

i. One (1) RU High, 19" Rack mount unit.

ii. Mounted on smooth operating slide rails, standard ball bearing type. Self locking on full extension.

iii. 17" LCD TFT monitor mounted on laptop style tilting display.

iv. Min. supported resolution of 1024 x 768 @ 60Hz.

v. Contrast Ratio 350:1.

vi. Full 101 keyboard with trackball or touchpad mouse.

vii. In-built eight (8) port PS/2 KVM. OSD support.

viii. Hot key functionality for switching input. Password protected.

ix. Min. sixteen (16) character server identification tags.

x. Power consumption approx 60W.

xi. Built in power supply.

xii. Supply with all KVM cabling required for full install. KVM cable to be min. two (2) metres long.

Recording System

The Contractor is to supply and install a complete Recording Management System that will allow for the recording of all cameras. The entire system is to be controlled via the CCTV Management System and utilise the GUI on the operator's desk via a seamless interface. The system will conform to the following minimum requirements:

Performance

i. The system shall not utilise software to encode. All encoding is to be done by dedicated hardware boards.

ii. Utilise a multitasking purpose developed operating system. For non solid-state systems, only Win2000/XP Professional is acceptable.

iii. Utilise a GUI for all system configuration changes and for system operation. All features will be enabled/disabled by the administrator through the GUI platform.

iv. The system must record all cameras at a minimum of eight (8) images per second.

v. Ability to individually adjust the record rate of each camera input (1-25 images per second).

vi. ***Support one audio channel per eight (8) video channels. Audio must be recorded in real-time, synchronised with the associated camera image for playback.***

vii. ***The video compression will be JPEG2000, Multi Layer JPEG, MPEG4 or Wavelet. The system will allow multi-step adjustments for choice of compression or definable bit rate.***

viii. ***Recording resolution to be 720 x 576, 4CIF. Compression settings are to be minimal to provide for clarity. Final image quality will be decided on site by the Consulting Engineer and Superintendent.***

ix. ***Storage capacity is to be provided for fourteen (14) days based on the above parameters in a RAID 5 configuration. Utilise SATA IDE Drives with a MTBF of approx. 1.2 million hours (Western Digital RE2).***

x. ***All recordings are to be based on continuous, not motion based.***

xi. ***Colour Sampling YUV 4:2:2.***

xii. ***Video input tolerance of 0.7-2.0 Vp-p.***

xiii. ***Video Standard PAL/CCIR.***

xiv. ***Support 720 (H) x 576 (V) and 720 (H) x 288 (V).***

xv. ***Record quality to be greater than S-VHS, approx. 420TVL at full screen.***

xvi. ***Provided with Dual layer DVD-RW and USB2.0 port on front panel.***

xvii. ***Ability to connect additional external memory storage devices, RAID units, via a SCSI interface (or similar). Provide enough internal storage to met recording requirements as detailed.***

<u>Playback and Review</u>

xviii. ***Ability to protect selected images from being overwritten indefinitely, until manual un-protection is selected;***

xix. ***User defined camera identification on each input (minimum of 12 alphanumeric characters).***

xx. ***The GUI will provide standard VCR control icons allowing PLAY, STOP, REW, FF, speed adjustments (min. five (5) levels) and SOF (Start of File), EOF (End of File). Review is also to include a zoom facility allowing a minimum of two (2)X. The zoom feature is to work on a still or moving image.***

xxi. ***The system will support search facilities comprising of time/date, thumbnail and alarm/event.***

xxii. ***Time/Date will allow the user to use simple drop down boxes and calendars to select appropriate parameters for searching.***

xxiii. ***The Thumbnail search is to provide the user with the ability to select a time period and be presented with thumbnails at pre-determined intervals. i.e. Twenty-Four (24)hr period – image at the start of every hour. One (1) hour period – image every ten (10) minutes.***

xxiv. ***The GUI is to provide basic image manipulation controls from the playback screen. Any image that has been adjusted must be able to be printed. These changes are not to be recorded onto the video and are only to be used as a tool for the reviewer.***

xxv. ***Once a piece of video has been identified; it will be possible for the user to extract the footage in a number of ways.***

- ***A single image to be saved as a BMP, JPEG, GIF.***
- ***A backup that allows for multiple hours of footage to be archived. The user is to be able to select which cameras are to be archived on an individual basis. The backup must retain the look of the review screen and allow the same functionality as provided on the recorder. The playback software must be burnt to the DVD along with the footage and***

audio creating an .exe file that can be played in any PC without installing software.

xxvi. The system will support both single and multi camera playback allowing all cameras to be reviewed on screen at once. All cameras to be time synchronised and respond to FF and REW controls as one. The audio playback will be from the selected camera only.

xxvii. Time and data text will be permanently embedded within the recorded image. Its position on screen must be adjustable by the user.

Alarm

xxviii. Minimum one alarm input per camera. Configurable Normally Open (N.O), Normally Closed (N.C). Alarm outputs will be relays rated @ 0.5 Amp continuous.

xxix. Alarm inputs must latch until released by staff control of separate push buttons.

xxx. Alarm trigger inputs, including pre and post-alarm event recording. Receipt of an alarm must be logged n the system's event database and allow for pre-determined response.

xxxi. Provide for selectable pre and post alarm recording times.

Image Authentication and System Protection

xxxii. Full screen independent images will be recorded, not on conditional refresh.

xxxiii. Files are to utilise a digital signature with a minimum 1024 bit public-private key pair e.g. RSA.

xxxiv. Images will be sequentially "marked" to identify if there has been any removal, insertion or alteration of images.

xxxv. The digital signature is to be hidden within the video files by watermarking.

xxxvi. The GUI will use password protection to allow login and logout. It will provide extensive, user definable password protection (entered via keyboard) for access to playback, record and system set-up functions. Multi-level customisable user settings will allow for multiple levels of access.

xxxvii. An event log will allow all actions on the server to be recorded. Provide a complete audit trail through the event log displaying all operator actions and parameters adjusted. This must be retained for a minimum ninety (90) days on the server.

xxxviii. It will be possible to view individual cameras in real time, twenty five (25)ips, as full screen images without interruption or change in the recording.

xxxix. The system will not require any form of hard disk maintenance (i.e. disk clean up or de-fragmentation usually associated with Windows operating systems) to facilitate continuous reliable operation.

xl. The system will have the facility to allow Auto-reboot within a user specified schedule or via a 'watchdog' circuit upon discovery of an unrecoverable error.

Networking

xli. Ability to provide both live and recorded video images to multiple users simultaneously whilst not affecting the recording performance.

xlii. The system is to support the remote interrogation of recordings and download to a remote client PC for burning the DVD. The copy made on the remote PC must be able to be authenticated as a real and valid recording.

xliii. Ability to connect to and deliver video images over the LAN (Local Area Network) and WAN (Wide Area Network). Provision of a RJ-45 terminal for connection to a dedicated 10/100/1000 Base-TX Switch.

xliv. The recorder will use either a fixed IP address or support DHCP addressing.

xlv. ***Support the following minimum protocols: IP, TCP, UDP, DHCP, FTP, TELNET, ICMP, IGMP, HTTP and ARP.***

xlvi. ***Support Multicast for network transmission.***

xlvii. ***Ability to scale the video being transmitted for slower connections. QCIF, CIF, 2CIF and 4CIF are to be supported. The use of alternate conditional refresh codecs (e.g. H.263, MPEG-4), is acceptable for streaming only.***

xlviii. ***Max. Bit rate for one (1) channel of video @ 4CIF @ 25ips = four (4) Mbps approx.***

xlix. ***Ability to throttle bandwidth to user defined cap.***

l. ***Remote viewing and control software will be included for loading on standard personal computers. No licensing will be required for workstations. Full functionality and setup to be provided from remote client machines.***

Control Keyboard

Provide a CCTV keyboard controller conforming to the following minimum:

i. ***Provide complete system control and functionality. The keyboard will provide for control of camera-to-monitor selection, camera/PTZ functions, alarm monitoring and the macro programming/operation.***

ii. ***Provided with a variable speed joystick controller that has Zoom and Focus keys located on the joystick.***

iii. ***Simple and ergonomic layout of keys. Large font text to describe each keys function.***

iv. ***Backlit LCD display to display current camera, monitor selection and other relevant information.***

v. ***Have up to ten (10) keys that can be user defined. To be used as macro keys.***

vi. ***Provide audible alarm for operator attention.***

vii. ***Constructed of high impact plastic to accommodate daily punishment in a control room environment. Keyboard to be resistant to liquid spillages and dust ingress.***

Operator Monitors

All monitors are to provide clear, crisp, vibrant images. The LCD panels are not to show any visible blurring on fast moving objects or aliasing on edges and provide vibrant, accurate colour reproduction. They are to provide a horizontal resolution in excess of the camera image they are showing.

Monitors are to be of reputable manufacture, operating for over the past ten (10) years and offering comprehensive service and repair facilities in each state of Australia (e.g. Panasonic, Sanyo, Sony).

All LCD monitors are to be constructed of durable plastic. The two (2) 19" LCD monitors are to be mounted directly in front of the operator on a single anchor, multi-arm adjustable wall bracket.

The overview monitors are to be mounted on multi-axis adjustable wall brackets directly above the main monitors. They are to be installed after an inspection of the control room with the Consulting Engineer and Superintendent in order to take into account the ergonomic considerations of the operator.

All monitors (including the proposed mounting bracket) are to be demonstrated with a live video image to the Consulting Engineer prior to acceptance.

42" LCD

Display Size:	***42".***
Scanning System:	***625Lines 50Hz. 2:1 Interlace.***
Line Frequency:	***15.625Hz.***

Colour Sub Carrier:	***4.433618 MHz.***
Video Input:	***1.0 Vp-p PAL Composite. 75 Ω.***
Native Resolution:	***1920 x 1080.***
Colour Display:	***8 bit.***
Display Colours:	***16.7 million.***
Response Time	***8ms (Tr/Tf).***
Brightness:	***500cd/m² typ.***
Contrast Native	***1200:1.***
Viewing Angle:	***170 degrees horizontal and 170 degrees vertical.***
Video Connections:	***Composite, DVI, VGA, HDMI.***
Audio Connections:	***2 x RCA. Looping.***
Speaker:	***Front mounted. Minimum 15W output.***
Construction:	***Anti-glare screen.***
Front Panel Controls:	***Menu - colour, brightness, contrast, colour temp, sharpness, volume adjustment, channel selection.***
Lifetime:	***Approx 50,000 hours.***
Operating Temperature:	***-10 °C to +50 °C.***
Operating Humidity:	***Less than 90%.***
Power Supply:	***240VAC 50Hz. Nominal 250W consumption.***
Dimensions (WxHxD):	***Approx. 1031 x 675 x 134.***
Weight:	***Approx. 30kg.***

19" Composite LCD:

Type:	***GE KLC-20HS or approved equivalent.***
Display Size:	***19".***
Scanning System:	***625Lines 50Hz. 2:1 Interlace.***
Line Frequency:	***15.625Hz.***
Colour Sub Carrier:	***4.433618 MHz.***
Video Input:	***1.0 Vp-p PAL Composite. 75 Ω.***
Native Resolution:	***1280 x 1024 @ 60Hz. Resolution to approximate to 500TVL.***
Colour Display:	***8 bit.***
Display Colours:	***16.7 million.***
Response Time	***8ms (Tr/Tf).***
Dot Pitch:	***0.25mm.***
Brightness:	***480 cd/m² typ.***
Contrast	***500:1.***
Viewing Angle:	***160 degrees horizontal and 160 degrees vertical.***
Video Connections:	***1 x BNC Composite. Looping with Auto termination.***
	1 x VGA 15 Pin D-sub.
	1 x DVI
Audio Connections:	***1 x RCA. Looping.***
Speaker:	***Front mounted. Minimum 1W output.***

Construction:	***Anti-glare screen. Plastic bezel. Aluminum base.***
Front Panel Controls:	***Menu - colour, brightness, contrast, colour temp, sharpness, volume adjustment, channel selection.***
Lifetime:	***Approx 50,000 hours.***
Operating Temperature:	***-10 °C to +50 °C.***
Operating Humidity:	***Less than 90%.***
Power Supply:	***240VAC 50Hz. Nominal 70W consumption.***
Dimensions (WxHxD):	***Approx. 475 x 510 x 180mm.***
Weight:	***Approx. 10kg.***

Report Printer

A report printer is to be provided at the operator desk to allow for the printing of reports and still images from the recording servers as well as the printing of labels directly to DVDs. The printer is to be supplied along with a print sharing server to allow all PCs to connect to the one printer. The printer will be an Epson Stylus Photo R390 or approved equivalent. It must comply with the following minimum requirements:

Type:	***Ink Jet.***
Print Resolution:	***Minimum 600dpi. Colour.***
Print Speed:	***At least 15 ppm.***
Printer Memory:	***32KB.***
Paper Tray Capacity:	***100 A4 pages. Able to print directly to DVD.***
I/O:	***USB or parallel interface.***

Racking

19" Racking is to be provided to house all equipment. There is currently space for one rack to be mounted within the Sever Room of the Police Complex. The Security Services Contractor is to ensure they provide sufficient space for all equipment supplied plus spare capacity. A schematic design of the rack layout is to be provided with the tender. Inability to accommodate all required equipment is to be clearly identified.

All racks will incorporate horizontal and vertical cable management.

Racks are to conform to the following minimum:

- 19" rack, 45RU, 900mm deep;
- Provide adjustable mounting rails both front and rear;
- Have cable management pathways running the length of both vertical sides at rear of rack;
- Provide vertically mounted 20 way power distribution board connected to 15A captive plug;
- Lockable front metal door with acrylic insert. Door to hinge to both the left and right without requiring specialist tools. Multiple racks are to have the same key system;
- Removable solid metal side panels with ventilation slits;
- Removable solid metal rear panel with ventilation slits;
- Racks to be fitted with a 20 W fluorescent lamp mounted vertically in the rear to aid installation;
- Provide fan system (four (4) fans min.) located in roof plinth;
- Provide lockable recessed castors to allow full mobility;
- Provide chimneys if connecting to cable tray/path above for clean cable installation. Multiple racks are to be mounted side by side to assist with cable management between racks;
- All cabling is to be secured with Velcro straps. Nylon ties and any exposed cables hanging behind/between racks in not acceptable;

- Accommodate all necessary security related equipment. Adequate venting for cooling of the equipment detailed in this specification and future equipment;
- Any mounts and shelves required to accommodate the equipment detailed in this specification;
- Diagrams are to be placed on the inside of the front door of each rack detailing the layout and equipment within;
- All equipment racks will be adequately earthed;
- Allow for 10% free space in rack load outs;
- Supplied with powdered coated finish.

UPS

General

An Uninterruptible Power distribution system is to be installed to power all security related equipment in case of a loss of mains power. A single UPS is to be supplied within the Server Room to provide backup storage for all control equipment including monitors and workstations. Secondary units are to be fitted within each of the field cabinets to provide power to the cameras and fibre modems. The Security Services Contractor is to engineer a power solution that ensures all system components have continuity of electric power for 60 minutes. Upon return of the normal power source, the rectifier/charger will automatically recharge the battery.

The primary UPS will be solid state type consisting of a rectifier/charger, battery, inverter, protective devices, static transfer switch, control module, maintenance bypass switch, instruments, controls and indicators required to provide uninterrupted power to the essential loads upon failure of the normal power source.

If the battery exhausted before AC power is restored the UPS system will shutdown automatically without damage to the components or tripping circuit breakers.

When AC power is restored, input power for the inverter and for recharging of the battery will automatically be supplied from the rectifier/charger outputs without interruption.

The UPS is to be a double conversion of reputable manufacturer, MGE or approved equivalent. MGE UPS Systems can be supplied through Alpha Energy (1300 665 776). Line-interactive modified/pure sine wave designs may be used for loads less than 2KVA only (approval of the Consulting Engineer must be sought prior).

The UPS module will be self-protected against over-current, sudden changes in output load and short circuits at the output terminals. The UPS module will have built-in protection against permanent damage to itself and the connected load for all predictable types of failures within the UPS. Fast acting current limiting devices will be used to protect against failure of solid state devices.

Protective devices will be circuit breakers, not fuses.

Internal failures will cause the module to trip with minimum damage to the module and to provide maximum information to maintenance personnel regarding the reason for tripping. Open protective devices will be indicated by appropriate lights (LED type) on the control mimic panels.

An Ethernet 10/100Mbps card is to be fitted for the connection to a LAN. Suitable software is to be supplied to allow the ability for the UPS to provide an email notification on specific events as well as live monitoring of its status. Connection to the LAN onsite will be at the discretion of the client.

Batteries and Charger

The batteries will be of 5 year design life valve regulated lead acid type to perform the required duty within the operating limits set by the UPS.

Battery stand or cabinet will be included.

The battery output will be protected by circuit breakers. The battery charger will be sized to fully recharge the battery while the system operated at full load and will have boost and trickle charge capability. The battery will remain connected to the inverter while boost charging. The battery charger will current limit the charging rate within the limits of the manufacture's specification.

The battery connections will be lead alloy plate soldered with a plastic cover to provide a low resistance joint.

The battery output terminals will be suitably protected by an insulating barrier where required to prevent inadvertent short circuiting and danger to personnel.

Testing and Commissioning

All commissioning tests will be recorded.

Simulated tests will be carried out on control and protective circuits to ensure that all alarm and protective services are operating correctly.

Tests will be carried out for the following conditions:

- Minimum AC input voltage.
- Nominal AC input voltage.
- Maximum AC input voltage.
- No mains voltage and battery fully charged.
- No mains voltage and battery just above point of disconnection.

The following items will be measured for each test; input and output AC voltage, current and frequencies.

Tests for transient response will be carried out for sudden application and removal of load, the output voltage and currents will be recorded.

Demonstrate the ability of the UPS unit to operate under all modes of operation as specified. Such tests may be performed with loads up to 100% of the rated connected load.

Full battery discharge test will be carried out.

Cabling Infrastructure

General

The cabling infrastructure will consist of the following major elements:

- Optical Fibre - Main Trunk
- Optical Fibre - Tails
- Coaxial - Tails

The Optical Fibre Main Trunk will form the main backbone of the network and will run along Lydiard St back to the Ballarat Police Complex as indicated on the drawings. The main trunk will feed directly into the Server Room.

Optical Fibre Tails will be used where the camera cluster node point (location of optical fibre modems) is located away from Lydiard St. Optical Tails will be spliced onto the main trunk using specialised splicing enclosures and will comprise of 2 cores of optical fibre.

Coaxial Tails will be used between the camera cluster node points and the actual cameras. Coaxial tails cannot exceed 150m in length.

Optical Fibre Cable

Main Trunk

All optical fibre cable used for main trunk shall comply fully with "AS/ACIF S008:2006 – Requirements for customer cabling products"

Optical Fibre Cable shall comply with the following minimum:

- Single Mode – 9/125um
- 96 Core
- Loose Tube

- Gel filled

All optical fibre used for main trunk shall be installed in accordance "AS/ACIF S009:2006 – Installation Requirements for customer cabling". This includes the following requirements:

- The permission of the relevant local authority, or the owner of any third party property traversed by the cabling, is required.
- The cabling provider is not entitled to use a carrier's or other person's conduits, pits or manholes without their express permission.
- The Dial Before You Dig (DBYD) 'free call service' (telephone 1100 or visit the DBYD website at www.dialbeforeyoudig.com.au) should be contacted for information about any underground services that may be in the vicinity if any earth breaking activity is contemplated.

Tails

All optical fibre cable used for lead-off tails shall comply fully with "AS/ACIF S008:2006 – Requirements for customer cabling products"

Optical Fibre Cable shall comply with the following minimum:

- Single Mode – 9/125um
- 2 Core
- Loose Tube
- Gel filled
- Rodent Proof

Optical fibre tails shall be terminated to ST type connectors, for connection into supplied optical fibre modem.

Underground Cable Installation

All underground cable shall be installed in 100mm diameter PVC conduit marked "Communications" every 10m

All underground cable shall be installed at a minimum depth of 450mm

Above Ground Cable Installation

All above ground cabling shall be strictly in accordance with S009:2006 Section 19

Communications Pits

Supply and install Communications Pits as indicated on the drawings.

All Communications Pits installed shall comply with the following minimum:

- ***Linpac models UG2006, 2008, 2009 of approved equivalent;***
- ***Telstra approved;***
- ***Be provided with lockable lid, appropriate for anticipated traffic;***
- ***Lids shall be labelled using engraved metal plate 50mm x 100m with the words "Property of the City of Ballarat".***

Splice Enclosures

Outdoor Splice Enclosures shall be installed in all pits to allow for immediate and future connection of cable lead-ins. Either Fusion slicing or Mechanical splicing is acceptable. Regardless of method, the optical loss must not exceed 0.2dB per splice. Overall optical fibre loss covers the total loss between the two corresponding optical terminations and must include allowances for losses due to fibre, connectors, passive components, splices and any margin for maintenance. This loss will not exceed the loss budget as described in AS/NZS 3080:2003 or six (6) dB, whichever is the minimum.

Splice enclosures shall comply with the following minimum:

- ***Be of single ended design;***
- ***Be supplied and installed complete with suitable fibre management system including splice trays;***
- ***Have a minimum of six cable entry ports;***
- ***Allow uncut fibres to be stored as single circuits without requiring splicing.***

Splice enclosures shall be FIST-GC0G2 or equivalent. All fibre optic transmitters and receivers must comply with the requirements of EIA RS250C for short medium and long haul video transmission (as required).

Fibre Termination

The fibre truck is to terminate within the Victoria Police Station on Lewis Street. Cabling is to enter via the rear of the facility into the Sallyport. It is to be run along the internal wall at a 3m height in armoured cable and through to the Server Room. The Security Services Contractor will be responsible for all drilling, penetrations, patching and make good to retain the integrity (acoustic, fire, security, etc,) of the walls.

With the Server room, all fibres are to be terminated to two (2) 1RU, 48 port fibre patch panels. Patch panels are to comply with the following minimum:

- 19" rack mountable sliding tray design;
- Utilise slack fibre storage spools;
- Utilise self-sealing rubber grommets on all cable entries;
- Push lock panel connectors;
- Powder coated Steel construction;
- Provided with all cable management equipment.

Optical Fibre Testing

Testing is to be conducted via 100 % Insertion loss (light source and optical power meter) testing of all terminated fibres. All optical fibres will be tested from both ends with an Optical Time Domain Reflectometer (OTDR); the results will contain the following information:

- Absolute fibre length;
- Light loss associated with each fibre junction;
- A graphical representation of transmission characteristics across the full length of the fibre, generally known as the fibre signature;
- The Security Services Contractor is to provide a copy of all test results in hard copy and electronic format on disk. Test results will include;
- End-to-End identification;
- Wavelength used;
- Standards applicable to test;
- Test methodology;
- Date of test performed;
- Tester's name/s & certification / qualification;
- Test equipment specification, including: Manufacturer, Model, Serial number, Date of calibration and Standard used for calibration.

Optical fibre test results will be submitted to the Superintendent for approval and issued with the as-installed documentation 2 week prior to practical completion inspection. Test results will also be included with the As-Built documentation.

Coaxial Cable

All Closed Circuit Television (CCTV) video cabling will be RG-6/U quad-shield, Belden product or approved equivalent.

Patch cables within racks are to be RG59/U type single shield cable and stranded core for flexibility. Strain relief boots are to be fitted to each end. Patch cables are only to be used where RG-6/U cable is not practical.

Data (LAN)

The Contractor will obtain from the cable supplier a certificate of compliance with AS/ACIF S008 for the performance of the cable batch supplied. A copy is to be forwarded to the Superintendent before cabling works begin.

The cabling infrastructure is to be implemented in accordance with AS/NZS 3080, and according to the other requirements set out in this specification.

All equipment supplied, methods of installation, and standards of workmanship will comply with the technical specifications, procedures, practices and standards published or established by the local communications authority and/or any planning and installation guidelines published by the equipment and cabling system manufacturers.

Category 6 cable and connecting hardware will meet the requirements, as specified in EIA/TIA TSB-36 and EIA/TIA TSB-40.

Certification will be provided to demonstrate that the cabling system installed, meets the requirements of the cabling system manufacturer and the standards and references detailed herein.

Data (RS485)

Security backbone cabling (RS485) will be Belden 8723 with a 2.5mm Earth or security product manufacturer approved equivalent.

PROJECT REQUIREMENTS

Project Management

General

At the commencement of the Contract, appoint a suitably qualified project coordinator to coordinate and schedule the design, manufacture, delivery, installation and commissioning of the system.

It is expected that the project coordinator will have at least five (5) years experience in the fields of the services appropriate to the system to be used.

Provide details with the tender of the project coordinators qualifications and experience together with a resume of the project team that would work with the project coordinator for the duration of the Contract.

Once accepted, the project coordinator is not to be replaced unless approval is given.

Certificates of Compliance

At the time of Practical Completion, and as a condition thereof, provide Certificates of Compliance for all works carried out under this contract.

On completion of works, a certificate detailing the certification results will be provided to the Consulting Engineer and the installed system will be guaranteed to perform to the manufacturer's specifications. Detailed performance results will be included with the As-Built documentation.

Approvals and Submittals

Provide submittals with a unique consecutive number and date of submission.

No material, equipment or nominated items requiring approval is to be used until formal approval has been obtained.

Shop drawings

Provide shop drawings as follows:

- To scale (except schematics and the like);
- Bear a reference number, revision number and date; and
- Sufficient information by way of notes, location plans and legends.

Samples

Where required, provide samples as follows:

- Clearly labelled as to the intended application;
- Clearly labelled with the relevant specification clause to which they relate;
- Adequately packed; and
- Unless specifically stated to the contrary, samples may be subjected to destructive testing and might not be returned.

On Site Testing and Commissioning

General

Two (2) week prior to Practical Completion, the Security Services Contractor will submit for the Consulting Engineer's review and approval, a detailed programme for conducting on-site acceptance tests and commissioning.

The Security Services Contractor will create and document detailed test procedures that clearly indicates the functional tests applied for each piece of hardware and software. Each testing process and the criteria are to be detailed on a check list to allow for a systematic and structured approach.

The Security Services Contractor will start up, operate, test and adjust the systems in accordance with the approved programme. The Security Services Contractor will liaise with the relevant manufacturer (as required) to ensure the product meets with the manufacturer's requirements and the Specification.

The whole installation will be given the following test to bring the system into running order. The Consulting Engineer will be given reasonable notice together with a copy of complete recorded tests results, generally not less than seven (7) days, regarding the nature of tests, the time and location. The Consulting Engineer will only witness acceptance tests when the submitted test results are found satisfactory.

Provide sufficient competent personnel, equipment and necessary test instruments for the testing and commissioning of the installation.

Wiring Test

All security related wiring will be checked prior for loose connections, correct terminations and compliance with wiring diagrams. In addition, functional checks will be carried out to ensure that all interlocking (where applicable) and sequencing is in accordance with the performance requirements of the Specification. Any test jumpers will be removed at the end of the checking.

Hardware and Software Testing

All hardware will be tested to ensure it is fully functional. Software will be loaded and the computer, peripherals, communication cabling, etc… will be fully tested. Every piece of hardware will be tested thoroughly on all the functions it is to perform. Any defective hardware will be replaced, not repaired.

After all the hardware has been ascertained to be functional, the software packages to be provided will be loaded and tested. All the functions of the softwares will be tested. There will not be any "bugs" in the software. Two copies of the commissioned software on hard disc will be provided as backup in case the software is damaged.

Testing is to include but not be limited to:

- ***Testing of each individual signal utilising a Test Pattern Generator and oscilloscope to confirm conformance to manufacturer's specifications.***
- ***Cameras to be installed, focused and performance appraised.***
- ***Correct control and operation of cameras free from overrun or delay.***
- ***Correct operation of all controls and custom macros implemented on the GUI.***
- ***Performance of digital recorder quality. Provide sample images of each camera on CD to the Consulting Engineer for approval.***
- ***Verify correct operation of all features specified herein.***

Subjective Testing

Certain aspects of the system such as but not limited to camera image quality are to be assessed by the Consulting Engineer alongside the Security Services Contractor and the Superintendent. Results are to be to the Consulting Engineer's and Superintendent's

satisfaction. Any and all costs associated with the requested readjustment/re-alignment and focusing of cameras will be borne by the Security Services Contractor.

Commissioning

Carry out all commissioning procedures, testing, checking and adjustments to demonstrate the installed system complies with the Specification.

Acceptance of the system based on the commissioning tests will not absolve responsibility will any defects appear later, due to poor workmanship or faults in equipment supplied under this Contract.

Should any test fail, determine the cause of the failure, correct the fault and repeat the test.

Test and installation instruments

Supply all instruments and appliances necessary to complete the performance tests.

Ensure the manufacturer or any approved laboratory, prior to their use, checks all test instruments for accuracy.

Provide calibration certificates if requested.

Handing over

Prior to handing over of the installation, adopt the following procedures:

- Carry out all preliminary testing, checking and adjusting of the installation before forwarding notification that the installation is considered to have reached Practical Completion
- Provide installation manuals together with post contract drawings and documentation as specified.

Practical Completion will be certified only after the system has been inspected, tested, approved, all manuals and drawings have been received and approved and any other requirements fulfilled.

Clear and professionally sign written or printed labels will be provided on all equipment in equipment cabinets prior to Practical Completion.

Tidy up cabling and secure with wire ties.

Vacuum out all control panel cabinets and refit removed covers.

Check that spare parts have been supplied and are fitted in cabinets provided. Touch up cabinet scratches and polish off any dirty marks.

Check that all labelling has been provided

Hand over keys and any small items to Ballarat City Council.

Test and demonstrate operational readiness of all systems detailed in this Specification under witness by the Consulting Engineer prior to handover.

Instructing Ballarat City Council

The Security Services Contractor will, prior to the issue of the notice of completion, spend sufficient time with Ballarat City Council or their appointed representatives to show the location of all items, which require maintenance and/or adjustment during the life of the installation. The Security Services Contractor will also explain the operation of each item and system to Ballarat City Council and show where that item and system is referenced in the Operational and Maintenance manual.

Practical Completion & Sign Off

The Security Services Contractor will allow sufficient time for proving to the Consulting Engineer the operation and functionality of the complete security system.

The Consulting Engineer will not attend site for final commission and sign-off unless a request is received in writing and that all Inspection and Test Plans have been completed, submitted and approved.

The Consulting Engineer will attend site for the entire day for final acceptance testing and sign-off. If it is found that works are not 100% complete and fully tested and cannot be completed and tested on the day, the Security Services Contractor will pay all costs directly to the Consulting Engineer, for all additional visits to site.

Practical Completion is to the discretion of the Consulting Engineer and final payment will be withheld until works have reached Practical Completion.

The acceptance of this clause is mandatory for a compliant offer. Signing of a contract for these works will deem that the Security Services Contractor is in agreement with this clause.

Documentation

General

Provide a total of three (3) hard copies and one (1) disc copy of the security manuals as part of the scope of work. Manuals are to be provided within two (2) weeks of practical completion. Failure to do so will lead to Practical Completion being rescinded until such time as the manuals are received.

If the specification requires specific performance tests to be carried out during the defects liability period, the manual maybe accepted without the results of tests being included. Provide the results within one (1) week following completion of the testing.

Manuals will cover the following topics:

Table of Contents

Section 1	***Concise and clearly written directory outlining all sections contained within manual***
Section 2	***Emergency Service Contact Details***
Section 3	***System Overview broadly defining functional and technical purpose of system works***
Section 4	***Detailed System Description including:***
	• ***Listing of all installed components***
	• ***Construction Schedule of all installed components formatted under their related security sub-system***
Section 5	***Complete, up to date, set of Operation Manuals for all installed systems***
	• ***Simplified operating instructions of all main features of each system in use – 'cheat sheets'***
	• ***Technical Data Sheets for all system components installed and/or priced as individual items in works***
	• ***Operating handbooks for all system components installed and/or priced as individual items in works;***
	• ***Operator instruction manuals for the specific system components installed and/or priced as individual items in works***

Section 6 integration ***As-Built Drawings for each sub system and overall systems***

- ***"As Installed" drawings with a legend of symbols where applicable that include:***
    - ***Schematic wiring diagrams with correct circuit and termination identification;***
    - ***Final equipment layouts and locations;***
    - ***Details of electrical connections (circuit number, switchboard location, etc);***
    - ***All structural penetrations;***
    - ***Fabrication drawings of all non-standard equipment;***
    - ***Conduit runs;***
    - ***Cable tray, catenary wire and duct routes and details of installation; and***
    - ***Rack layout elevations.***

The cabling system shall be fully documented on a cable schedule which shall detail the device location, equipment connection details, any auxiliary cabling and field cabling including cable markings and cable type. The cable schedule shall be documented on an approved computer PC spreadsheet package. A completed "as built" hard copy of the cable schedule shall be provided at practical completion together with a diskette copy.

Section 7 ***Software Programmes and originals of all licenses.***

Section 8 ***Assets Register, in Excel format detailing at a minimum; item no., serial number, description, model, make, physical location, system associated with. Each individual component of a value over $100 is to be identified.***

Section 9 ***Commissioning details for <u>all</u> equipment, including:***

- ***Cable Test and Inspection Results. Presented in Excel format detailing at minimum; cable ID, cable type, cable pair, description, cable route, originating equipment, destination equipment, input number, all tests carried out, signed and dated.***
- ***Camera Test Schedules. Each camera must have the following data presented as a minimum; camera number, model, make, type, title on system, role, alarm associated with, attached image from camera showing current field of view, camera settings, lens attached, housing and mounting details, tests carried out, signed and dated.; For PTZ cameras, an image is to be attached for each preset programmed, detailing appropriate preset title, role, preset settings, etc…***
- ***CCTV Management PCs Test Schedules. Each PC associated with the CCTV Management System must have the following data presented as a minimum; Serial number, model, make, description, location, cameras connected, OS details, software details, hardware configuration and components, storage fitted, GUI settings and maps, network settings, all tests carried out, signed and dated.***
- ***Recording System Test Schedules. The recorder must have the following data presented as a minimum; Serial number, model, make, description, location, cameras connected, OS details, software details, hardware configuration and components, storage fitted, recording settings, network settings, all tests carried out, signed and dated.***
- ***UPS Test Schedules. Each UPS must have the following data presented as a minimum; Serial number, model, make, type, description, location, VA rating, attached batteries, backup time expected under existing load, equipment connected, all tests carried out, signed and dated.***
- ***Full networking diagram including schedule of all assigned IP addresses, internal and external.***

Section 11 ***Training Manuals (full syllabus) and Notes***

Section 12 ***Maintenance Documentation***

- ***Manufacture's literature, diagrams, illustrations, drawings and instructions to cover every action necessary for the efficient maintenance of the installation;***
- ***Routine maintenance schedule detailing period of maintenance and activities undertaken for all equipment.***
- ***Test reports covering works tested, site tests and commissioning;***
- ***Details of all warranties for equipment supplied;***

Manuals to be presented in hardcopy format, correctly indexed.

Presentation

The manuals are to contain only information directly relevant to the project. General brochures and descriptive literature not totally applicable to the works under the project are not to be included. Where literature contains reference to alternative models and options on equipment not supplied under the contract, delete such references or marked "NOT APPLICABLE".

Manufacturer's literature will be assessed on its suitability of purpose, and reproduction. If it is considered to be unsuited to its purpose, it will be substituted with written text. If considered to be unsuitable for copying or if illegible copies are included in final draft, then original literature must be included to identify clearly particular items incorporated in the work. Text to be factual and written in clear, concise English language, easily understood by tradesmen, who may not be familiar with the equipment.

Be consistent throughout with equipment and component designations and other identifying references, including text, drawings and components schedules and actual equipment. Be consistent with component designations with those included in this specification.

Data which is provided by others shall be collated and included in the manual so that the manual forms an integrated whole.

Submit a draft of the proposed manuals for assessment not less than two weeks (2) prior to the date of practical completion. A further draft copy of each manual may need to be submitted for approval prior to final printing. The completed manuals are to be compiled and supplied no later than the practical completion date of the work.

Present the manuals as follows:

- International A4 size, with stiff plastic covers and be black in colour;
- Face cover, spine and cover sheet shall bear wording as directed and approved;
- The binding shall be of loose leaf type with all pages machine punched and shall permit pages to lie flat and enable easy insertion and removal of pages;
- A minimum of 3 rings to be used;
- Good quality, durable printing paper shall be used for text, printed on one side only;
- Drawings, illustrations, diagrams and photographs to be sheets of a height not exceeding the major dimension of other pages;
- Drawings shall be folded type, with no part of the drawing obscured by preceding pages. Drawings shall be folded in their length to fit covers and put into plastic inserts to enable easy removal;
- Each section to be started on a new page, separated from other sections by a stiff indented divider; and
- Each paragraph to be numbered or otherwise identified, for quick and easy reference.

Training

General

Provide the following training courses in the correct use, operation and maintenance of the system:

- User training;
- Operator training;
- Technical training.

Provide all instructions and full support resources including course outlines, training materials, and instruction notes. Provide all necessary test equipment and incidental materials necessary to conduct the training and any other item or activity required to properly train the end-users' personnel.

User Training

Provide User level training to all personnel, in use of the new systems that includes the following minimum:

- Short training sessions on the main features of each system;
- Issue of a System User Guide in the form of succinct single A4 pages for each System to each attendee; and
- Schedule enough sessions to train the users.

Operator Training

Provide operator level training for up to four (4) staff (as nominated by Ballarat City Council). These people will be responsible to train new staff. Operator level training will enable them to be fully familiar with the systems and include the following minimum:

- Cater for operators of different skill and authority levels;
- Conducted on site on a fully complete and configured system;
- Enables operators to become fully familiar with all aspects of the operation of the system;
- Be structured to provide operators with sufficient proficiency to perform their duties efficiently;
- Provide an introduction to the system in the context of the site and formal instruction detailing system operation and applicable procedures relevant to the site;
- Focus on general operational techniques, control functions, including programming functions, menu functions and basic fault finding techniques;
- Provide charts and diagrams to explain principles; and
- Schedule enough sessions to cover all operators.
- Provide a full set of typed reference notes for each attendee at the commencement of the course.
- Provide a draft syllabus of the content of the operator level training course together with a course schedule of times, dates and venues for review and approval prior to conducting the training course.

Technical Training

Provide extended Technical training for up to two (2) key staff (as nominated by Ballarat City Council) to enable them to become fully familiar with all aspects of the technical operation and maintenance of the system including the following minimum:

- It is a pre-requisite that attendees have already attended the Operator level training course;
- Operation of all user accessible features;
- Elementary fault determination, diagnostic, reporting and recovery procedures;
- System management procedures;
- Overall principles of operation of the system with specific emphasis on the installed system;
- Data base structure and system configuration;
- System operation including report generation; and
- Provide charts and diagrams to explain principles.

The Technical level training may be conducted offsite in a laboratory or workshop environment if suitable.

Provide a full set of typed reference notes for each attendee at the commencement of the course.

Provide a draft syllabus of the content of the Technical level training course together with a course schedule of time, date and venue for review and approval prior to conducting the training course.

Defects Liability

A Defects Liability period of thirty-six (36) calendar months from the date of Practical Completion will apply.

This clause applies irrespective of the fact that such part or parts may have been previously accepted.

During the Defects Liability period:

- Replace or make good any part or parts which may prove faulty in design, workmanship or material;
- Renew or modify any items of equipment and/or group of items and/or complete system that do not comply with the operating conditions and performance specified during the period of 36 months after the date of "Practical Completion";
- Include for all labour and all incidental costs for the removal and replacement of defective parts or components;
- Perform the required works as instructed in accordance with the timeframes stated below; and
- Tested all replaced items and show that the system operates as designed.

Failure to rectify defects found during the Defect Liability period will result in Ballarat City Council engaging others to finish the required works. The costs of these works will be deducted from payments owing or billed.

Maintenance services

The maintenance scope of works for this project will be above the standard level of preventative maintenance detailed under Australian Standards. During the defects liability period, the Security Services Contractor will be required to provide:

- Routine maintenance of the entire installation (including all peripheral equipment);
- Reporting;
- Callout servicing requirements.

The Maintenance scope shall comply with the following requirements:

- Maintenance shall be between Ballarat City Coucnil and the Security Services Contractor.
- Maintenance shall occur as detailed in Table 1 and cover the entire system including all components listed within this specification, including wiring.
- The contract will be for a period of 1 year. At the end of this period, the option will be open to the Principal to extend the contract for a period of 1, 3 and 5 years.
- The contract will be invoiced at a fixed monthly sum, payable at the end of the month.
- Maintenance may be terminated prior to the expiry date by the Principal or the Security Services Contractor by giving 30 days notice, in the event of poor Contractor performance or unauthorised modifications to the System by persons other than those of the Security Services Contractor.

Routine Maintenance

The maintenance program shall consist of regular checks and servicing of all parts and labour in accordance with the schedule shown at Table 1. The tests, inspections and maintenance shall be carried out regardless of any previous fault reports or service calls.

The Scope of Services will include, but not be limited to:

- ***Regularly programmed maintenance on all electronic security systems and equipment described in this document;***
- ***Procedures associated with site attendance, tests and maintenance;***
- ***Provision of labour for fault call outs and response times, including any remedial works that may be requested by Ballarat City Council, from time to time;***
- ***Provision of report forms, asset registers, drawings, works completed and the continued updating and maintenance of a document library relating to Public Place CCTV system;.***
- ***Project/System Upgrades and Unique Requests.***

Table 1 - Maintenance Regime

System	Monthly	Quarterly	Half Yearly	Annually
Clean all camera housings (inside and out) to maintain clear and concise vision.	X			
Verify that all video signals received at the Server Room are free from any interference.	X			
Verify image received from each camera is being recorded, interference free, on the DVR system.	X			
Verify fibre optic connectivity;	X			
Test and verify the recording system operation and picture quality of the recorded images.	X			
Ensure all Control Room and remote site equipment is free of dust and other contaminants.		X		
Verify all cable terminations are secure and free from corrosion and rectify as required,		X		
Servicing of lens apparatus on all cameras;		X		
Adjust/calibrate monitors as required within the Control Room;		X		
Test and calibrate all cameras including but not limited to Wide Dynamic Range (WDR), Back Light Compensation (BLC), Auto Gain Control (AGC), all dome camera presets and Pan, Tilt, Zoom (PTZ) control.		X		
Verify UPS system support time and confirm that it is functioning as per manufacturers specification (i.e. check and			X	

System	Monthly	Quarterly	Half Yearly	Annually
record current; volt and general system diagnostic information).				
Perform a fibre optic integrity check (ODTR).				X

Prior to works, the Security Service Contractor will

- ***Submit a traffic management plan for the delivery of all services such as cleaning, maintenance and remedial works carried out on the equipment;***
- ***Apply for all permits or associated documents prior to the works commencing to the appropriate authoritative body or corporation.***

Reporting

The Security Services Contractor shall report (verbally or physically) to Ballarat City Council's nominated representative 72 hours prior to the commencement of any scheduled works and at the completion of works associated with this Contract. The Contractor must record the result of each service visit in an on-site logbook which will be kept by Ballarat City Council at a nominated location.

The Service Provider must record the results of each service visit. Included in the recorded results must be comments including, site, date/time attended, work carried out, additional components used, additional items requiring corrective action and, name of the service technician in attendance.

The Service Provider is to:

- ***Promptly respond to technical queries, both verbal and written;***
- ***Make recommendations on system or equipment enhancements;***
- ***Maintain asset registers, cable diagrams, system schematics and all other information relevant to each site;***
- ***Advise on the latest technology that may enhance the operation of the system;***
- ***Provide a status report of complete system conditions bi-annually;***
- ***Provide quarterly written reports on progress, quality, cost and time and any issues that have arisen in the past reporting period.***

Callout Servicing Requirements

A call-out service to address reported faults/problems is to be provided as part of the maintenance program. The Call-out service is to be provided on a 24 hour per day, 365 day per year basis for Critical and Mission Critical faults. The call-out service is to include a telephone answering service.

The defects liability period will cover all time and materials as per standard contract. Callouts for the rectification of failed equipment will meet the times specified.

The Service provider is to respond to call outs within the specified maximum response times following notification as follows:

- ***Non-Critical***
    - Telephone response by the service technician with 15 minutes (during business hours) and 30 minutes (after hours).

- Attendance onsite within 8 hours (during business hours). Fault calls reported overnight or after hours, are to be attended to during normal working hours the following day, but within the specified response time (attendance) from commencement of the next working day.
- Rectify non-critical faults within two (2) working days following notification.

- ***Critical***
  - Telephone response by the service technician with 15 minutes (during business hours) and 30 minutes (after hours).
  - Attendance on site within four (4) hours and rectification of critical faults as determined by Ballarat City Council within four (4) hours of attending site.
- ***Mission Critical***
  - Telephone response by the service technician with 15 minutes (during business hours) and 30 minutes (after hours).
  - Attendance on site within one (2) hour and rectification of critical faults as determined by Ballarat City Council within four (4) hours of attending site.
  - Record the result of each call out in the on-site logbook. Include comments on the functioning of the system, work carried out, items requiring corrective action, adjustments made, name of service technician. Obtain the signature of Ballarat City Council's nominated representative at the completion of works.

Faults will be classified in accordance with Table 2.

TABLE 2 – CRITICALITY

Component	Non-Critical	Critical	Mission Critical
CCTV cameras		X	
Fibre system		X	
All equipment associated with the operation of the Control room including all secondary equipment necessary for the continuity effective functionality of the Public Place CCTV programme.			X

Callouts deemed not to be the result of a failure of components in line with the defects liability clause shall be charged in accordance with the agreed hourly rate provided as part of the tender.

Fault calls and reports shall be instigated by Ballarat City Council's nominated representative only. The Security Services Contractor is not to respond to the request of other City's official unless instructed by the City's nominated representative.

Maintenance may be terminated prior to the expiry date by Ballarat City Council by giving 30 days notice, in the event of poor Contractor performance or unauthorised modifications to the System by persons other than those of the Contractor.

At the completion of the defects liability period, Ballarat City Council will renegotiate the terms of the maintenance regime. Ballarat City Council is in no way obliged to continue to use the Security Services Contractor's services after the completion of the defects liability period.

Spare Parts

All specified system components are to be readily maintainable for a minimum period of five (5) years following expiry of the defects liability period. All software upgrades during this period will be available to Ballarat City Council for examination and purchase if deemed appropriate.

Consumables

Provide listing of all consumable items and their associated replacement cost (e.g. printer cartridges).

S4 ADDITIONAL CLAUSES

1. CONFIDENTIALITY, SECURITY AND PRIVACY

The Contractor must, in respect of Personal Information held in connection with this Contract must:

(a) The Contractor, under the conditions forming part of the Tender, has consented to the Council **publishing** ***(on the internet or otherwise) the name of the Contractor and the contract value together with the conditions of this Agreement generally. Subject to this right of publication the Council will treat as confidential all information provided to it in the Tender.***

(b) All Information provided to the Contractor by or on behalf of the Council under this Agreement or a Purchase Order Contract shall be treated as confidential by the Contractor. (In this clause 24 such Information is referred to as "Confidential Information").

(c) The Contractor agrees that the Contractor or its employees, agents, directors, partners, shareholders or consultants shall not disclose to any person, any Confidential Information or Information relating to the Council or the affairs of others which may have come to its or their knowledge as a result of this Agreement or a Purchase Order Contract.

(d) All Confidential Information shall remain the property of the Council and (where possible) shall be returned by the Contractor to the Council on completion of this Agreement or the Purchase Order Contract.

(e) The Contractor shall require all of the Contractor's Staff, or any other person to whom Confidential Information shall be disclosed, to execute a Deed of Confidentiality in or to the form of Schedule YY at the cost of the Contractor. Such Deeds of Confidentiality shall be made available to the Council at the request of the Council's Representative or other authorised representative of the Council.

(f) The Confidential Information supplied to the Contractor pursuant to this Agreement or the Purchase Order Contract shall be used only as directed by the Council and shall not be reproduced or used for any purpose other than pursuant to this Agreement or that Purchase Order Contract.

(g) The Contractor shall not divulge any Information regarding the nature or progress of the Services or give any publicity concerning the Services except with prior written consent of the Council's Representative.

(h) The Contractor's obligations under this clause shall not extend to:

i) Information already in the public domain other than due to a breach of this Agreement by the Contractor;
ii) Any disclosure required by law.

(i) The Contractor acknowledges that the Council shall be entitled (in addition to any entitlement to damages) to an injunction or other equitable relief with respect to any actual or threatened breach by the Contractor of this clause 24 and without the need on the part of the Council to prove any special damage.

(j) The Contractor shall be bound by the Information Privacy Principles of the *Victorian Information Privacy Act 2000* and or the Health Privacy Principles of the *Victorian Health Records Act 2001* and any applicable Code of Practice with respect to any act done or practice engaged in by the Contractor for the purposes of this Agreement or a Purchase Order Contract in the same way and to the same extent as the State, the Council or a Purchaser would have been bound by the Information Privacy Principles and or Health Privacy Principles and any applicable Code of Practice in respect of that act or practice had it been directly done or engaged in by the State, the Council or that Purchaser.

- *RECORDKEEPING*

The Contractor shall:

(a) Maintain a full and accurate record of the business conducted under the contract.

(b) Manage the information in (a) in accordance with the standards and associated specifications of Public Record Office Victoria (including current, reissued, amended and new standards), as though the Contractor were a public office (see www.prov.vic.gov.au for copies of these documents).

(c) Manage the information in (a) in accordance with the requirements of the office, including the management of information;

i) legislative and regulatory compliance;

ii) storage, maintenance and retention of records;

iii) preservation of electronic records;

iv) access to records;

v) security of records;

vi) transfer of records to the office.

(d) Maintain a register of and index to information in (a), and provide this to the office at the request of a representative of the office.

(e) Retain the information in (1) for the period described in the following Retention and Disposal Authorities and agree to consult with the office's representative regarding any records not covered to agree on a disposal schedule. Please contact the Records Department for a list of all documents covered under the disposal schedule.

(f) Provide access to the records and copies of information to the office's representative on request for as long as the information is required to be in existence.

(g) Provide information regarding the context of the creation of the records and the system of retention as is required for the purposes of storage and retrieval of records.

(h) Maintain the information in (a) in formats that support its preservation and accessibility.

(i) Transfer all records to the agency in (a), including physical and digital objects, in accordance with acceptable formats either during or at the conclusion of the contract:

25.1 Legal and Beneficial Ownership

The State retains both legal and beneficial ownership of records and information created in the course of business conducted under the contract.

25.2 Loan of Records to Contractor

Any records are loaned to the Contractor in accordance with PROV standards and guidelines issued by the Keeper of Public Records under the Public Records Act 1973. These records are to be retained in the custody of the Contractor until the end of contract or until they are no longer required, under arrangements for their management which meet all the conditions of PROV standards and the requirements of the office. These records remain the property of the State and custody will be returned to the State on request or by the end of contract, whichever is earlier.

25.3 Ownership of Intellectual Property

The ownership of all Intellectual Property in all information created as a result of the supply of goods or the provision of services under this Agreement shall vest in the State. The Contractor hereby assigns ownership of all Intellectual Property rights in such information to the State and will ensure that its employees, subcontractors and agents execute all documents necessary to assign to the State all such rights.