

**APPENDIX A- TENDER SPECIFICATION FOR THE REPLACEMENT AND UPGRADE**

**OF CCTV CAMERAS, TRANSMISSION, CONTROL ROOM EQUIPMENT**

**AND MAINTENANCE CONTRACT**

**Version 1.2 November 2019**

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**Glossary and Definitions**

|  |  |
| --- | --- |
| **Term** | **Meaning / Definition** |
| **A & S** | Avon & Somerset Constabulary |
| **CCTV** | Closed Circuit Television |
| **CD-ROM** | Compact Disc - Read Only Memory |
| **CoP** | Code of Practice |
| **CR** | Control Room |
| **DVD** | Digital Versatile Disc |
| **DVR** | Digital Video Recorder |
| **ESN** | Emergency Services Network |
| **FPS** | Frames Per Second |
| **FTTC** | Fibre to the Cabinet |
| **GDPR** | General Data Protection Regulation |
| **GIF** | Graphics Interchange Format (an encoding format for graphical images) |
| **GUI** | Graphical User Interface |
| **HD** | High Definition |
| **ICCS** | Integrated Communications Control System |
| **ICT** | Information and Communications Technology |
| **IP** | Internet Protocol |
| **IT** | Information Technology |
| **JPEG** | Joint Photographic Expert Group (an encoding format for graphical images) |
| **LAN** | Local Area Network |
| **M & E** | Mechanical & Electrical |
| **MCSP** | Multi-storey Car Park |
| **MJPEG** | Video Compression Format |
| **MPEG** | Moving Pictures Experts Group |
| **MSC** | Global MSC Security |
| **MoU** | Memorandum of Understanding |
| **NACOSS** | National Approval Council for Security Systems |
| **NSC** | North Somerset Council |
| **NSI** | National Security Inspectorate |
| **NVR** | Network Video Recorder |
| **O&M** | Operation and Maintenance |
| **ONVIF** | Open Network Video Interface Forum |
| **PDF** | Portable Document Format (a common encoding format for documents) |
| **PSS** | Public Space Surveillance |
| **PTZ** | Pan/Tilt/Zoom |
| **QoS** | Quality of Service (for IP data transmission) |
| **SCC** | Surveillance Camera Commissioner |
| **SLA** | Service Level Agreement |
| **UPS** | Uninterruptable Power Supply |
| **VDA** | Video Distribution Amplifier |
| **VMS** | Video Management System |
| **VSS** | Video Surveillance System |
| **WAN** | Wide Area Network |
| **WSM** | Weston-Super-Mare |

# Introduction

North Somerset Council’s (NSC) Public Space Surveillance System (PSS) has been in place for over 20 years and technological advances have highlighted the need to modernise and update it, to take advantage of new technology.

The current system’s transmission method is predominantly BT Fibre Optic cabling, which, comparatively, is costly and inflexible. Utilising wireless options significantly reduces running costs and makes the use of re-deployable CCTV cameras quicker and more practical whilst also providing the benefit of clearer images, more fit for evidential purposes and detection.

The Council require a full upgrade of the current system, which will see a digital wireless network installed in some areas (Portishead, Nailsea & Clevedon), HD IP cameras across the whole district and a video management system (VMS) installed. The management and installation of the of the upgrade will be carried out by the Contractor in addition to the supply of hardware and software. The upgrade will provide a high-quality offering as well as value for money against current spend. North Somerset Council and the Town Councils (Weston-super-Mare, Clevedon, Nailsea and Portishead) plan to work with the Contractor, post-award, to create a bespoke solution for North Somerset Council and the accompanying Town Councils, this could look as different or similar to the current set up as all see fit.

## Requirements

NSC is inviting tenders from suitably qualified and experienced organisations for the design, supply, installation, commissioning and maintenance for the Public Space Surveillance (PSS) CCTV camera system with a partial new wireless transmission medium to be monitored from the existing PSS Control Room, at the North Somerset Council offices, Walliscote Grove Road, Weston-Super-Mare BS23 1UJ.

The Contract will also provide for the provision of Small Works and the maintenance of the existing and upgraded CCTV systems for a term of three years by the Contractor.

Contractors should note that consideration will be given to the financial and technical aspects of the proposed CCTV system and the latest techniques, technical innovations and added value proposals will be measured on a cost-effective basis.

Where no description, method of operation or installation has been specified, the Contractor shall give a detailed description of his Tender.

To allow for testing to take place the Contractor must give 2 weeks of notice to the Council and the CCTV Manager that the system can be tested to allow testing to be scheduled.

## Definitions

For avoidance of doubt, the following definitions will apply: -

Consultant The specialist advisor employed by NSC and acting on their behalf

Manager The NSC Control Room Manager

## Overview

The North Somerset Council wishes to upgrade its PSS CCTV/Video Surveillance Systems and operational Control Room, to enable via the new VMS, to provide and connect several existing town centre and car park CCTV systems in order to deliver the following objectives: -

* + Reduce the revenue costs from the third-party analogue fibre optic cabling provision
  + Migrate the transmission system from analogue to IP
  + Deliver a lower running cost for cameras and Control Room maintenance by way of new re-locatable equipment (using wireless) and longer manufacturer warranties
  + Deliver high quality HD images
  + Interface with re-deployable CCTV cameras
  + Interface to IP analytical systems and advancing technologies to maximise value and ease workloads on reviewers
  + Allow monitoring of 3rd party CCTV systems (both analogue and digital)
  + Enable Avon & Somerset Constabulary, where authorised, to access and view live and recorded

cameras remotely from agreed locations subject to a signed MoU/SLA

* + Provide a CCTV system, which is compliant with the requirements of the Surveillance Camera Commissioner’s Code of Practice and related legislation
  + Provide safeguards to ensure compliance with the GDPR legislation
  + Provide a three-year PPM maintenance solution
* Refresh the existing CR at Walliscote Grove Road with new VMS, video wall drivers and screens and digital recording platforms with ones that will: -
  + Deliver high definition image quality
  + Deliver enhanced operator performance
  + Provide a CCTV system to deliver the Council’s objectives to deter, detect and reduce the fear of crime, to improve public protection, to apprehend and prosecute offenders and enhance the environment

The site locations are: -

|  |  |  |
| --- | --- | --- |
| **Location** | **Address** | **Post Code** |
| CCTV Control & Equipment Rooms | North Somerset Council offices, Walliscote Grove Road, Weston-Super-Mare | BS23 1UJ |
| CCTV Cameras | Various locations throughout the North Somerset area | Various |
|  |

# The Site Locations

The services are to be carried out at the following sites within the North Somerset Council:

1. NSC Control Room and Civic Offices, Walliscote Grove Road, Weston-Super-Mare BS23 1UJ
2. Carlton Street, MSCP, Weston-Super-Mare BS23 1UJ
3. The Campus, Highlands Lane, Weston-Super-Mare, BS24 7DX
4. CCTV Camera locations across NSC
5. Clevedon
6. Nailsea
7. Portishead
8. Weston-super-Mare

# The Project Plan

The Contractor will be required to include as part of their submission a detailed Project Plan.

The following tasks, not limited to or in any order, are the anticipated project steps and tasks required and must be included in the plan: -

|  |  |
| --- | --- |
| **Task Description** | **Notes** |
| Lamp posts are approved for wireless network |  |
| Lamp posts supplies installed |  |
| Installation of the Complete Wireless Network |  |
| Wireless Site Acceptance Test | If required |
| Installation of the new VMS recording platform in the Control Room |  |
| Refurbish the Control Room desks and install new video wall supports in the Control Room | How the fit out of the existing Control Room is to be carried out to minimise disruption to normal operations is to be finalised. This will be discussed in detail when the project is awarded |
| Installation of the Control Room Video Wall |  |
| Installation of the car park recording platforms |  |
| Installation of the Gateway recording platforms |  |
| Installation of the new PSS cameras and recorders in the remote towns | How the migration of the existing cameras is to be carried out to minimise disruption to normal operations is to be finalised. This will be discussed in detail when the project is awarded |
| Installation of the new PSS cameras in WSM | How the migration of the existing cameras is to be carried out to minimise disruption to normal operations is to be finalised. This will be discussed in detail when the project is awarded |
| Final System Commissioning |  |
| Witness Testing / Site Acceptance Testing |  |

The Contractor is to provide a detailed project plan as part of their return documentation that outlines the timescales and any dependencies on the tasks as defined in this section. The project plan should contain any other tasks or dependencies the Contractor believes is relevant to the overall successful delivery of the project.

The project plan should be based on the CCTV Invitation to Tender Volume 1.

The project plan should include any downtime the Contractor would require completing the refurbishment of the Control Room as well as downtime for individual cameras.

Along with the project plan the Contractor is to supply, as part of their return documentation, an explanation of their preferred methodology for the project, this must not exceed 3000 words.

# Site Visit

Contractors are invited to attend a site visit. The response and site visit dates will be in the CCTV Invitation to Tender Volume 1.

The site visit days will allow the Contractors to visit the Control and Equipment Rooms.

# Existing CCTV Systems

This section documents the existing NSC Public Space and Car Park CCTV systems and is provided for information only. Contractors must make their own investigations into the existing equipment and the nature and extent of the work required and confirm details for themselves.

## PSS Settings Report and car park Camera Dilapidation Survey

The Contractor is to undertake a report of the existing PSS, car park and Gateway camera settings and a dilapidation survey of the cameras to ensure all issues that affect the operation of the CCTV systems that are to be worked on, have been identified and recorded.

The settings report should include the following as a minimum for the PSS cameras as they are all to be replaced so any camera issues that exist are recorded, unless they are environmental that would also affect the replacement camera as well as the existing camera: -

* Privacy masks
* PTZ tours
* Pre-sets
* Screen shot at night (Several views for a PTZ camera)
* Screen shot during daylight hours (Several views for a PTZ camera)

The dilapidation report must include the following as a minimum for the cameras as several cameras are faulty and to be replaced as part of this project: -

* Any issues that affect a cameras performance
* Privacy masks
* PTZ tours
* Pre-sets
* Screen shot at night (Several views for a PTZ camera)
* Screen shot during daylight hours (Several views for a PTZ camera)

Appendix E-Camera Locations contains the types and locations of the NSC cameras. If any new issues are discovered, they are to be noted by the Contractor and reported to the Employer for witnessing.

Should the Contractor fail to produce a dilapidation report, the CCTV Manager may add defects to the project-snagging list with regards to the cameras and the Contractor will agree to resolve these defects to ensure the equipment is operational as intended as part of this project.

* 1. **Control Room**

The NSC Control Room is based at the Council Offices, Walliscote Grove Road Facility. The Control Room is to remain in the same location. All the existing and new camera video images are ultimately to be transmitted to this location.

* 1. **Equipment Rooms**

There is one equipment room at the rear of the Control Room. This room is accessed via two doors from this room. This equipment room holds all the associated equipment for the CCTV system. It comprises of four equipment racks containing the DVR’s and BT switch gear. It is likely this footprint can be reduced to a maximum of two equipment racks once the installation is completed.

* 1. **Camera Schedule**

**Appendix E- Camera locations** provides a list of all the known NSC PSS and Carlton Road car park and Gateway cameras. It will be the responsibility of the Contractor to make enquiries to ensure the accuracy of this information.

* 1. **Current NSC Public Space CCTV Systems**

The existing PSS CCTV system comprises of the following: -

* + 1. **PTZ Cameras**

Existing PTZ CCTV cameras are a mixture of manufacturers but are mostly ruggedised dome type cameras manufactured by Bosch or 360Vision analogue camera. There are also 5 HIKVision HD IP cameras in and around WSM which are to be retained. Many of these cameras are mounted on six (6) meter Altron columns although there are some that are wall mounted.

* + 1. **Transmission**

Most cameras around WSM are connected to the Control Room via self-provide fibre optic cabling or wireless. The outlying towns of Clevedon, Nailsea and Portishead are using numerous point-to-point BT RS1000 circuits.

* + 1. **Matrix**

Cameras are wired into a Molynx analogue matrix, which has several matrix keyboards connected that are located on the Control Room operator desks. The matrix is no longer supported, and it is therefore essential any work undertaken with the matrix is carefully planned and approved, as any damage to the matrix will cause the loss of the Control Room operations. The Contractor will be required to state in their methodology their experience with similar matrices and how they intend to plan for any work associated with this matrix.

* + 2. **Operator Desks**

There are two (2) CCTV operator desks/consoles. These desks contain the following:

* Left Hand Screen – Personal Computer for email and internet access
* Middle Left Screen – Live Analogue Spot monitor
* Middle Right Screen – Live Analogue Spot Monitor
* Right Hand Screen – additional PC viewing car park cameras
* Centre – Shared screen SafetyNet Radio system
* Keyboard and mouse for Personal Computer
* Molynx CCTV Analogue Joystick Keyboard
* IP Camera Keyboard
* Two Telephones
* Police Airwave Radio
* PMR Radio Speakers
  + 1. **Video Wall**

The Video Wall comprises of a mixture of different sized flat screen monitors.

The Video wall images are controlled via the Molynx Matrix. Each of the video wall images is fed from the Molynx Matrix as a screen output to a series of rack mounted screen splitters and quad units. These rack-mounted units are in a small 19” rack in the main equipment room directly behind the operators. Each splitter/quad unit is connected directly to one of the video wall monitors and is used to convert the analogue CCTV images into a display on the video wall monitor as required.

* + 1. **Digital Recording**

The PSS and IP cameras are recorded onto a mixture of Bosch Divar, Dalmeier and HIKVision Network Video Recorders that are in the same equipment room.

* + 1. **Radios**

There are radio systems in use on the operator desks.

* + 1. **Avon & Somerset Constabulary Screen Viewing**

The operators at the Control Room can select a monitor output that is connected to Avon & Somerset Constabulary (A & S) police HQ at Portishead. The images sent to the police are duplicates of those displayed on the respective screens in the Control Room. The police can only view images; they are unable to control the movement of the cameras.

## Current Carlton Street Car Park CCTV System

* + 1. **Cameras**

The existing analogue FV CCTV cameras are mostly of the dome type Concept Pro manufactured by Videcon. Most of these cameras are fitted to the ceiling although there are some that are wall mounted.

These 30 cameras are recorded onto Concept Pro and HIKVision digital Video recorders in the rack in the car park supervisor’s office.

The recorders are currently connected to the Control Room for viewing on separate screens to the video wall.

## Current Gateway Civic Offices CCTV System

* + 1. **Cameras**

The existing analogue PTZ and FV CCTV cameras are mostly of the dome type Concept Pro manufactured by Videcon. Most of these cameras are fitted to the ceiling although there are some that are wall mounted.

These 30 cameras are currently recording locally within the Gateway complex. The will be integrated into the CCTV Control room’s recording system.

The recorders are currently connected to the Control Room for viewing on separate screens from the video wall.

# System Requirements – Control Room Equipment

This section sets out the requirements for the system.

* 1. **NSC Control Room**
     1. **Location**

The NSC Control Room is based at the Council Offices, Walliscote Grove Road and is to remain in the same location. All the camera video images are to be transmitted to this location.

* + 1. **Fit Out**

NSC will be responsible for redecorating, carpet/flooring replacement and any other necessary works other than specified. The Contractor is to modify and refurbish the existing desk consoles and supply a new video wall. Where it is not practical to modify or refurbish existing consoles or it will not be cost effective, replacement units should be considered.

* + 1. **Video Wall**

The new main video wall is to support eight (8) new 55” HD monitors. All monitors supplied by the Contractor are to be rated for continuous use.

The video wall controllers are to be rack mounted in the equipment room. The video wall controllers are to be connected to the video wall display screens by high quality display cables which should not produce any ‘noise’ that can be visible on any of the display screens. The Contractor can use HDMI extenders from the video wall controllers to the video walls screens if they prefer.

Both video walls are to support integrated cable management and allow the tilting of individual monitors for ergonomic viewing of the screens from the Control Room desks.

Any connected PSS, Gateway or car park camera is to be capable of being displayed on any video wall screen. The final angles of the video wall monitors are to be agreed with the Council’s CCTV Manager.

* + 1. **Desks/Consoles**

The existing consoles will be retained. The front desk will accommodate two (2) operator positions. The rear desk (used for Carelink) will not be equipped with any CCTV equipment. If refurbishment and retention of the current desk/consuls is not deemed practical or cost-effective, replacement units should be considered.

The main desk has two (2) CCTV operator positions, each of the positions is to have four (4) new 24” HD monitors. Each of the operator positions is to contain the following: -

* Left Hand Screen
  + (Existing) Personal Computer for email and internet access
* Middle Left Screen
  + VMS Software
  + Must show the primary VMS display with Map Selection, Camera Selection, Alarm Stack and playback of recorded CCTV Images
* Middle Right Screen
  + VMS Software
  + Must be able to replay all camera images from the CCTV System as per the display requirements in this specification; it should also be able to act as a spot monitor.
* Right Hand Screen
  + (Existing) Personal Computer for email and internet access supplied by NSC
* Middle (shared) Screen
  + (Existing) Radio Despatch System
* Keyboard and mouse for Personal Computer
* Keyboard and mouse for VMS
* CCTV Joystick Keyboard
* Two (2) (Existing) Telephones
* (Existing) Police Radio
* (Existing) PMR Radio Speakers

All monitors supplied by the Contractor are to be rated for continuous use.

* + - 1. **Aspect Ratio**

As the existing analogue cameras produce a 4:3 aspect ratio and all the new cameras are to be HD which has a 16:9 aspect ratio it is understood there will be a black line down each side of the monitor screen when viewing a 4:3 camera on an HD monitor similar those required in the Control Room.

* + 1. **Control Room Internal Cameras**

The Contractor must install two (2) new static IP cameras at all the entrances to the Control Room to record visitor activity to replace existing analogue cameras.

These new cameras are to be recorded on the new VMS. The live views and recordings must be available to the operators, so they can view a person requiring access into the Control Room. The IP cameras are to reside on the security IP network and be connected to the network switch in the equipment room.

The Contractor is to provide all necessary cabling and containment to support these new cameras.

The cameras are as follows: -

|  |  |  |
| --- | --- | --- |
| **Location** | **Infrared** | **Objective** |
| External, to the entrance door to the Council building | Yes | IDENTIFICATION of a person at the external door |
| Internal, outside the main CR door | No | IDENTIFICATION of a person within the entrance lobby |

* + 1. **Control Room Clock**

A new Control Room clock is to be provided. The clock is to be installed within the Control Room in a position as agreed by the CCTV Manager once the Control Room upgrade works have been completed. Ideally the clock will be installed above the video wall.

The Control Room clock is to be synchronised hourly, to the Wharton time clock (or similar) to ensure the time is accurate across all parts of the VMS system.

* + 1. **Avon & Somerset Constabulary Screen Viewing**

The existing facility for the A & S to obtain the live images from the operator positions is to be retained.

* + 1. **Radios**

The existing radios are to be retained and reinstated onto the new Control Room desks.

* + 1. **Flood Warning System**

The existing analogue flood warning system controlling the state (open/closed) of the tidal gates is to be retained and upgraded to enable it to interface into the VMS/GUI and provide a visual alarm that requires operator reaction to carry out the necessary operation.

* + 1. **Telephones**

The existing telephones are to be retained and reinstated onto the Control Room consoles.

* + 1. **Network Switches**

All network switches that are required to support the Control Room equipment are to be in the racks in the equipment room. No network equipment must be installed within the Control Room.

* + 1. **Personal Computers**

All Personal Computers (PC’s) for the Control Room are to be installed in the side cupboard of the consoles, providing there is suitable ventilation, or in the equipment room. The PC’s are not to be visible in the Control Room or provide high noise fans levels that can disturb Control Room operations.

* 1. **Review Suite**

The review suite is to retain its one (1) desk, which is to have two (2) new 24” HD monitors. This review position is to contain the following:

* Left Hand Screen
  + VMS Software
  + Must show the primary VMS display with Map Selection, Camera Selection, Alarm Stack and playback of recorded CCTV Images
* Right Screen
  + VMS Software
  + Must be able to replay all camera images from the CCTV System as per the display requirements in this specification; it should also be able to act as a spot monitor.
* Keyboard and mouse for VMS
* CCTV Joystick Keyboard

All monitors supplied by the Contractor are to be rated for continuous use. (Is there an internet connection in this room?)

* 1. **De-Commission of Old Equipment**

Once the new Control Room equipment is operating to the satisfaction of the Council and the Consultant but prior to formal handover, the Contractor must strip out and dispose of all redundant IT and CCTV equipment no longer required in a suitable environmentally friendly way. This does not include any equipment that is leased to the NSC.

All hard disc drives (HDD) from decommissioned DVR’s that contain any video data must be handed to the NSC. The NSC will arrange for the secure and permanent destroying so that data cannot be reclaimed.

* 1. **General Requirements**

The General Requirements for Monitors (both Video Wall and Operator Monitors) are: -

* Displays are to be connected to display controllers or PC’s via DVI or HDMI connections and designed for 24x7x365 continual use.

Operator monitors, and the Video Wall monitors must be able to: -

* Display live video from analogue cameras (via IP Encoders if necessary)
* Display live video from Static (fixed) analogue and PTZ cameras
* Display live video from Static (fixed) IP and PTZ IP cameras
* Display live video from Standard Definition
* Display live video from High Definition (1080P)
* Display live video streams from ONVIF camera sources (and encoders) and support video transport via UDP, TCP, Multicast and RTSP over HTTP
* Display live images from any 3G/4G cameras if required in the future
* Overlay a camera name or ID on top of the video image
* Replay recordings from the Digital Recording System
* Always show all images at their maximum frame rate
* Show all images in the best resolution possible for each camera considering the screen space available for each image
* Support sequences of cameras, shown on a cyclical basis
* The Video Wall system must be capable of storing a number of different configurations (e.g. day time layout and night time layout), which must store the layout of each monitor and the cameras that are populating that monitor. These should also be configurable to each operator’s preference and must be capable of being recalled quickly and easily by the operators
* The VMS system to be able to display surrounding and adjacent camera images on the Video Wall if a particular camera is selected to the spot monitor. I.e. if camera 17 is selected, it will be advantageous for adjacent cameras 13, 14, 15, 16, 18, 19, 20, etc. to be displayed on the adjacent screens on the video wall to the spot monitor
* Display layouts of 1, 4, 6, 9 and 12 cameras on each screen
  1. **Operator Workstations**

Operator Workstations must support up to 2 monitors (with suitable and uniform output type, e.g. HDMI, DVI) on each workstation.

Workstations must: -

* Display a Map of the Cameras, a Camera List and the potential for an Alarm Stack

Workstations must have the following: -

* Be able to operate with either 1 or 2 screens attached
* Selection of cameras based on number or via a multi-level map
* Selection of cameras onto the attached (spot) monitors
* Change layout of the spot monitors between full screen and quad format
* Ability to display incoming alarms from alarm sources and from remote NVR’s/DVR’s
* Ability to replay recordings from the NVR’s/DVR’s system on the operator’s spot monitors with audio playback where user permissions allow audio replay
* Ability to export recordings to disc
* Have an external commercial grade (heavy use) USB connected CD/DVD writer to allow these to be placed on desks
* Ability to set different layouts on the Video Walls and to Store and Recall these layouts on demand
* Username and Passwords for all users with different permission levels
* Come with a standard three (3) axis CCTV Joystick/keyboard for PTZ Control
* Allow PTZ control via the mouse in addition to the Joystick
* Ability to control camera functions from the keyboard including focus, iris and zoom, wiper, iris, Camera IR and White Lighting
* Store and recall Pre-sets and Tour patterns for cameras
* Support auto focus/auto iris modes and manual focus/manual iris modes
* Display incoming alarm triggers (e.g. movement detectors and panic buttons) and perform macros on alarm triggers including automatic display of camera images, driving a camera to a pre-set position and sounding of an alarm on the workstation
* Support all existing cameras and any new cameras installed
* Support recording of spot monitor display (or the top left image in a multi camera display) in a way that allows operator activity to be exported to disc as a single video clip
* Support alarm inputs and relay outputs to allow for future connectivity
* Determine when a camera is no longer being used and return the camera to its default home position after a timeout period
* Allow a camera to be selected onto a spot or Video Wall monitor with the neighbouring cameras automatically displayed around the selected camera
  1. **Incident Logging**

The VMS must be able to: -

* Create CCTV equipment defect lists and enable these to be emailed to the relevant Contractor for action and close once completed, auditing the time taken to fix the fault
* The VMS must also allow operators to store full details of incidents they observe including: -

1. Unique reference number
2. Operator details
3. Start and End Date/Time
4. Location of incident
5. Brief Description/heading of incident
6. Type of incident: - (theft / robbery / burglary / welfare / assault / aggressive begging / ASB / observations / drunkenness / drugs/ missing persons (adults) / missing children / disturbance / assist general policing / motor vehicle theft / theft from motor vehicle / theft of pedal cycle / criminal damage /graffiti / intruder alarms / fire alarms / fraud/ community safety issues /ASBO Breach / Warrants / bail conditions / suspicious behaviour / weapons / possession of knife, etc. and up to 20 categories to be inserted
7. Camera(s) #ID# used during the incident
8. Source: - ANPR / police Control Room / police officer radio / initiated by CCTV operator / from public phone call / from Retail radio / from Pub radio / from PCSO radio / from third party / other outcome
9. Attendance at scene: - police officer / PCSO / ambulance / paramedic / fire brigade / social services / others; up to 10 more categories/fields to be inserted
10. Outcome/Result narrative
11. Outcome/Result: - arrest / caution / conveyed to hospital / person left scene / area searched no trace / road accident / road cleared / people injured / numbers of people injured /
12. Evidence stored in evidence locker? Unique reference number
13. Incident closed by whom; time/date

The VMS must be able to produce a wide range of reports including colour graphs (bar charts and pie charts) from this information to allow managers/staff to produce reports on camera usage, incident types incident locations, camera use and camera faults.

It must be possible to access the data from the incident logging system and to be able to interrogate information collated and create management reports and charts to summarise the work and incidents dealt with by the operators. All operator positions will have all the same functionality of the other VMS control positions, including the operation from any laptop or other police computer installed with the VMS.

Any reports produced on paper or electronically will have the agreed NSC or local authority logo embedded into the document and not that of the VMS supplier.

The VMS system must be able to create and send text/SMS messages to agree, pre-programmed numbers, detailing any software, hardware, camera and other equipment faults such as the NVR, etc. Such reports should be able to initiate a report to the maintenance service provider and the CCTV manager detailing the fault in order to originate a response.

The VMS must also allow operators to log faults and maintenance activities including the time the fault was logged and the time the fault was attended to and repaired/rectified. It should be possible to send this information seamlessly to the maintenance contractor in order for them to attend and deal with the fault in compliance with the maintenance SLA.

The VMS software must be configured for use across various clients across NSC for identical/ seamless operation, irrespective of where the cameras are controlled from and all camera locations must be able to be input by the operator via dropdown and sub menus for accuracy of ‘hot spot’ location interrogation.

The VMS will provide detailed reporting and tools to allow users to create in-depth or summary reports on: -

* Alarms
* Incidents
* Equipment Faults
* Workflows
* Device Details (Cameras, Monitors, NVR, etc.) – Asset Lists
* Lone Worker (essential but could be a ‘stand-alone’ facility)
  1. **Spot Monitor Recording**

The recording system must also: -

* Record the images shown on the right middle operator spot monitors to allow all the operator actions and camera selections to be exported as a single continuous video clip without the need for operators to manually assemble a series of clips.
  1. **Video Management Software (VMS)**

The core VMS software must replicate the functions of a hardware CCTV matrix and the telemetry control of the CCTV cameras, including camera pan and tilt movement, remote lens zooming and remote camera functional programming.

CCTV workstations will be capable to run CCTV Video Management Viewing Software that must: -

* Require operator login with permissions to restrict live views, PTZ control, replays and exporting with all actions logged in the audit log
* Show all images at full frame rate
* Selection of cameras based on camera number or via a mouse click on a multi-level map
* Support variable speed Pan and Tilt and support zoom of cameras
* Ensure that higher priority users can take PTZ control of camera from lower priority users
* Support manual focus and manual iris modes and returning to auto focus and auto iris modes
* Have controls for Wiper, IR Lamps, White Lamps
* Store and recall pre-set positions
* Determine when a camera is no longer being used and return the camera to its default home or ‘tour’ position after a pre-defined timeout period, (which can be overridden in certain circumstances such as RIPA, etc.)
* Store start and stop tour patterns for cameras and suspend them when there is PTZ activity
* Have the ability to continue to control all cameras functions including auxiliaries and special pre-set codes for shutter speeds, light level adjustments and other camera manufacturer features
* Display and Control ONVIF Profile S cameras
* Display and Control analogue cameras via suitable IP Encoders
* Support digital pan/tilt and zoom on the video stream (e.g. with static cameras)
* Support 360 ‘fish eye’ cameras with dewarping
* Display and control 3rd party cameras (that support ONVIF or that are installed with an ONVIF Encoder and suitable PTZ interfaces)
* Instantly replay video from any point in time (disk spin-up times are acceptable where energy efficient recorders shut down disks not being written to)
* Display images full screen or as part of a multi-camera layout
* Play forwards and Play backwards in normal speed, ½ speed, ¼ speed, 2x speed, 4x speed, 8x speed
* Apply the Play forwards, play backwards and Go to Time/Date functions to up to 4 synchronised cameras so all cameras respond to one set of controls
* Allow time and date searching for specific events
* The ability to create ‘Bookmarks’ at the Control Room to enable officers equipped with remote viewing devices to access this marker to view recorded information
* Copy video to the Evidence Locker or equivalent and replay data from it
* Bring to the attention of supervisors/managers the CCTV data held in the Evidence Locker or equivalent and to flag up for consideration after a prescribed period to the supervisor/ manager, should further retention be authorised; a full audit trail of all actions will be required
* Allow video clip downloading via the client software to user configurable file locations
* Allow video clips to be assigned to incident logs generated by the separate incident logging software program
* Export recorded video files to CD, DVD or USB attached storage
* Export camera still images to CD, DVD or USB attached storage
* Support bulk export where a list of cameras, start times and end times can be automatically exported
* Export in MP4 files format for direct transfer to Digital Evidence systems with the video in the MP4 file including the camera number, time and date as part of the video frame
* Support HD and 4K camera resolutions with digital zoom
* Enable camera privacy areas to be set to prevent viewing of inappropriate areas by operators
* Ability to mask images and pixilation technology (privacy protection of individuals when sharing data)
  1. **Audit Log and Permissions**

The CCTV system must have an audit log that can record the following (as a minimum) with the time and date: -

* User Login (using a CCTV application software username/password)
* User Logout
* Where the user logged in (e.g. the serial number or ID of the workstation, the IP address of the computer that is using the web interface)
* Automatic log out of the system after a designated period of inactivity
* Cameras selected for viewing live (on workstation, web view, mobile phone/tablet app or video wall)
* Cameras where PTZ command has been used
* Cameras selected for review (with the time and date of the recording being accessed)
* Cameras selected for exporting video
* Where the video was exported

The CCTV System must have a comprehensive User Permissions system with the minimum set of features for each user: -

* The level of the user (Manager, Supervisor, Operator, Lower Level Operator, Engineer)
* Which camera the user can view live
* Which cameras the user can control PTZ functions on
* The user’s PTZ priority (to ensure that more privileged users can take PTZ control from a lower privilege user)
* Which cameras the user can review/replay
* Which cameras the user can export recordings from
* Only Manager level users will be able to change the permissions of users

Managers must be able to view and filter audit logs by user, date, time and camera and save the results and send the results to a printer.

* 1. **Exporting Video for Evidential Purposes**

The solution must provide the functionality to allow for CCTV to be exported in MP4 file format. The extract must include Meta data relevant to the data, the camera number/unique identifier, location and date/time.

* 1. **Web Viewing/iPad/Tablet Viewing**

The CCTV system must include a Web Browser interface that will enable A & S staff to carry out the following tasks from any police computer/tablet/iPad across the whole A & S network: -

* 1. Login and be authenticated
  2. View live images (if permissions allow)
  3. Control cameras with mouse click PTZ control (if permissions allow)
  4. Replay recordings (if permissions allow)
  5. Log the actions of the user in the audit log
  6. Ability to export potential evidence locally (not tablet/iPad)
  7. **Transmission of Video Snapshot images**

The VMS must have the ability to transmit video snapshot images to officers requiring them via their iPad/ tablet or the equivalent.

**Other Camera Sources**

The CCTV system must be able to display, record and have PTZ control of other cameras to be added at a later date including: -

* Other makes of ONVIF PTZ IP camera (SD and HD)
* Video from live streaming re-deployable cameras (with an ONVIF interface)
* Video from live streaming Body Worn cameras (with an ONVIF interface)
* Video from analogue PTZ cameras via an IP encoder and generating RS485 PTZ control commands
  1. **Analytics and Face Recognition**

Should analytics be an option NSC select to utilise, the CCTV system must enable 3rd party systems to receive live video from the cameras and to receive recorded video in a compatible format (e.g. ONVIF stream) so that the 3rd party systems can process these images.

* 1. **Playback**

A dedicated instant review toolbar will be provided on the client VMS, which will allow the operator to access commonly used video playback features. The VMS will allow: -

* Standard video playback control such as FF/RW at up to 32x speed
* Will allow time and date searching for specific events
* Will allow video clip downloading via the client software to user configurable file locations
* Will allow direct video clip burning to DVD
* Will allow video clips to be assigned to incident logs generated by the separate Incident logging software program
* Will provide detailed reporting and tools to allow users to create in-depth or summary reports on: -

1. Alarms
2. Incidents
3. Faults
4. Workflows
5. Device Details (Cameras, Monitors, NVR)
   1. **Video Display Wall Driver**

All the video wall screens must be controllable from any of the Control Room desk CCTV joystick keyboards or VMS Clients.

The Video Display Wall Driver must be capable of displaying: -

* Up to 12 full frame rate HD (1080P) images one display screen at any one time
* A mixture of Live and Recorded streams on the same display
* Any of the camera IP streams recorded on the system using the camera streams from the digital recording system. This includes encoded analogue streams and compatible third-party IP streams and HD/megapixel IP streams
* A number of different standard layouts along with the ability to fully customise the layout using the display design tool
* Full control of the display walls on the system will be possible including layout change, camera switching, alarm statistics, and web content
* The driver, if configured, will respond automatically to defined alarms or user responses including camera switching, zoom to pre-set and layout changes and /or present audio/visual alarms to support the response to the given alarm
* If selected, the monitor displaying live images to the remote police Control Room, must be able to also display historic/recorded data to provide the police with any incident information that may be justifiable in being replayed and has been captured during the life of the recorded data before it is overwritten
* The VMS and the Video Wall must display all PSS, Gateway and car park cameras at 25 images per second.

## Analytics

It is expected that the VMS will have the ability to receive and interpret Analytics (such as ANPR & people counting when specific cameras are installed for analytical purposes).

Redaction software is an essential function although this can be ‘stand-alone’ and does not necessarily need to be part of the VMS.

Functions can be carried out in the camera head or in an analytics server.

The Contractor is to provide details of the analytics capabilities that their chosen VMS can provide.

### **Alarms**

The system must allow operators to set up video motion detection alarms, trip wire alarm, direction of travel, object removal and abandoned object alarms.

The system must allow easy searching through recordings for alarm activations and for detected movement with options for filtering on colour or size.

* + 1. **Person Search (e.g. Missing Persons)**

The system must allow operators to quickly search through recordings to find people who are similar in appearance to a person (e.g. a missing person) to see where they have been and where their most recent location was.

This may include searching based on colour of clothing, wearing of glasses, wearing of headgear or carrying an item.

* + 1. **Redaction**

The system must include software that can scan recorded video and: -

* + Detect and collect facial information and compare against historic video recorded
  + Extract the faces of all people that pass the camera and show a mosaic of faces
  + Filter the list of faces on attributes including gender, wearing glasses, wearing hat/ headwear, carrying an item
  + Allow the reviewer to jump directly to the recorded video that shows that face

### **Automatic Number Plate Recognition (ANPR)**

The VMS should have the ability to control white/black lists of vehicle index numbers to control vehicle access to premises with permissions to raise barriers or other physical blocker without human intervention.

### **Digital Evidence Management System**

A software system with the ability to collect evidence from disparate sources and store it in a centralised and open system. This system should be able to gather evidence from PSS CCTV and private surveillance systems; BWV, as well as other digital sources into a single solution point for access by authorised investigators. This should enable open ‘protocols’ from multiple camera and recorder suppliers with no difficulty in achieving a seamless operation irrespective of the source of the video data.

* + 1. **Future Roadmap**

Suppliers must state their upgrade plans and future roadmap for the analytics to allow NSC to ascertain what additional value can be gained from the analytics in future and to identify the shortfalls that may not be realised initially if these aspects are not included.

# System Requirements – Recording

## Public Space Surveillance (not Gateway/car parks)

A Network Video Recording (NVR) System is required for all the existing and new Public Space Surveillance Cameras.

As all the PSS camera are being replaced as part of the tender, the recording solution selected for this Control Room upgrade must cater for all of the existing and new IP HD (1080P) cameras to be recorded at 25 images per second (ips) and retained for 31 days.

* + 1. **Frame Rate/Resolution/Duration**

The recorder must: -

* Record any HD Cameras in the maximum resolution of the camera
* Record all PSS cameras at 25 images per second
* Have the ability to record cameras at a lower frame rate if required
* Record all cameras for 31 days before being automatically overwritten
* Record each of the two (2) operators right middle screen for 31 days
* Automatically prevent access to recordings older than this period
* Record in a quality suitable for evidential use in court and complies with BS 7958:2015
* Record with a minimum of 2Mbps for Standard Definition and 6 Mbps for 1080P HD cameras
* Have the ability to easily add more storage in the future without loss of existing recordings
* Record the images shown on the operator spot monitors to allow all the operator actions and camera selections on any of the spot monitors to be stored and exported as a single continuous video clip
* Have the ability to record camera streams in UDP, TCP, Multicast and RTSP over HTTP modes
* Have the ability to re-distribute live camera streams out to Video Wall Controllers and Operator Workstations where there is sufficient bandwidth to fetch multiple streams from the cameras
* Record events in the recorder’s database of Video Motion Detection and Loss of Camera
* Show the amount of free and used disc space
* Use H.264/5 and MJPEG Compression with H.264/5 being the preferred
  + 1. **NVR Disc Types**

The Contractor can select between a disc storage system using RAID or one using Linear Storage.

* + 1. **NVR Replay Station, OSD and Disc Formats**

The DVR/NVR system must be able to: -

* Be replayed by all of the Operator Workstations
* Produce evidence in the native recording format and also export the video in an MPEG-2 or AVI file format
* Save JPEG still images for any frame of video in native resolution (minimum of D1 720 x 576 pixels)
* The JPEG still image AND the replay video must have an on-screen display that can show unique information on every frame of video (e.g. Camera ID, Date and Hours, Minutes, Seconds, Frame Index OR Camera ID, Date and Hours, Minutes, Seconds, Milliseconds)
  + 1. **NVR Replay Features**

NVR Replay must be able to: -

* Show a full screen image or a quad screen image
* Replay any single camera or any 4 cameras from the whole system side by side without restrictions as to which physical recorder the information is stored on
* Burn recordings to disc from any camera on the system
* Play forwards and Play backwards in normal speed, ½ speed, ¼ speed, 2x speed, 4x speed, 8x speed and 16x speed
* Be able to undertake a bulk export to USB attached storage
* The DVR/NVR replay system must log the details of the times, dates and cameras that have been reviewed and/or burned and/or exported.
  + 1. **Installation Location**

The PSS camera recording equipment is to be installed at a number of locations as well as the in the Control Room equipment room.

We believe, depending on the final choice of design of the system, it is likely recording equipment may be required at the following locations although quantities of cameras are subject to change: -

* Control Room equipment room
* Clevedon (9- cameras)
* Nailsea (12 cameras)
* Portishead (6 cameras)
* Diamond Batch and The Campus (10 cameras)
* Carlton Road Car Park (30 FV SD IP cameras)
* The Gateway Civic Offices (30 SD IP cameras; 15 PTZ, 15 FV)
  + 1. **UPS**

The Contractor is to supply a UPS to support all VMS recorders. The UPS should be able to operate the VMS recorder for thirty (30) minutes. Should mains electric power not be reinstated within this time then the UPS should provide the ability to shut down the VMS recorder correctly.

* 1. **Additional Storage Capacity - Option**

The Contractor is to provide all the digital storage required to support the cameras as defined within this specification.

The Contractor is also to provide, as part of their tender response, two separate optional costs for the value of additional storage for the VMS recording platform.

The first optional cost should allow for a 20% expansion of the storage the Contractor has calculated to provide for the cameras as defined in this specification.

The optional second cost should allow for a 40% expansion of the storage the Contractor has calculated to provide for the cameras as defined in this specification.

* 1. **Video Evidence Handling**

The recorded video data must maintain its original authentication integrity throughout the video evidential data handling process. Video data recorded to the NVR/DVR must be able to be transferred for long-term storage to separate evidential RAID resilient storage and further to removable media (DVD, Flash drive, etc.) as required. This process must be fully integrated within the main user Video Management Software providing an intuitive, seamless and robust evidence data handling process.

The original data integrity must be maintained with supporting documentation to verify the integrity of each video data file relating to the data. It is not acceptable for the original recorded data to remain on the original storage device beyond the stated retention period and once transferred to evidential storage must remain indefinitely or until no longer required as defined by the user(s). Access to the data must be able to be password and user authority controlled.

A full electronic audit trail of all associated user actions with the data must be maintained by the Video Management System and be able to be produced in soft and printable format to support the evidential data trail. Trans-coding or re-recording the original data to the evidential long-term storage is not acceptable.

Access to copying the original data using methods outside the evidential data handling process and thus audit trail must be inhibited and the use of alternative or third-party applications, not fully integrated behind the Video Management Software, will not be acceptable.

It must be possible to trans-code the eventual video data to industry standard video formats, once outside the evidential process, for the purpose of uniform accessibility by conventional video plays, such as domestic DVD plays and PC/Laptop computers, without the need for proprietary video decoders and display devices.

* 1. **Manufacturer Support Charges**

The Contractor is to supply yearly costs, if applicable, with their response for any support charges levied by the manufacturer of the VMS platform.

* 1. **Camera Licensing**

The VMS Recording platform is to be fully licensed for all the connected cameras for the duration of the contract.

* 1. **Manufacturer Training**

The Contractor is to have been trained by their chosen VMS provider. The Contractor is to supply valid certificates with their tender response.

* 1. **Time Synchronization**

The VMS recording platform is to be synchronised hourly, to the Wharton time clock (or similar) to ensure the time is accurate across all parts of the VMS system.

* 1. **Camera Numbering**

All the existing camera numbers will be changed to ensure cameras are grouped sequentially according to their town location and agreed with the CCTV manager.

* 1. **Ability to Redact images**

The Control Room require redaction capability (which can be part of the VMS or stand alone. The pixilation software must be capable of masking a moving person’s face, thereby making the person unrecognisable. It should be possible to remove this pixilation and reverse its effects if required.

The Contractor is to provide in their response the following: -

* Datasheet from the manufacturer of the masking functionality
* Confirmation their proposed VMS recording platform can provide masking through pixilation of recording VSS images for exporting

* 1. **Privacy Zones**

The VMS or cameras are to provide the ability for privacy zones to be defined within the system. The privacy zones will provide a blank area over a part of the image that has been defined so the operators cannot view that area of the image. Privacy zones must be available on both fixed view and PTZ cameras. Such zones must only be able to be set and removed by a CCTV manager with a higher level of access to the system

# System Requirements – Cameras

The rationale for upgrading the CCTV cameras is not restricted to the ability to produce improved, more detailed images, and includes making the images fit for evidential purposes and able to introduce more cost-effective IP transmission methods. The upgrade also provides the opportunity to replace cameras which are obsolete and likely to fail in the near future.

The Contractor is to provide flexibility around quantities, locations and specifications of cameras following the Council/Town Council’s strategies for providing the most efficient upgrade. This may amount to more or fewer cameras, depending on capabilities and budgets.

The Council has determined four different categories of camera it requires, these are classified below: -

|  |  |  |
| --- | --- | --- |
| **Name** | **General description** | **Minimum requirements** |
| **A** | Camera requirement in ‘less inclement’ weather environment | * Zoom: Digital & Optical 32 x 12 * Megapixels 2MP * Lux – 0.25 (black & white 0.0015) * Ability to program privacy zones * Ability for pre-sets – minimum of 8 * Weather proofing to IP66 * HD IP 1080 PTZ * H.264 & MJPEG compression * ONVIF compatible * Classed as vandal resistant (IK10) * 3-year warranty – option to extend to 5 years |
| **A1** | As with ‘A’ but IR capability.  *Note: Any type of lighting or lighting solution will be considered.* | * A minimum of 50 meters is required for the lighting solution |
| **B** | Camera requirement for harsh weather environment. (E.g. Sea Front) | * Marine grade painted * Zoom: Optical & digital 30 x 12 * Megapixels 2MP * Lux – 0.25 (black & white 0.0015) * Ability to program privacy zones * Ability for pre-sets – minimum of 8 * Weather proofing to IP66 * HD IP 1080 PTZ * H.264 & MJPEG compression * ONVIF compatible * Classed as vandal resistant (IK10) * Wipers * 3-year warranty – option to extend to 5 years |
| **B1** | As with ‘B’ but IR capability.  *Note: Any type of lighting or lighting solution will be considered.* | * A minimum of 50 meters is required for the lighting solution |
| **Additional camera – fixed to W29** | CCTV Camera specifically installed for ANPR (Analytic) | * Specific for ANPR & other analytical applications |
| **Additional camera – fixed to W28** | Fixed camera | * Zoom: Digital & Optical 32 x 12 * Megapixels 2MP * Lux – 0.25 (black & white 0.0015) * Weather proofing to IP66 * HD IP 1080 PTZ * H.264 & MJPEG compression * ONVIF compatible * Classed as vandal resistant * 3-year warranty – option to extend to 5 years |

* 1. **Camera Replacement**

All of the existing PSS cameras are to be replaced; the same type of cameras is to be installed in exchange for an existing camera, e.g. a PTZ is to replace a PTZ.

New cameras, locations and changes to the existing PSS cameras have been detailed in Appendix E- Camera Locations.

The camera schedule also identifies those needing to be replaced with a camera that contains an infrared illuminator/and or white light.

* 1. **Replacement of Gateway Cameras**

As part of this upgrade, the Contractor is to integrate the Gateway 30x number camera system into the new main VMS and recording system. Six (6) FV cameras on the walls outside the Gateway are analogue and are required to be replaced to IP HD 1080p as part of this work.

* 1. **Replacement of The Campus Cameras**

There are four analogue PTZ cameras situated at The Campus within WSM; these are required to be upgraded to IP 1080p (type A) and viewed at the control room.

* 1. **Optional New Camera Locations**

The Council would like to understand potential costs of new fully functional 1080p IP PTZ cameras together with associated columns (or mounting on lampposts or buildings, etc.) at the nine locations listed below.

1. Rear of McDonalds, Wyndham Way, Portishead (type A)
2. Lower Queens Road, Clevedon, close to the public toilets (type A)
3. Private road between the Clevedon Youth Club and 1st Clevedon Scouts off the Great Western Road, Clevedon (type A1)
4. To the right of the Waggon and Horses Public House, Old Street, Clevedon (type A)
5. Stock Way South/Mizzymead Road next to The Glassmaker (Wetherspoon PH) Nailsea (type A)
6. Stock Way North/High Street on the embankment opposite Tesco’s store Nailsea (type A)
7. St James Street/junction with Richmond Street, Weston-super-Mare (type A)
8. Bottom end of Ashcombe Park/Milton Road, Weston-super-Mare (type A1)
9. Clevedon Road, junction with Whitecross Road (type A1)
   1. **Re-deployable Camera**

The Council are keen to have an optional cost from the Contractor for re-deployable cameras. These cameras should be: -

* Pan/tilt/zoom control from the remote Control Room
* HD (1080p) able to be transmitted over all mobile networks
* 4G, 3G, Wi-Fi, and IP connectivity
* Ability for on-board local recording
* ONVIF compatible
* IP65
* Transmit and record at 25 ips
* Dual stream in H.264 & MJPEG
* At least 50 metre IR illumination
* Remote configuration and commissioning
* Remote access to live and recorded data
* Analytic capability

The camera must interface fully with the chosen VMS system software to enable full functionality and control of all tasks and commands of the camera carried out from the control room.

* 1. **Elexon Code**

The Contractor is to supply the Elexon code for the camera for the provision of unmetered power.

## New Poles/Columns and Cabinets

Any new CCTV columns required for this or future installations will be supplied by the Contractor and will be hot dip galvanised to BS 729 (1971), ISO 1461 (1999) after fabrication and will be painted by the Contractor to the NSC approved colour of RAL9005 (Black). The Contractor is to supply columns that are in keeping with columns already used by NSC. New columns will be six (6) metres in height to enable PSS cameras and their associated paraphernalia to be mounted between four to six (4-6) metres in height.

If appropriate, the external cabinet floor and all duct ends must be completely sealed in a satisfactory and durable and approved manner by the Contractor to ensure that any gas present in the ground surrounding the cabinet or in the ducts leading to the cabinet are excluded as are rodents, etc. this must be accepted by the Consultant.

The Contractor is responsible for ensuring that the proposed locations are free from any underground services. The Council must not accept any additional charges for the Contractor making a “trial hole” and having to relocate because of underground obstructions. NOTE: the “sleeving” of buried services is not acceptable under this Contract.

* + 1. **Installation Requirements**

The installation of the equipment and cabling will take due account of the system security and be protected against vandalism. Where cable chambers or manholes are located in public areas, the lids will be secured with tamper-proof screws.

* + 1. **Civil Works**

Where consent of the Highway Authority is required under Section 50 of the New Roads and Street Works Act 1991 to lay apparatus under a street or pavement etc., the Contractor will obtain such consent at their own cost.

Any excavations to install new ducting carried out in connection with the CCTV System must be in accordance with the New Roads and Streets Works Act 1991, Part 8 and managed in accordance with the Construction, Design and Management Regulations 2007 for which a compliant Health and Safety Plan must be produced. It must include all Civil Works (including road opening licences, traffic and pedestrian management, where applicable).

The Contractor must obtain all agreements for any new street works. It will be the responsibility of the Contractor, and at his own expense, to carry out all necessary liaisons with the local Highway Authority, Public Utilities and the Police Authority.

Contractors should also ensure the method of transmission chosen locally to link cameras to any ‘hub’ point is adequate for the intended purpose and the data, images and the signals must not suffer from interference from nearby electrical sources, etc.

The Contractor will ensure there is no interference from any electrical source, which is not associated with this camera installation.

* + 1. **Roads and Footpaths**

The Contractor will: -

* Keep all roads, streets, footpaths (whether public or private) free from any damage arising out of, or in the course of or because of the execution of the works and
* Keep all roads, streets, footpaths adjacent to the site of the works free from mud, dirt or rubbish, etc. arising from the Works at all times and observe any Byelaws or Regulations imposed by the Council requiring roads or streets to be kept free from such.
  + 1. **Traffic Safety and Management**
* The Contractor will erect and maintain road works signing in accordance with Chapter 8 of the Traffic Signs Manual – Traffic Safety Measures and Signs for Road Works and Temporary Situations (2009) and its amendments and the Safety at Street Works and Road Works, Code of Practice in size, colouring and positioning, on all sites and for the duration of the works on each site
* At sites where the works are likely to affect the traffic flows, the Contractor must submit to the CCTV Manager at least seven (7) days before the commencement date of the works at that particular site, traffic management proposals, which are to be implemented. The Contractor must not commence work until approval has been given in writing by the Council’s Representative to implement these proposals
* For works confined to footways, adequate guarding, signing and alternative provisions for pedestrians must be made for the duration of the works.
* The Contractor must appoint a member of his staff to be responsible for all traffic safety and control and state a telephone number where he may be contacted outside normal working hours
* If the NSC receives a complaint and have to make an emergency visit to the site to make it safe, the Council will charge the Contractor for the cost of the visit when the fault is part of his contractual responsibilities
  1. **Power Supplies**

The Contractor will utilise the services of Western Power Distribution to achieve appropriate unmetered power supplies to new cameras, street cabinets, columns, etc. where necessary.

The Contractor will therefore be required to achieve appropriate electrical connections to all equipment and must ensure that any costs that will be incurred have been included with the appropriate 'installation costs' within the priced Specification and the Tender. It will be the responsibility of the Council to enter into any agreement with Western Power Distribution for the provision of such service.

The Contractor will be responsible for all electrical work required to obtain the electricity supply from the street cabinet (or other appropriate point in the circuit) to the interface point and from there to the cameras at all locations including all equipment and civil works and for protection of cabling where necessary. The electrical engineer will be required to be properly qualified in ASLEC (Association of Street Lighting Electrical Contractors) with G39 accreditation, where work on street lighting and street furniture provided by NSC is required.

A 230-volt 50 Hz mains supply is required at all pole and street cabinet locations and it will be the responsibility of the Contractor to supply sufficient power take off outlets for all the permanent and test equipment at that site. All electrical works will be carried out in accordance with BS7671: 2008 wiring regulations 18th edition with a full NICEIC, Electrical Installation Certificate issued for each electrical installation. Local isolation to be provided by a double pole switch (to BSEN60947:3) with overload and over current protection via a 16A Type B BSEN60898 circuit breaker.

Equipment protection and switching is to be provided by 13A-fused connection unit(s) (to BS1363) fitted with 3A BS1362 fuse. Transient suppressers are to be fitted by the Contractor to the mains supplies at each camera.

Additional fused isolators that are required on lampposts for the wireless network are detailed in section 11.11 of this specification.

## Small Works

During the course of this Contract, it is likely that the Council will require other works to be carried out in addition to those described in this tender specification. The Council is keen to understand any costs which may be involved with such small works and requires the Contractor to supply a schedule of rates for standard equipment and labour to supply these small works services. These costs will be supplied in the Pricing Schedule.

# Wireless Transmission System Requirements

* 1. **Overview**

The PSS cameras are currently fed point to point into the Control Room from Clevedon and Nailsea via BT RS1000 analogue links. Most cameras in and around WSM are connected using the Council’s self-provide fibre optic cabling and some wireless transmission. Additionally, there are ten (10) cameras around WSM that already take advantage of wireless transmission where Line of Sight (LOS) is possible. It is intended that these wireless transmission links are all replaced/upgraded as part of this whole upgrade to enable a consistent wireless platform across the whole Council area and subject to similar warranty and maintenance benefits.

As part of the CCTV upgrade, NSC have opted to remove the rented fibre links from the three remote towns and will instead invest in a new Wireless IP network which may be connected to hubs in each of the towns for onward transmission using a minimum of 100 Mbs links provided by BT or Virgin Media. It will be the responsibility of the Contractor to liaise with these transmission providers over the cost and location of any hub point to be located in Clevedon, Nailsea and Portishead where any remote NVR may be situated, in order that only images required to be viewed or displayed are sent to the Control Room. The Contractor can choose to design a system that does not include remote recording at these locations if preferred.

In November 2018, Purdicom conducted a LOS trial; this confirmed that the majority of the PSS cameras in Clevedon, Nailsea and Portishead could be migrated from their existing communication path (BT Redcare RS1000) and onto a Wireless IP network. Please see **Appendix F- Transmission** for details of these wireless links.

The LOS Trails were conducted to avoid having links installed that were close to trees however; as the LOS trails are not 100% accurate, the Contactor needs to allow for the possible trimming of trees. Should any tree require trimming, the Contractor is to consult with the tree officer at NSC before any such works progress. The Council/Town Councils will pay for the services of any tree surgeons required.

The Contractors will need to be confident any wireless design they propose is suitable for the demanding environment. The Council will not accept that the Contractor relied on the LOS assessment and, if necessary, the Contractor should undertake their own tests to reassure the Council their wireless design is appropriate and will achieve full functionality of all cameras linked to it, to provide a full operational CCTV system.

The Contractor is to ensure the bandwidth inside each leg of the wireless network is sufficient to support the latest HD IP (1080P) cameras that will be installed as part of this project.

The Wireless IP camera network is to be terminated into the Council Offices, Walliscote Grove Road equipment room. The Contactor is to provide all the required IP switches to support the IP Network within the equipment racks. All switches across the complete wireless network are to have a management web interface that will allow for remote configuration across the IP network.

At several camera locations there is more than one camera, or the camera is a central point where several antennae are to be mounted. At each of these locations, the Contractor is to provide an IP Switch with enough capacity to support the cameras in that location and those that passes through it. The Switch is to have a management web interface that will allow for remote configuration across the IP network. The Switch is to be fitted inside an IP rated enclosure that conforms to the Switches manufacturers specification. The enclosure is to be securely fastened alongside the Wireless equipment. The Switch is to support Multicast groups.

The PTZ and fixed view cameras are to operate in the same way over the Wireless IP network as they currently do with no latency being visible in either the live video feed or being witnessed when using the PTZ joystick.

The Contractor is to provide details of their proposed Wireless IP Network design to include expected bandwidth values between the main legs of the IP network that make up the core of the network.

The Contractor is also to provide details of their proposed IP switches within the Control Room and at the camera locations

The Contactor is to arrange and cater for the costs of all the of required power supplies for the Wireless IP network components with the lamp post maintainer and arrange their connection to the local electric circuits.

As the Contractor is responsible for the overall design of the VSS network, they are required to detail their proposed method and transmission routes in their response. The transmission/communication path must always prioritise the maximise number of cameras as is possible on the wireless network.

* 1. **Final Wireless Design**

The Contractor is to supply as part of their tender submission a complete wireless design that details where BT Redcare RS1000 circuits are to be upgraded to RS1000D or Virgin Media IP circuits.

* 1. **Design Criteria**

The Wireless IP Network design should be based on the following criteria: -

* Main Control Room with the recording equipment is at Council Offices, Walliscote Grove Road
* Potential recording locations at Clevedon, Nailsea, Portishead and the Campus (to include Diamond Batch Car Park cameras), if so chosen by the Contractor
* 6Mbps per PTZ camera
* 2Mbps per fixed view camera
* Multicast Support
  1. **Wireless Licenses**

Although we anticipate the majority of wireless links will be licence free, where higher power/capacity links are required, the Contractor will provide details of all required OFCOM Licenses that are needed for the Wireless IP Network. The Contractor is to provide licenses for the first year of the wireless network in NSC name.

* 1. **Wayleaves**

No Wayleaves permissions are required from those building owners, as identified in the LOS trials.

* 1. **Street Lighting**

As part of the wireless design, several lamp posts have been identified that will be used as relay points.

The Contractor will be required to provide a list of lampposts with their unique identification that are required to be used as part of the new Wireless CCTV network.

NSC will carry out structural tests to ensure the lampposts are structurally sound and, if so, approval will be granted for them to be used for the wireless network.

It is understood that some of the lampposts have spare mains electrical isolation that can be used for the wireless network; those lampposts that do not will have a new 2 fuse secondary isolator installed within them by the lamppost maintainer. The Contractor is to order any additional electrical isolators directly from the lamppost maintainer.

* 1. **Tree Pruning**

The wireless IP network may require some minimal tree pruning. Should any tree require trimming, the Contractor is to liaise with the NSC tree officer and arrange to have the work carried out through them via their approved contractor. NSC will be responsible for these costs.

* 1. **Steel Work**

The Contractor is to provide all steel work as required to support the wireless network.

* 1. **Access Equipment**

The Contractor is to provide all access equipment as required to install and maintain the wireless network

* 1. **BT Redcare RS1000D or Virgin Media Fibre Links**

Due to the geographical area that the NSC covers, the wireless IP design is to be a hybrid system with a mix of mostly wireless but, in the outlying areas of Clevedon, Nailsea and Portishead, these camera images will need to be ‘collected’ at a hub (with remote recording) for onward transmission to the Control Room at the Council Offices, Walliscote Grove Road.

It is also believed that there is already in existence a BT RS1000D circuit linking the Campus with the Control Room where four (4) camera images are sent for recording. NSC would be pleased to understand alterative suggestions from the Contractor whereby it is envisaged the six (6) cameras at Diamond Batch could be wirelessly linked to The Campus for recording. It is also believed it may be possible for these ten (10) cameras to change the existing transmission path from this RS1000D link to a wireless method link to the new WSM wireless links and thus avoid ongoing revenue charges.

The Contractor is to confirm how many BT/VM 100 Mbs fibre optic links will be required in total across the whole camera system. The final Contractor design is to reduce the number of BT circuits to the minimum.

* 1. **Highways G39 Qualification**

The Contractor must hold valid Highways G39/1 or equivalent qualifications that enables their staff to work on the highway column locations required for the maintenance of the VSS cameras

* 1. **Manufacturer Support Charges**

The Contractor is to supply yearly costs, if applicable, with their response for any support charges levied by the manufacturer or provider of the wireless IP network.

* 1. **Spares**

The Contractor is to provide with their response a list of spares that will be used to support the Wireless IP network.

The Contractor is to identify within the Wireless IP Networks design, communication paths that transmit several camera images to Council Offices, Walliscote Grove Road . They should highlight in the method statement of their tender return how losing that communication path could affect a number of cameras and the design and steps taken to mitigate this. The spares list is to be calculated accordingly.

Business continuity is dependent on the ability to supply temporary replacement cameras (spares) whilst warranties may be pursued, hence contractors will be expected to hold some stocks for immediate use. This applies to any equipment which may fail and where replacement are sought.

1. **General Control / Equipment Room System Requirements**

The Integrator should ensure that downtimes (CCTV Cameras not working) are kept to a minimum. The Council recognises the impractical nature of keeping parts of the system operational whilst carrying out a comprehensive upgrade.

North Somerset Council accepts that a complete closure of the system may be necessary for the works to take place expediently and safely.

The total ‘down time’ (cameras not working in total) should be no more than 3 calendar weeks.

A further 3 weeks will be allowed (five weeks in total) for ‘snagging’ (where ‘parts’ or individual cameras) may be inoperative.

The total completion date for completion of the works in their entirety is therefore expected to be 8 weeks

* 1. **Wharton Time Clock**

A new Wharton NTP time clock (or similar) is to be supplied. The rack mounted unit is to be installed in the equipment room where the network video recorders are to be installed.

The Contractor must connect all new Control Room equipment to this device. All equipment capable of using a NTP time source (including cameras, recorders, workstations, network switches and network equipment) must be set to use this NTP time source.

* 1. **Control Room Power Requirements**

The Contractor is responsible for all power cabling including mains cabling and low voltage cabling and must include costs for any mains spurs required in their price.

* + 1. **Surge Suppressors/Filters**

A mains filter must protect all items of equipment installed by the Contractor so that spikes and surges do not damage equipment (this may be an integral part of a UPS or a separate item).

* + 1. **UPS**

A new UPS will not be required to support the CCTV operation within the Control Room in the equipment room.

* + 1. **Generator**

The site electrical generator is already supplied to protect the building and is not part of this contract.

* + 1. **Commando / Desk Sockets**

The Contractor is responsible for all power cabling including mains and low voltage cabling and must include costs for any mains spurs required in their price.

* 1. **IT Requirements**

The VSS Security network is to be a separate LAN, which will not be managed by the NSC Information and Communication Technology (ICT) Department.

The Contractor is to design, install, configure and support the complete VSS IP Network.

Only the NSC personal computers are to remain on the existing NSC LAN.

* + 1. **Network Switches**

The Contractor must provide all IT switches. The Contractor is free to choose their preferred network switch providing the warranty of the switch is equal to or greater than the contract period of the maintenance of the complete VSS.

All network switches are to be rack mounted within the equipment room in a newly supplied rack.

* + 1. **Multicast**

The complete IP network is to be designed to support Multicast groups. Given the number of operator positions at the present time, Multicast is not required for the VMS however, should Multicast be required in the future, the complete IP network is to support Multicast without the replacement of any physical equipment.

* + 1. **CCTV Network IP Addressing**

Although the IP network is to be managed by the Contractor, they are to liaise with NSC ICT department in the selection of the class of IP addresses to be used within the new VSS IP network.

The IP network is to have a spare 30% IP address capacity once the CCTV upgrade project is complete to allow for additional IP HD Cameras to be installed later.

* + 1. **Network Security**

The VSS IP network will become vulnerable to an intrusion as BT RS1000 circuits are upgraded to support IP data at certain camera locations. Should an intruder gain access to the base of a camera column or location where the BT RS1000 circuits are there will be an exposed IP network connection that they could utilise to access the VSS IP network.

The Contractor is to provide an IP network that can address and solve the issue of these exposed IP connections so anyone gaining access to an external IP data circuit, or any other IP circuit, cannot enter the VSS IP network from that location.

The contactor is to supply details of how they will address the network security in their response.

* + 1. **Remote Support Connection**

The Contractor is to provide a remote support facility as part of their maintenance contract.

The Contractor will be granted access to the VMS recording platform to assist in the investigation of any reported issues in relation to the VMS system.

The final remote support connection design is to be agreed with NSC’s ICT Manager upon project award.

* + 1. **Firmware / Software Updates**

Contractors will be required to update operating systems with updates as required by the ICT department and those released by the manufacturer of the VMS or CCTV cameras. Regular updates are to take place as part of the support contract.

The Contactor is to ensure any firmware or software update will not impact the functionality of the PSS VMS before they are deployed into the operational CCTV System.

* 1. **Cabling Requirements** 
     1. **Cabling Standard**

All cabling must be neat, tidy and properly supported/tied down and in compliance with the NACOSS standard.

* + 1. **Cable Labelling**

All cabling used by the Contractor must be labelled to the minimum NSI standard with the camera ID or other unique number using ID tags that fasten around the cable. (Labels that stick on or are looped and stuck together are not acceptable).

* + 1. **Data Patch Panel**

All data cabling used by the Contractor must be connected to a patch panel or network socket and not wired directly into the rear of the equipment. This is to allow easy disconnection and testing of each camera feed or data link without the need to pull the equipment rack out or to move equipment. The Patch Panel must be labelled with the ID of each camera or destination.

* + 1. **Network Cabling**

The Contractor is to provide all necessary network cabling and containment to support the following: -

* VMS workstations
* VMS Control Room video wall controllers
* Joystick Keyboards
* Control Room IP cameras
* Wharton time clock
* Control Room clock

The structured cabling system, comprising Category 6 UTP cabling, is to be terminated to wall or ceiling-mounted outlets.

* 1. **Rack Build Quality**

All cabling, and installation work must comply with all relevant standards as specified by the National Security Inspectorate (NSI).

The Contractor is to provide all necessary cabling and containment to support the VMS equipment.

The structured cabling system within the racks, comprising Category 6 UTP cabling, is to be terminated to rack mounted patch panel.

* 1. **Containment and Make Good**
     1. **Containment**

All external cabling must be housed in galvanised conduit.

All internal cabling must be housed in white high-impact plastic conduit.

All cabling in roof spaces must use cable trays.

* + 1. **Fire**

The Contractor must preserve the integrity of all fire prevention measures including the use of fire stop filler and low smoke cables for their work.

* + 1. **Make Good**

The Contractor must make good any parts of the building they carry out work in (including when removing redundant equipment and redundant cabling).

* 1. **Other requirements**
     1. **Legislation**

The Contractor must ensure all work meets relevant legislation in force during the course of the Contract and will act as Principal Contractor should they sub-contract any of the work to a 3rd party (e.g. electrical connection work).

* + 1. **Disposal and Retention of Equipment**

The Contractor must include for the disposal of redundant equipment in their costs.

The Contractor must be able to demonstrate to the Council that all electrical items disposed of have been dealt with in accordance with WEEE requirements. Any data storage device is to be handed over to NSC for NSC to dispose of.

* + 1. **Equipment Racks and Bays**

The Contractor will be expected to reutilise the existing equipment racks but if there is insufficient space, will supply new equipment racks if required.

* + 1. **CE Mark**

All equipment must be CE marked and Certificates of CE Certification will be required when the system is handed over.

* + 1. **Serial Numbers and Asset List**

The make, model and serial numbers of ALL equipment must be provided, and an asset list created prior to the handover of the system. This includes any retained, existing equipment.

* + 1. **Items Damaged during Installation**

The Contractor must repair or replace any items of existing equipment that they break, damage or cause to fail as a result of the works, including existing equipment that they modify, upgrade, update or connect to.

* 1. **Non-Proprietary Systems**

The Council will not accept any products that are proprietary or that are only available to specific companies.

All products must have the ability for any competent company or engineer to purchase, repair, obtain technical support and carry out configuration changes.

For example, software that can only be supplied or configured by one company will not be accepted.

All products must have manufacturer technical support in English and be available during office hours.

In the event of any customised software, which is not on general sale, the Contractor must make available the software and any license keys to the Council for use by any future Contractor (e.g. a future maintenance Contractor).

# General Data Protection Regulation (GDPR)

The GDPR 2018 regulation, which came into effect May 2018, dictates privacy must be by design from the outset and NSC require this consideration to form part of any CCTV VMS solution. The privacy by design obligation in the GDPR requires an approach to systems engineering in which Data Protection principles, such as encryption and the anonymisation of video data, for example, are included from the outset in any system design.

In addition, Data Controllers will also be responsible for ensuring that, by default, the minimum amount of data is collected and retained. Video surveillance and CCTV systems that record continuously and store images indefinitely (such as in an Evidence Locker with no regime to review its removal) will be in breach of this provision; as a result, Data Controllers need to adopt video surveillance systems with features that offer flexibility in video recording operations that would enable them to control how long images are retained.

For this purpose, NSC requires the Contractor to supply a VMS that has the ability to bring to the attention of supervisors/managers the CCTV data held in the Evidence Locker or equivalent data storage device and to flag up for consideration after a prescribed period to the supervisor, should further retention be authorised; a full audit trail of all actions will be required. Anticipated milestones for ‘flagging’ are likely to be after 60/90/120 days. Those requiring longer retention, for example if the data is used as evidence in court, may require flagging annually until the disposal date has been reached.

Additionally, the ability to mask images and pixilation technology (privacy protection of individuals when sharing data) is an essential element required by NSC. This function is likely to be carried out historically after the event has been captured and individual people need to be obscured. It will be advantageous if such a facility can be operated automatically in real-time video recording of both people and vehicles. It must be possible to reverse this obscuring should authorised persons need to view those who have been pixelated.

A key provision in the GDPR is that Data Controllers will be responsible for managing access to the data being collected in their systems. This is important for both privacy and for managing possible data breaches as the proper management of access rights can help to reduce the chances of an unintentional data breach.

Authentication and authorisation are two ways for Data Controllers to control who can access the video and data being collected in their systems. Data controllers can protect access to their systems through authentication mechanisms that ensure that personnel access the correct system when they log in. Authentication uses certificates, username/password combinations, and tokens to prevent cyber-criminals from pretending to be a security server in order to penetrate a security system and manipulate, copy, or take control of the data.

Authorisation involves controlling who sees the data within a system and what they can do with that data. With authorisation capabilities, data controllers can restrict the scope of activity within their system by giving access rights to groups or individuals for resources, data, or applications and by defining what users can do with the resources, thereby ensuring the security of the data transmitted and stored within their systems.

NSC need to be assured that the proposed VMS solution will provide these two levels of authentication and authorisation.

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# 12.0 Training

The Contractor must allow for comprehensive training of the NSC Control Room Staff (CCTV operators).

Train the Trainer training will be required.

CCTV Operators (and other authorised and identified users) training must consist of a minimum of a 1 day Training Course to cover the operation of the workstation and VMS for live video, Control Room software, monitor wall, video recorders/replay/exporting, camera control, selection, tours and pre-set programming and camera functions, re-deployable cameras and the web interface, handling of alarms, video wall control displays and for replaying recordings and searching for events on the recorder and exporting evidence, etc. It must also include supervisor roles such as settings user permissions and reviewing audit logs if supervisors or managers are present, configuring the map, setting pre-sets and tours.

The Contractor must also provide a 1-day refresher course for CCTV Operators (and other authorised and identified users) after 1-3 month to cover any additional items or queries.

Due to the number of staff, several courses may be required.

It is expected there will be four (4) staff that require the 1-day CCTV Operator training spread over 3 days to allow staff on different shifts to attend.

Training must include the provision of a hard copy of the operator manuals for all equipment. It is a requirement that training is completed prior to the Formal Handover/Take Over of the system.

The Contractors method statement must detail the number of courses to be run with an overview of the course content.

# 13.0 Documentation

**13.1** **General**

The Contractor shall, in accordance with the submitted Work Programme, provide such documentation to cover the following aspects of the works: -

* Final System Specification
* Health and Safety Plans
* Quality Assurance
* Equipment Testing, Approval and Certification
* Maintenance
* Training manuals

All documentation shall be submitted in a suitable format written in English. Hard copy documentation shall be in a format approved by the CCTV Manager but shall generally be on A4 paper for all typed documents and A4 or A3 for drawings and tables. This should be supplemented with electronic copies if required.

A soft copy of the Contractor’s Work Programme shall be provided in a format readable of Microsoft Project™ or equivalent and Adobe Acrobat™ or equivalent. Hard copy documentation shall use standard text sizes and be bound with a rigid and durable cover.

Wherever possible, schematics and diagrams shall be incorporated within the documents where appropriate to assist in ensuring clear and concise documents are provided. The Contractor shall make adequate allowance in the Work Programme for the preparation, submission, amendment and approval of all required documentation.

**13.2 Quality Plan**

The Contractor shall produce a Quality Plan for the Contract, which will be subject to the CCTV Manager’s approval. The Quality Plan shall define procedures for project management, design, development, construction, manufacturing, installation (where carried out by the Contractor), commissioning and testing. Wherever references are made to the Contractor’s standard procedures and operating instructions, copies of these shall be supplied at the CCTV Manager’s request as a part of the Quality Plan.

**13.3 Health and Safety Plan**

The Contractor shall prepare a Health and Safety Plan to include all procedures regarding the provision of the System, including installation (where carried out by the Contractor) and configuration. All appropriate regulations shall be taken into account. The Health and Safety Plan shall be agreed with the CCTV Manager.

The Contractor shall comply with the provisions of S.I. No. 138 of 1995, the Safety, Health and Welfare at Work (Construction) Regulations, 1995. All work by the Contractor shall comply with the Approved Code of Practice and Guidance (ACOP), Managing Health and Safety in Construction, Construction (Design and Management) Regulations 2007. The Contractor shall ensure that all personnel involved in the installation works are made aware of the need to comply with safe working practices as detailed in the Contractor’s Safety Statement.

The Contractor shall prepare and submit risk assessments for all working environments associated with the Works. The Contractor shall take account of the requirements and recommendations contained in the relevant regulations and requirements, in any documents superseding them and in any other relevant documents, published or issued prior to the date of the Contract.

The Contractor shall obtain approval from the CCTV Manager for the proposal of the measures that shall be employed to control risks at the Site.

**13.4 Design Specification**

The Contractor shall prepare a Design Specification describing in general terms how the proposed equipment provides the functions and meets the performance criteria identified in this Specification. This shall describe the internal and external interfaces of the equipment and how it meets all the requirements defined in this Specification. The Design Specification shall be agreed with the CCTV Manager.

**13.5 Work Programme**

The Contractor shall submit a final, more detailed version of the Work Programme than was submitted in the Tender submission prior to the works commencing. The Work Programme shall include, as a minimum, start, duration and completion date of major activities as well as key milestone dates, (e.g. dates for testing) and method statement for works to be carried out, including a description of the works and proposed timing.

The Work Programme shall also, as a minimum, show the programme and sequence in which any mobilisation and preparatory work is to be completed and new equipment, infrastructure and cabling is to be installed, commissioned and tested. As previously stated, the Contractor is expected to work with NSC and the Town Councils to agree the final work programme, taking into account any changes or additions from NSC and the TC’s that may transpire as a result of tendering and receiving pricing.

Site Works shall not commence until the CCTV Manager approves the Work Programme.

**13.6 Operating and Maintenance (O&M) Instructions**

Prior to issuing a Formal Handover/Taking-over Certificate, the Contractor must supply handover documentation including the following: -

* Final system design (detailed overview of system functions and operations)
* Operator's manual
* Hardware manual
* Complete system schematic diagrams (as built)
* List of Make/Model, Serial Number and Software/Firmware versions of all equipment
* IP Addressing Schedule
* Details of site-specific configurations of equipment
* Usernames and Passwords (both user and administrator/engineer)
* Maintenance and routine servicing manual
* Certification and commissioning test schedules and data
* NICEIC Electrical Installation Certificate issued for each electrical installation (If completed by the contractor)
* DVD containing a backup of configuration files from the workstations and recorders
* DVD containing the data sheets, operator manuals and engineer manuals for all equipment

**13.7 Tests on Completion and Taking-over Certificate**

Once the training is complete and Operation and Maintenance documentation is prepared, the Contractor must demonstrate the working of the systems and compliance to the specification to the Council and its CCTV Manager.

**13.7.1 General**

* Testing and commissioning of all services shall be the responsibility of the Contractor and shall be undertaken to the satisfaction of the CCTV Manager
* The Contractor shall demonstrate that each item is designed for the purpose for which it will be used and that it meets the requirements of this Specification
* The Contractor shall supply a proposed acceptance test plan for the equipment within one month of the start, which will form the basis of the agreed acceptance test plan
* It shall be the responsibility of the Contractor to certify that all tests have been carried out and that the results prove fitness for purpose
* The CCTV Manager will reserve the right to witness, by self or nominated party, all tests performed under this Contract

**13.7.2 Testing Process**

A two-phase testing and commissioning process is proposed, in order to demonstrate the operation of the equipment and complete the overall project within the time scale. These phases are: -

* Site Acceptance Test (SAT)
* Completion Test (CT)

The Contractor’s Work Programme shall make provision for all tests. The Contractor shall deliver Test Specifications for the SAT and CT, for approval by the CCTV Manager, at least two weeks prior to commencing testing in each case. The results of the testing shall be fully documented and delivered to the CCTV Manager within two weeks of completion of the test.

The Council will be responsible for ensuring the continued availability of the Council’s communications network and the continued availability of camera video feeds and mains power supplies to the System during the period of the SAT and CT.

**13.7.3 Site Acceptance Testing**

When installed, a full SAT shall be carried out which shall test all system features and operations in an installed environment.

The Contractor shall provide to the CCTV Manager a SAT Specification in accordance with the documentation requirements for the approval of the CCTV Manager.

The CCTV Manager will determine the time of day at which each camera will be tested. This may include testing in peak traffic periods, under bright sunlight, in the hours of darkness and, where weather permits, in periods of heavy rain or other adverse conditions. The CCTV Manager may elect to repeat the tests for particular cameras at different times of the day in order to determine performance over a range of traffic and weather conditions.

All SAT results shall be provided to the CCTV Manager in accordance with the documentation requirements identified above.

Following successful completion of the SAT and with the agreement of the CCTV Manager, the Contractor shall supply all SAT measurements and results to the CCTV Manager together with two copies of the SAT Certificate. Each copy of the SAT Certificate shall be signed by the CCTV Manager and the Contractor’s representative, one copy will be retained by the Contractor and the second copy by the CCTV Manager. The form of the SAT Certificate shall be agreed by the CCTV Manager prior to the SAT.

**13.7.4 Completion Testing**

The Completion Test (CT) shall demonstrate the following: -

* Check of Telemetry Control, PTZ, Focus, Iris, Tours, Pre-sets, Wipers, IR Lamps
* Check of image clarity on spot monitors and back wall
* Time Sync checks
* Digital Recorder Checks for clarity, recording duration and export
* Analytics tests
* Step by step check of compliance to each part of the specification
* Check of on-street equipment and installation
* Checks of user permissions and generation of audit logs/reports of user activity
* The complete System has been installed and is fully functional to the requirements of this Specification
* In the opinion of the CCTV Manager, the System has been available and performing in a fully functional and reliable fashion for an uninterrupted Trial Period of two weeks (14 days) following the issue of the SAT Certificate. During this period, down-time of any individual component of the System should be highly irregular and should not affect the overall performance of the System in any meaningful way; and
* All documentation, tools and other services have been completed and issued.

The CT shall not commence until all as-built drawings, operating and maintenance manuals and other documentation have been delivered to the satisfaction of the CCTV Manager.

Prior to the CT, the Contractor shall provide to the CCTV Manager a CT Specification in accordance with the documentation requirements identified above for the approval of the CCTV Manager. All CT results shall be provided to the CCTV Manager in accordance with the documentation requirements previously identified.

Following successful completion of the CT and with the agreement of the CCTV Manager, the Contractor shall supply all CT measurements and results to the CCTV Manager together with two copies of the Take-Over Certificate. Each copy of the Take-Over Certificate shall be signed by the Supervisor and the Contractor’s representative, one copy will be retained by the Contractor and the second copy by the Supervisor. The Supervisor prior to the CT shall agree the form of the Take-Over Certificate.

The Council and CCTV Manager may also carry out their own independent checks. Any issues found during these checks will be documented in a Snagging Report and the Contractor must resolve these within 2 weeks after which time the Contractor must demonstrate the working of the system and compliance to the specification.

If there are any issues, a snagging list will be produced and the Contractor will be required to rectify any snags or faults within 2 weeks. The Council and their CCTV Manager will then re-test the system.

Once handover has been accepted, a Completion Certificate will be issued and the 12 months defects liability period for the newly installed equipment will commence.

# 14.0 Service and Maintenance

Costs are required for a 3 year Maintenance Agreement which will be required to support this CCTV system to run concurrently with the Defects Liability Period (DLP) of the new equipment, which will expire 12-months after the Acceptance of the new System. This maintenance contract will cater for and include all equipment, which forms part of the North Somerset Council CCTV systems and includes all existing and new equipment. Response to faults will be from a tiered priority level set out in the below paragraphs. The maintenance contract will be managed using a Service Level Agreement (SLA), as set out in table below at 14.1, which will measure amongst other items, the response to the Priority Levels set out below.)

The Contractor must also provide the Council with: -

1. Four (4) x Cleaning visits per year – quarterly. A schedule should be provided to establish a timetable.
2. Supply a single point of contract within the organisation for all maintenance issues including SLA’s, response, quotes, PO’s etc and the general management of the contract.
3. Supply monthly data on faults as specified in the SLA and this document for service performance monitoring including the type of fault, repetition, time to acknowledge, attend and rectify.
4. 2 x Planned maintenance visits per year for preventative reasons and to ensure brackets, poles and camera mounts are securely in place and unit seals intact and functioning correctly as detailed in 14.2.2.
5. Carry out repairs of the entire CCTV system, including cameras, where faults or damage occurs, costs of which are inclusive of the annual maintenance sum within the pricing schedule. Exceptions to this include the following:
   1. Acts of vandalism or negligence:- Should any part of the CCTV system fail as a result of wilful vandalism or negligent operation it will be acceptable for the contractor to impose a charge which will be pre-agreed as per the pricing schedule. This also applies to accidental damage such as road traffic collisions
   2. Force Majeure:- It is accepted that contractual obligations will not be enforced when it becomes impossible or impracticable due to situations beyond the control of the maintenance provider.

Although the Tender requests four maintenance options to be priced in The Contractor proposal, the evaluation will only take into account the submitted price relating to item iv. below.

1. The **PSS CCTV systems** including the Control Room equipment, based on options of response and equipment: -
   1. 24/7/365 fully comprehensive maintenance contract **including** all parts, labour, plant and tools
   2. 24/7/365 maintenance contract including all labour but **excluding** parts
   3. Monday-Friday 0800-1700 (excluding weekends and public holidays) maintenance contract **including** all parts, labour, plant and tools
   4. Monday-Friday 0800-1700 (excluding weekends and public holidays) maintenance contract including all labour but **excluding** parts

Contractors must note that if a) i or iii maintenance contract is chosen this will be an “all parts” (like for like) contract where the Contractor at their expense must replace any item of equipment that fails. This will apply both to new equipment and any existing equipment that remains in use.

Contractors must include in their price any back-to-back maintenance contracts that are required (for example from hardware manufacturers or from ANPR system vendors) in order to deliver a single maintenance price with the required response times.

In the event of the contract being chosen where parts will be charged additionally, the Council needs to understand cost implications relating to the replacement of the equipment forming part of the system and any plant required to carry out the maintenance and repairs. Contractors are required to supply with their tender return a Schedule of Rates to be used in this contract. The rates must include Day Rates, call out charges on weekends, Public Holidays and ‘out-of-hours’ responses and all other costs associated with the provision of the service to include any associated equipment necessary to deliver the service.

**14.1 Public Space Surveillance CCTV System – Response required from the CCTV Contractor**

Irrespective of the choice of the Council to adopt a) i-iv, it requires the provision of this maintenance response service based on the following criteria (it should be noted that the camera numbers identified may change with the introduction of the new system but the corresponding number will be inserted and will mean the same): -

|  |  |  |  |
| --- | --- | --- | --- |
| **PRIORITY** | **RESPONSE** | **REPAIR/WORKS COMPLETION** | **WORK TYPE** |
| **Priority 1** | Within 4 Hours | Attend fault until repaired, subject to the availability of materials | Applicable to ‘Priority Cameras’ to be identified and agreed with the Contractor.  Loss of any/all Control Room equipment that adversely effects the overall operation of the system. Attendance to any CCTV equipment that is considered to be an immediate health and safety risk. |
| **Priority 2** | Next working day  (Excluding Weekend & Bank Holidays) | Next working day  (Excluding Weekend & Bank Holidays) | Recovery and making safe any camera or associated equipment installed in a public area that has suffered from accidental or deliberate damage. |
| **Priority 3** | Within 72 Hours (Excluding Weekend & Bank Holidays) | Within 168 Hours (Excluding Weekend & Bank Holidays) | Faults to cameras (not Priority 1) and NSC’s transmission infrastructure.  Faults to premises/facilities management systems.  All other failures and faults. |
| **Priority 4** | Within 72 Hours (Excluding Weekend & Bank Holidays) | Timetable to be agreed with the Contract Administrator | Faults where the damage requires street works and a civil engineering contractor. |

**14.1.1 Telephone and Email Fault Reporting**

Fault reporting will be carried out by use of telephone with logged calls to the Contractor who will provide a reference number to the fault reported. Outside working hours, this will be carried out by email notification.

**14.1.2 Maintenance Contract**

All Contractors must submit a copy of their normal maintenance contract appropriately amended to reflect the above minimum stipulations.

**14.1.3 Location of Maintenance Engineer**

The engineer is expected to be based within a reasonable distance of the system in order to ensure that response times are achievable. Contractors should state where the engineer servicing this contract will be based.

**14.2 Planned Preventative Maintenance and Cleaning**

The Contractor must include two (2) x PPM visits per year to check and assess every camera and all transmission system and Control Room equipment and to carry out cleaning (4x per year). When attending camera faults, the Contractor shall carry out preventative maintenance on all equipment covered by the contract. That maintenance shall constitute, as a minimum, the following actions: -

The Contractor must include (as a minimum): -

**14.2.1 Control Room**

* Camera selection controls, Pan and tilt operation, Zoom and focus operation (all cameras)
* Recording and Playback (all cameras)
* Time synchronisation of workstations, recorders and cameras.
* Check live image quality and smooth PTZ control
* Check Pre-sets, Tours and Privacy Zones (over all cameras)
* Check recorded image quality and duration (e.g. 31 days)
* Check hard discs
* GUI Mapping up to date and relevant
* Filters and fans clean of dust and debris
* Apply software updates (CCTV Software and Operating System) including critical updates
* Monitor selection controls

**14.2.2 Camera Sites**

* Visual check for vandalism/ damage
* Check mountings are secure
* Check Brackets
* Check weather proofing of camera
* Examine weather-proof catches ensure they are lubricated
* Check for water ingress
* Check Seals
* Check cable plugs and sockets
* Check wiper unit and blade (if fitted)
* Ensure all lenses and domes are clean
* Confirm operation of zoom, focus and iris
* Check back focus
* Test all camera functions
* Change IR/white light lamps (if fitted)
* Check Cabling, PSU and PSU voltage
* Apply critical software updates to cameras

**14.2.3 Street Cabinets/Wide Based Columns/Towers**

* Check all pole/tower mounting points and pole tilting mechanisms (if fitted)
* Ensure access hatch is secure and functional
* Carry out maintenance as per structure/manufacturers manual
* Check cabinet for vandalism
* Check for fly tipping/bill posters (and report to the client)
* Ensure box and doors are serviceable and secure
* Check earth connectors
* Check earth leakage protection
* Confirm power supply
* Check Heater thermostats (if fitted)
* Check Edge connectors of all panels

**14.2.4 Transmission**

* Check Transmission Links, transmission electronics and cabling
* Check seals and cable glands
* Check and record the current signal strength on Wireless links
* Check and record the percentage of packet loss/corruption
* Check fans, cables, PSU’s and PSU voltages
* Check for water ingress
* Check and report on firewall logs and syslog/SNAP trap events (working with IT)
* Check transmission uptimes
* Test Signal level on all lines
* Apply critical software updates to transmission equipment and network equipment

Contractors must submit a report covering the checks and any repairs they have carried out.

**14.2.5 Other CCTV Related Equipment**

* As per Manufacturer’s Instructions

**14.3 Loan Items and Advanced Replacement**

Where a fault cannot be repaired in the required time, a loan item must be installed. Where Loan Items are used, these must be of an equivalent specification and training must be given to staff if the item is operated differently to the existing equipment.

For equipment failures that cause a critical fault, the Contractor must have in place Advanced Replacement contract to allow replacement items to be installed while repairs take place.

**14.4 Manufacturer’s Warranty Periods**

* All Digital Recorders must have a minimum of 3 years manufacturer’s warranty (including discs).
* All other equipment must have a minimum of a 2 year manufacturer’s warranty

If extended warranties are required to meet these requirements, these must be included in the tender sum. This will allow Contractors to reduce their maintenance costs. Contractors are responsible for completing any registration details required for these warranty periods.

**14.6 Reporting and KPI’s**

The Council will require Monthly Fault Reports to provide information against the following KPI’s: -

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref** | **Description** | **Target** | **How Measured** |
| KPI1 | Faults dealt with in the P1 to P4 response times | 100% | Through monthly fault reports submitted by the Contractor validated by internally collected information. Outstanding faults and their reason will also be compiled showing anticipated repair time. Response and fix times will also be included. |
| KPI2 | Cameras operational in the system | 97% | Through monthly fault reports submitted by the Contractor validated by internally collected information. Outstanding faults and their reason will also be compiled showing anticipated repair time. Response and fix times will also be included. |
| KPI3 | Planned Preventative Maintenance (PPM) visits carried out | 1 (one) every six months | Through submission of completed PPM report within six months from last submission (this may be carried out in an on-going manner in a rolling programme as opposed to just at 6 monthly intervals). In this case, these may be reported monthly. |
| KPI4 | Cleaning of cameras carried out | 1 (one) every three months | Through submission of completed cleaning report within three months from last submission. |
| KPI5 | All faults logged and recorded | 100% | Through monthly fault reports submitted by the Contractor validated by internally collected information. |

**14.7 Method Statement**

The Method Statement must include a breakdown of the maintenance method plan(s) describing how the Contractor will meet the minimum requirements and KPI’s in this specification.

# 15.0 Pricing

The rates and prices entered in the Pricing Schedule in the Contractor’s Tender submission shall be deemed to be fully inclusive and fixed price of all work required to design, construct, implement, test and commission all services outlined, except that work to be carried out by the Council or the Council’s nominated contractor. Please complete the pricing schedule table to give a breakdown of how the fixed price is calculated. The pricing table is also to show make and model of equipment.

All work carried out by the Contractor shall be undertaken in normal office hours (8 am to 5 pm Monday to Friday) unless otherwise authorised in advance by the CCTV Manager. The equipment may be required to be installed during the daytime or the night-time, weekday or weekend, as directed by the CCTV Manager. The prices included in the Schedule of Prices shall be fully inclusive of this requirement.

The Contractor shall carry out works in accordance with the Work Programme agreed with CCTV Manager. The Contractor shall provide at least 24 hours’ notice to the CCTV Manager (excluding Saturdays, Sundays and statutory holidays) in the event of any cancellation in attendance of the Contractor at the site or in the event of any proposed attendance that has not been agreed with the CCTV Manager as part of the Work Programme. Any such variations requested by the Contractor shall be agreed with the CCTV Manager and shall not in any case adversely affect the overall Work Programme.

Contractors should note that: -

* 1. Main installation and equipment prices need to be valid for 6 months from the Tender Submission deadline
  2. Specified Maintenance prices need to be valid for 6 months from the Tender Submission Deadline
  3. Installation and equipment prices (and additional maintenance which indicated) included in the schedule of rates needs to be valid for 3 years post contract award

All prices must exclude VAT.

# Pricing Schedule

Please see Appendix B- Pricing Schedule