**Appendix 4 - Specification**

**1 Scope of Works:**

The contractor shall submit a design for an IP CCTV System to comply with (Design, Installation and Maintenance of CCTV Systems) including the requirements ofBS EN 50132-7:2012.

**2 Installation Standard:**

The works are for the installation of new CCTV systems across the Balfour of Burleigh and the Treverton & Raymede Estates, Ladbroke Grove, North Kensington, London.

The contractor shall supply and install a new system using the specified Bosch (or equivalent approved) Hikvision manufactured equipment including both cameras and NVR (Network Video recorder) units. The system shall be designed to capture images for persons and vehicles entering and leaving the estate external communal areas.

**3 System Purpose:**

Prevention and detection of crime.

Apprehension of offenders.

Public and Employee Safety and Security.

**4 General Standards**:

The installation shall meet the following standards as a minimum.

BS8418 – Installation and remote monitoring of detector-activated CCTV systems, Code of Practice.

BS EN 62676-1-1 – Video surveillance systems for use in security applications, Part 1-1: System requirements – General.

BSEN62676-4 – Video surveillance systems for use in security applications, Part 4: Application guidelines.

BS EN 62676-2-1 – Video surveillance systems for use in security applications, Part 2-1: Video transmission protocols – General requirements.

BS EN 62676-2-2 – Video surveillance systems for use in security applications, Part 2-2: Video transmission protocols–IP interoperability implementation based on HTTP and REST services.

BS EN 62676-2-3 – Video surveillance systems for use in security applications, Part 2-3: System requirements – Video transmission protocols – IP interoperability implementation based on Web services.

BS EN 62676-3 – Video Surveillance systems for use in security applications, Part 3: Analog and digital interfaces.

**5 Cable Installation:**

It is the responsibility of the contractor to include for cable containment as necessary. All cables should be installed in accordance with the manufacturer’s instructions for MBR (maximum bend radius) and in accordance of BS7671.

All cables will be RG59 coaxial / fibre optic, or cat 6 as necessary.

External cameras shall be fed by 20mmgalvanised conduits.

The areas will be connected back to the central hub points. Balfour of Burleigh Estate hub will be situated within Bruce House in an appropriate secure location. Treverton & Raymede hub will be situated within Treverton Tower in an appropriate secure containment in the caretaker’s office.

**6 General Installation Notes:**

All equipment will be secured using appropriate fixings and in accordance with the manufacturer’s recommendations.

All equipment will be installed in locations as agreed with the Client and this specification, final positions to be agreed on site with the client.

The contractor shall allow for all builders’ work associated with the installation. The contractor shall make good all fire barriers to a standard equal to or greater than the current Building Regulations.

All re-instatement of fire-stopping, unless specifically detailed in the pricing schedule, is the responsibility of CCTV Installation Contractor.

All installation work will be carried out by suitably qualified engineers and their assistants and overseen by the RBKC Project Manager.

It is the responsibility of the CCTV contractor to program the system as required by the client and prove the operation of the system complies with the required standards.

The contractor shall ensure that the equipment and cabling will be adequately installed in order to provide security and be protected against vandalism.

The contractor will be responsible for the provision of all power supplies to all equipment including recorders, monitors, transmission equipment etc.

**7 Functional requirements**

**7.1 Introduction:**

The purpose of this document is to provide guidance and a minimum specification for the installation of the CCTV system at the Balfour of Burleigh and Treverton & Raymede Estates.

To achieve clear, high-resolution, video images, both day and night in order to identify, recognise, detect or monitor an area, as detailed by the client.

The contractor is to include for any signal amplification that may be required at the monitor in order to achieve high-quality video.

The contractor is explicitly responsible for the quality of the video images and the video link from the camera location to the control equipment / control room, including any transmission equipment required to provide this.

**Identify:** Target image occupying a minimum of 120% of the screen height. Picture quality and detail should be sufficient to enable the identity of an individual to be established beyond reasonable doubt.

**Recognise:** Target image occupying a minimum of 50% of the screen height. To enable the Client, with a high degree of certainty, to confirm whether an individual shown is the same as someone they have seen before.

**Monitor & Control:** To record the images in a digital format onto a NVR. All cameras shall be of the motion sensing type (recording images when motion is detected).

**8 General:**

All camera housings and ancillary equipment installed, and visible from ground level, shall be as discreet as possible and finished in a neutral colour.

The final location of all cameras and ancillary devices shall be agreed with the Client. The location of the viewing monitors shall be wall mounted in the designated secure Hub location, with the recording equipment located adjacent.

**9 Cameras:**

The cameras should have a minimum horizontal resolution of 480-TVL for colour operation and 540-TVL for monochrome. They should operate down to 0.5-lux for colour and 0.04-lux for monochrome.

The external cameras will be IP66, dome cameras complete with clear dome covers.

The cameras should feature programmable privacy zones.

All external cameras shall be low voltage, via a local 24V ac power supply.

Cameras when in an open area should be installed, where possible, at 4 metres above ground.

The internal cameras will be IP56, dome cameras complete with clear dome covers.

**10 External Fixed Cameras:**

All external fixed cameras will be discreet dome colour / monochrome switching, i.e. during the hours of daylight they will produce a full colour image; however when the light levels drop below a pre-determined level then the camera will automatically switch to monochrome operation, allowing the camera to function in reduced lighting. This should be TRUE day / night switching. Where cameras are looking into changing lighting conditions, i.e. doors, an entrance foyer etc, then it is recommended that the camera chosen should utilise the PIXIM sensor chip.

The camera should be a vandal resistant dome camera, complete with a clear dome cover and designed to mount directly on to a soffit or wall, other mounting options should be available to facilitate surface, flush or wall mounting. The dome should be environmentally protected to IP67, and impact resistant. (Where the installation of a dome camera is not feasible then a standard “box” style camera with the same specification, mounted in an environmental housing with concealed cable management will be considered).

Each camera will have a minimum resolution of 540 horizontal TVL and operate down to 0.5-lux for colour operation and 0.2-lux for monochrome.

Cameras should be Ultra-Wide Dynamic Range.

The camera should be fitted with a manual vary-focal lens (2.9-8.0mm), or lens calculated to suit requirements, to enable the optimum viewing angle to be achieved during commissioning. This lens should be IR-corrected.

The cameras shall be equipped with a manually adjustable swivel head within the dome for manual positioning of the camera during commissioning; this should be a 3-axis adjustment.

Cameras should be installed where possible in positions where they are difficult to be accessed and vandalised.

**11 Internal Fixed Cameras:**

The cameras should be either tamper resistant or mounted in a way that makes them tamper resistant.

All internal fixed cameras will be discreet dome colour / monochrome switching, i.e. during the hours of daylight they will produce a full colour image; however when the light levels drop below a pre-determined level then the camera will automatically switch to monochrome operation, allowing the camera to function in reduced lighting. This should be TRUE day/night switching. Where cameras are looking into changing lighting conditions, i.e. doors, an entrance foyer etc, then it is recommended that the camera chosen should utilise the PIXIM sensor chip.

The camera should be a dome camera, complete with a clear dome cover and be designed to mount directly on to a soffit or wall, other mounting options should be available to facilitate surface, flush or wall mounting. (Where the installation of a dome camera is not feasible then a standard “box” style camera with the same specification, mounted in an environmental housing with concealed cable management will be considered).

Each camera will have a minimum resolution of 540 horizontal TVL and operate down to 0.5-lux for colour operation and 0.2-lux for monochrome.

The camera should be fitted with a manual vary-focal lens (2.9-8.0mm), or lens calculated to suit requirement, to enable the optimum viewing angle to be achieved during commissioning. This lens should be IR-corrected.

The cameras shall be equipped with a manually adjustable swivel head within the dome for manual positioning of the camera during commissioning; this should be a 3-axis adjustment.

All internal fixed cameras shall be low voltage (12V dc or 24V ac), and will be powered from a central power supply, with each output individually fused.

**12 Camera Locations:**

As Per Attached Diagram but confirmation on site walkover:

Treverton Towers, 4 Cameras

Raymede Towers, 3 Cameras

Burleigh House, 1 Camera

Bruce House, 1 Camera / 1 Pole Camera Upgrade. Current Pole to be reutilised.

Balfour House, 4 Cameras

319a – 333 Ladbroke Grove, 2 Cameras

16 Cameras Total

**13 Digital Video Recording & Networking:**

The contractor shall supply and install 2 x recording and viewing equipment in the Caretaker or Electrical Intake Rooms of Bruce House and Treverton Tower, exact position to be agreed with the Client.

It will also be the responsibility of the contractor to confirm any licensing requirements relating to the security management software and ensure that any costs associated with additional licenses are included.

The contractor MUST ensure that the internal disk storage space is sufficient to meet the requirements of the specification with a minimum storage space of 8TB.The contractor shall provide the necessary evidence of the calculations to achieve the recording frame rate.

The 2 site locations will have an NVR which comes complete with a USB port to copy images, with a storage capacity of 4TB and the capability of supporting up to 8 cameras minimum and provides a choice of displays. These include main and spot monitor outputs, digital zoom display and hidden cameras. Individual images, event sequences and user defined record sequences can be saved to a USB Memory Stick.

Network integration to allow images to be viewed remotely on a PC in **The Housing Management Office** using the free Network Viewer Software or alternatively via a free App where a static IP Address is required.

Good quality CCTV images must be captured with a minimum image capture rate of 12 frames per second and a minimum resolution of 2CIF.

The DVR (Digital Video Recorder) should have sufficient internal hard drive capacity (expanded if necessary) installed to meet the standard recording requirements of RBKC:

* 31 days retention
* 1.5 Mb bit rate
* 25 ips (real-time)
* Recording resolution - 1080p (1920x1080)

The evidence must be able to be exported from the digital video recorder to one or more of the following media:

* USB2 hard drive
* DVD
* CD
* The evidential image file must be accompanied on the export media (Hard drive, DVD or CD) by its playing software to be viewed in the format in which it was originally recorded.
* The playing software must be licence free.
* The playing software must be playable on the current Windows operating system.
* The playing software and evidence must be playable from the media (Hard drive, DVD or USB) on which it is recorded and must not require installing, or any component part, on the PC on which it is played.
* The playing software must not require access to the registry of the computer on which it is played.

**The systems shall be linked by Wireless Network 5Ghz**

IDIS-5Ghz Licence free wireless Point to Point Radio link, the contractor will be responsible for installing and commissioning the radio links to ensure good reception back at the agreed locations. The radio links shall be mounted at suitable mounting brackets at a height to ensure that there is no interference from nearby trees or other structures.

**14 IMAGE VIEWING**

The contractor shall provide and install a high Specification Intel core i7 Grade Operators PC allowing for operation of CCTV Viewing and Playback to be installed within the agreed locations. Network integration to allow images to be viewed remotely on a PC in **The Housing Management Office** using the free Network Viewer Software or alternatively via a free App where a static IP Address is required.

The CCTV system must include a method for viewing and reviewing images. This should be a 21" CCTV monitor or better, which can be switched to view each CCTV camera individually. The monitor shall be mounted in the agreed location. The mounting bracket all be adjustable to allow the monitor to be moved away from the wall or agreed location. Final position to be agreed with the Client.

**15 Testing:**

Acceptance tests shall be required to demonstrate to Client that all items of equipment function correctly and that the overall system complies with the requirements of this Specification.

**Tests shall include the following:-**

**Environmental tests** - It has been assumed that installers will have previously tested equipment to meet potential environmental conditions.  For the purposes of the Specification, it is expected that the equipment shall operate within all reasonable limits in the environmental conditions likely to be applicable.

**Quality control** - at the factory and on-site following installation - certificates of compliance with manufacturers’ stated specifications shall be handed to the Supervising Officer before 'handover' of the system.

Testing of signal-to-noise ratio, waveforms, clock, distortion and test card to check linearity and resolution, etc., using measuring instruments specific to the tests carried out.

**16 Electro Magnetic Compatibility:**

All equipment supplied and fitted must comply with C.E. Regulations to the latest Standard regarding electromagnetic compatibility and a certificate to this effect must be available for inspection.

**17 Commissioning:**

The CCTV cameras will be commissioned in accordance with the manufacturer’s recommendations, and suitable commissioning documentation will be completed and submitted to the Client for approval.

Once completed, the above described surveillance system, must be capable of producing quality, recorded images and each camera will meet CCTV performance guideline figures for recognition (see section 4.0 above), where applicable.  The following criteria will also be met.

An easy use procedural flowchart for the use of the CCTV should be displayed within easy reach of the system.

**18 DATA PROTECTION ACT**

Notwithstanding any of the requirements contained in this document, systems MUST comply with the requirements of the Data Protection Act.

The contractor shall supply and install12 x CCTV warning signs to be fitted on the external elevations of the buildings or as agreed. Sign designs can be obtained via RBKC Project Manager and must be GDPR compliant.

**19 TRAINING**

Sufficient staff must be trained in the operation of the CCTV system, and at least one member of staff who is able to retrieve images for evidential purposes should be on duty at all times. This is necessary to comply with the terms of the Data Protection Act and failure to comply may invalidate insurance.

**20 Defects Liability:**

The contractor shall provide a year’s defects liability for the date of practical completion, as well as cover the system for maintenance and servicing within the defects liability period.

**21 Operation and Maintenance Manuals:**

The Contractor shall produce and provide the Client with two sets of printed and bound documents and one electronic copy of the operating instructions and comprehensive descriptive brochures. They are to be handed to Client before acceptance of the system.

Documentation shall include:

•     Final system design (detailed overview of system functions and operations)

•     Operator's manual

•     Programming manual

•     Hardware manual

•     Complete system schematic diagrams (as built) detailing cable routes

•     Maintenance and routine servicing manual

•     Certification and commissioning test schedules and data

•     Manufacturers data sheets

•     BS 7671 Electrical Installation Certificate issued for the electrical installation

**22 Approved manufacturers**

NVR DIVAR IP 7000 2U Bosch OR Hikvision Equivalent

Cameras FLEXIDOME IP outdoor 4000i Bosch OR Hikvision Equivalent

Camera s NBE-4502-AL Bullet 2MP 2.8-12mm auto IP67 IK10 Bosch OR Hikvision Equivalent

21” Monitor Samsung LCD or equivalent Samsung

Thank you,

Yours Sincerely,

**Patrick Sean Sullivan**

Environmental Projects Officer