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**GENERAL NOTES TO SPECIFIER:**

This Specification Section has been prepared to assist design professionals in the preparation of project or office master Specifications. It follows guidelines established by the Construction Specifications Institute (CSI), and therefore may be used with most master Specification systems with minor editing.

Edit carefully to suit project requirements. Modify as necessary and delete items that are not applicable. Verify that referenced Section titles are correct. (Titles referenced are based on CSI MasterFormat, 2004 edition).

This Section assumes the Project Manual will contain complete Division 1 documents. Close coordination with Division 1 Sections is required. If the Project Manual does not contain the following sections, additional information should be included under the appropriate articles.

- Product Substitution Procedures (if substitutions are to be allowed)
- Submittal Procedures
- Product Options
- Product Storage and Handling Requirements
- Cleaning And Waste Management
- Closeout Procedures
- Closeout Submittals

This is written as a closed proprietary specification. At the time of preparation no other System Vendors were known to have a comparable system.

Notes to the specifier are in highlighted boxes and should be deleted from final copy.

Items requiring additional information are enclosed within single Guillemots, e.g. <insert option here>.

Revise header and footer to suit project/office requirements.

Electronic versions of this specification utilize automatic paragraph numbering based on Microsoft Word style formatting. To adjust levels of paragraphs assign appropriate style and numbering will automatically adjust.

When editing is complete, delete all text on this page, then remove the section break at the top of the next page to remove this page from the document.

SECTION 01 32 34.01 – OXBLUE CONSTRUCTION CAMERA SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes an integrated, professional-grade, high resolution digital webcam system designed specifically for the construction industry as a turnkey package including camera(s) and related hardware, mounting equipment, software, wireless cellular data transmission service, website hosting, image hosting and storage, online interface for the system and technical support.
- B. Related Sections:
 - 1. Division 1 Section "Photographic Documentation" for periodic construction photographs.
 - 2. Division 1 Section "Closeout Procedures" for submitting digital photographs as Project Record Documents at Project closeout.
 - 3. Division 16 Sections for electrical service and connections, as needed.

1.03 DEFINITIONS

- A. CCD: Charge-coupled device.
- B. System Vendor (OxBlue): Provider of camera system hardware and software and host maintaining off-site server, data storage devices, and troubleshooting software and equipment. Contractor shall maintain an active contract for System Service for duration of Contract Time unless other term is agreed upon in writing by the Owner. Cost for System Service shall be included in the Contract Sum.
- C. System Service: Host services provided by System Vendor (OxBlue) including image acquisition, transfer, backup, periodic upgrades to the system, viewing access via a maintained interface on the Internet and on-line storage of images for duration of the Service Contract.

1.04 SUBMITTALS

- A. Shop Drawings:
 - 1. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each camera. Indicate camera mounting heights relative to ground and roof elevation.
- B. Quality Assurance Submittals:
 - 1. Manufacturer's Instructions: Follow manufacturer's installation and testing instructions.
- C. Closeout Submittals:
 - 1. Digital Images: Submit digital still images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - a. Date and Time: Include date and time in filename for each image.
 - b. Format: Submit a sortable/identifiable archive of all digital still images on an external hard drive or DVD format.

2. Time-Lapse "Movie": Compile select digital still images into a time-lapse movie of the construction period. Optimize images included and run-time length of movie to suit Owner's requirements.

1.05 QUALITY ASSURANCE

- A. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 1. Factory assemble camera system from components bearing UL Classification Marking indicating that materials have been produced under UL's Classification and Follow-Up Service.
- B. Comply with NECA 1, "Standard Practices for Good Workmanship in Electrical Construction."
- C. Comply with NFPA 70, "National Electrical Code."
- D. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum five years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original OxBlue packages and containers with seals unbroken and bearing manufacturer's labels.
- B. Store materials to comply with OxBlue 's directions to prevent deterioration from moisture, heat, cold, direct sunlight, or other causes.

1.07 PROJECT CONDITIONS

- A. Environmental Conditions: Capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:
 1. Exterior Environment: System components installed in locations exposed to weather shall be rated for continuous operation in ambient temperatures of minus 10 to plus 120 deg F dry bulb and 20 to 90 percent relative humidity, condensing. Rate for continuous operation when exposed to rain as specified in NEMA 250, winds up to 85 mph. NEMA 250, Type 3R enclosures.

1.08 COORDINATION

- A. Coordinate layout and installation of cameras to avoid interference from trees and to prevent sunlight and light from fixtures entering directly into the camera lens.

1.09 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of cameras and equipment related to camera operation that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
 1. Failure of system to meet performance requirements.
 2. Faulty operation of hardware and software.
 3. Defects in other components of the work.
- B. Warranty Period: Lifetime product warranty required

1.10 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights to Owner for unlimited reproduction of photographs and archives generated by the system.
- B. Contractor shall understand that photographs and archives generated by the camera system become the mutual property of the Owner and System Vendor and cannot be used for advertisement or publicity reasons without the expressed written consent of the Owner and System Vendor.

1.11 MAINTENANCE

- A. Maintenance Service: Provide service and maintenance of camera system for entire Construction period.
 - 1. Examine monthly; clean and adjust equipment.
 - 2. Provide remote emergency repair service by System Vendor 24 hours a day, seven days a week to ensure uninterrupted camera service. Provide personnel on-site to assist System Vendor as needed during working hours. Provide replacement parts and components due to system failure, damage, or theft within two business days.
 - 3. Maintenance service shall not be assigned or transferred to another agent or subcontractor without prior written consent of Owner.
 - 4. Require system vendor to proactively monitor the system by means of service and maintenance contract. If no connection is made within a span of time not to exceed 24 hours during regular business days, require system vendor to notify Contractor and commence troubleshooting.
 - a. Provide necessary staff during troubleshooting to verify power availability, to remove and replace system, and to verify functioning phone lines or internet access for dialup and Ethernet based systems.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. OxBlue, Inc., 888-849-2583, <http://www.OxBlue.com/>.
- B. Substitutions: Comply with provisions of Division 1 Section "Product Requirements."

2.02 SYSTEM REQUIREMENTS

- A. The indoor/outdoor camera system shall consist of a tamper and impact resistant, discreet, fixed pole or wall-mount enclosure with integrated fixed camera, lens and controller.
- B. The cameras shall have the ability to take a high-resolution **8.0 Megapixel** digital still images of the construction site at a set time interval, every 15 minutes, and upload the still images over a wireless cellular modem to a secure, password-protected website.

2.03 EQUIPMENT

- A. Camera: Integrated high definition camera and lens assembly consisting of a charge coupled device (CCD) camera with a remotely controlled focal length lens mounted as a permanent module with the following features:
 - 1. Digital Still Image Resolution: Minimum sensor size of **8.0 megapixels**, and at an image resolution of not less than 3264 x 2448 pixels.
 - 2. Memory: Unlimited remote storage provided by the system vendor.

3. Lens: 6.3 - 63 mm (38-380mm equivalent in 35mm photography), system capable of ten times (10x) optical zoom. Include a wide angle conversion lens with a 0.66x factor. Provide capability to remotely control focal length lens to change resolution, focus and zoom.
 4. Focus Mode: iESP auto, Spot AF, Selective AF target, Manual.
 5. Metering Mode: Digital iESP multi-pattern auto TTL, Spot metering, Center Weighted metering.
 6. Data Connection: Provide one of the following:
 - a. In areas with cellular coverage, operate cameras via built-in cellular data connection provided and maintained by the system vendor.
 - b. In areas without cellular coverage, operate cameras via an RJ-45 Ethernet data connection over broadband or satellite internet access provided and maintained by the Contractor.
 7. Electrical Operation: 120 VAC at maximum 83 Watts.
- B. Quantity of Cameras: As required by Owner.
- C. Camera Enclosure: Construct tamper and impact resistant housing of extruded aluminum, die cast aluminum, and sheet aluminum body with factory-applied powder coated finish.
1. Construct with forward opening, front hinged lid, allowing easy access to camera mounting sled.
 2. Provide rear link-lock latch, manufactured from stainless steel, suitable for use with pad lock.
 3. Equip with heater, blower and thermostat.
 4. Size: 25-1/4 inches long by 6-7/8 inches wide by 5 inches high.

2.04 INTERFACE AND ONLINE ACCESS

- A. Remote Access: Contractor's System Vendor shall provide an online interface system to allow viewing of all high-definition digital still images captured and stored during construction, from any location with internet access and with password protection.
1. Maintain images on the System Vendor's website for reference available at all times during construction and for not less than 90 days after Final Completion.
- B. Online Interface:
1. The online interface system shall be accessible by an unlimited number of human users.
 2. System shall display Project name and Owner Logo.
 3. The system shall display online time-lapse videos and allow for videos to be downloaded by users.
 4. Navigation: Provide calendar based navigation system for selecting specific images.
 5. Zoom: Provide pan and zoom capability for zooming into high definition images.
 6. User Screen Viewing Options:
 - a. Dynamic Calendar: Provide screen showing calendar in which each day displays an image for that day.
 - b. Project Dashboard: Provide screen allowing user to view multiple sites at one time.
 - c. Quad View: Provide screen showing four windows, allowing user to view last four days, weeks, or months on one screen.
 - d. Split Screen: Provide screen showing two discrete images side by side, from same camera or from two different cameras.
 - e. Overlay Mode: Provide screen showing two discrete images overlaid, allowing user to determine differences between the two.
 - f. Full-Screen: Provide screen maximizing view of images on users monitor.
 7. Email: Provide capability to email photos with comments from within the system.
 8. Slideshow: Provide capability to browse through images, moving forward and backward in time by individual image and by day.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Unpack camera system components and save packing materials (box and foam) for future shipment of camera system including associated appurtenances and mounting equipment to Owner or Manufacturer as required.

3.02 INSTALLATION

- A. General:
 - 1. Install camera system in accordance with manufacturer's printed instructions, State and Municipality codes and requirements and approved submittals.
 - 2. Install units plumb and at proper angle to provide maximum field of view of on-site operations.
 - 3. Securely and rigidly anchor products in place.
 - 4. Connect cameras to power.
- B. Position camera so that field of view of approximately 77 degrees covers intended area of site.
 - 1. Install camera at elevation that will provide uncompromised visual coverage.
 - 2. Install camera so that position of sun or man made light sources will not come into direct contact with field of view of camera at any time during construction.

3.03 FIELD QUALITY CONTROL

- A. Preinstallation Testing: Test camera on site at ground level prior to mounting unit in its intended elevated position.
 - 1. Contact System Vendor not less than 24 hours in advance of installation for testing.
 - 2. Connect unit.
 - 3. After 30 minutes contact System Vendor and require System Vendor to remotely confirm camera is operating properly.
 - 4. Install cameras in approved locations.

3.04 CLEANING

- A. Clean installed items using methods and materials recommended in writing by manufacturer.
- B. Clean camera system components, including camera-housing windows, lenses, and monitor screens.

3.05 INSTRUCTION

- A. Engage a factory-authorized service representative by phone to instruct Contractors personnel in procedures to adjust and maintain camera equipment.
 - 1. Instruct personnel on procedures and schedules for troubleshooting and maintaining equipment.
 - 2. Explain methods of determining optimum alignment and adjustment of components.

3.06 OPERATION, TERMINATION, AND REMOVAL

- A. Maintenance: Maintain camera equipment in good operating condition on a 24-hour basis until removal.
- B. Termination and Removal: Remove camera system prior to Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of

interference with camera system. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Camera system including associated appurtenances and mounting equipment are property of Owner.

END OF SECTION