SECTION 28 33 15

SECURITY MONITORING AND CONTROL SOFTWARE AND INTEGRATED HARDWARE

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* Guardiar; Perimeter security solutions.
This section is based on the products of Guardiar, which is located at:3309 S Kaufman St.Ennis, TX 75119Tel: 972-878-7000Fax: 972-923-8995Email: [request info (usasales@guardiar.com)](https://arcat.com/rfi?action=email&company=Guardiar&message=RE%253A%2520Spec%2520Question%2520(13702gdr)%253A%2520&coid=51638&spec=13702gdr&rep=&fax=972-923-8995)
Web: <https://www.guardiar.com>
 [ [Click Here](https://arcat.com/company/guardiar-51638) ] for additional information.
Guardiar provides total perimeter security solutions from conception to completion. We source world-class security components, and integrate them into one coherent and robust system. Our holistic approach extends beyond the perimeter, to include crash-rated barriers, intrusion detection, long-range surveillance, and a pro-active management system. Securing people and assets, we manufacture our solutions to the highest standards, allowing us to customize and install with complete confidence.
For these reasons we recommend that our security consultants are involved early in the design process for free assistance on everything from facility assessment to design configuration. This group may be reached at 954-331-0844 or via email: usasales@guardiar.com

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Access control software systems. (GSAS)
		2. Access control units. (GDR-ACS-ISC-WM)
		3. Keypads. (GDR-ACS-RDR-STD) (GDR-ACS-RDR-MUL)
		4. Video intercom. (GDR-ACS-VTO)
		5. Cameras:
			1. Bullet. (GDR-VMS-4HD-FR-B) (GDR-VMS-4HD-AI-B) (GDR-VMS-4HD-IVS-B) (GDR-VMS-2HD-ANPR)
			2. Dome. (GDR-VMS-4HD-AI-D)
			3. Pan-tilt-zoom. (GDR-VMS-4HD-AI-PTZ)
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 26 05 00 - Common Work Results for Electrical.
		2. Section 27 41 00 - Audio-Video Communications.
		3. Section 27 41 16 - Integrated Audio-Video Systems and Equipment.
		4. Section 33 82 00 - Communications Distribution.
		5. Section 28 16 00 - Access Control Interfaces
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
		2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY
		1. Manufacturer's standard limited warranty unless indicated otherwise.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Guardiar, which is located at:3309 S Kaufman St.Ennis, TX 75119Tel: 972-878-7000Fax: 972-923-8995Email: [request info (usasales@guardiar.com)](https://arcat.com/rfi?action=email&company=Guardiar&message=RE%253A%2520Spec%2520Question%2520(13702gdr)%253A%2520&coid=51638&spec=13702gdr&rep=&fax=972-923-8995);Web: <https://www.guardiar.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ACCESS CONTROL - SOFTWARE SYSTEMS
		1. System Software: Global Situational Awareness System (GSAS) by Guardiar.
			1. Cloud-hosted Video Management and Access Control system. Video and Access devices installed on site connect with an encrypted link to the secured cloud-based user stack. Through the Guardiar mobile app and web client, site managers and supervisors oversee their premises from anywhere and respond to events, alarms and access requests in just a few clicks.
				1. Live View: All camera devices. Control of pan-tilt-zoom where available. Manual creation and recording of snapshots.
				2. Playback: Review stored data from multiple camera devices. Search recordings and archive video.
				3. Event Viewer: Real-time and alarm history information. View alarm details such as live video feed, recordings and snapshots of an alarm. Reset alarms and forward them to other users.
				4. Personnel Management: Add, edit and remove personnel access, edit personal information, badge information, authorizations, and permissions.
				5. Access Control: Monitor door status and events, view related recordings, lock/unlock doors and check logs.
				6. Video Intercom: Talk to, view, and give entry permission to guest at an entrance.

Multiple Options for Automatic Entrance Permission: Face detection, keypad code, badge reading and biometrics combinations.

* + - 1. Video and Access Devices Offered and Supported:
				1. Cameras:

Guardiar ULTRA Cameras: Features.

Facial recognition.

Facial detection.

Perimeter protection.

People counting.

Starlight technology.

Vehicle detection.

Guardiar PRO Cameras: Features.

Facial detection.

Perimeter protection.

People counting.

Guardiar LITE Cameras: Features.

Perimeter protection.

Starlight technology.

Guardiar PTZ Cameras: Features.

Facial detection.

Perimeter protection.

Starlight technology.

Pan-tilt-zoom.

Vehicle detection.

Guardiar ANPR Cameras: Features.

Vehicle type, size, model detection.

Vehicle detection.

Automatic license plate reading.

Automatic barrier control.

Guardiar Video Intercom: Features.

Facial recognition.

Facial detection.

* + - * 1. Access Control Devices:

Guardiar Access Controller.

Door controller.

Keypad Reader Inputs: Up to 4.

Door Outputs: Up to 4.

Physical I/O.

Indoor Keypad and Card Reader: Guardiar Standard Reader.

Outdoor Keypad and Card Reader: Guardiar Mullion Reader.

Guardiar Video Intercom:

Door controller.

Keypad Reader Inputs: Up to 4.

Door Outputs: Up to 4.

Physical I/O.

Face, fingerprint, password, bluetooth, and card unlock.

Voice communication between mobile app and platform.

Full duplex communication.

* + - * 1. Key Components:

Guardiar mobile.

Web client.

* + - * 1. Requirements:

iPhone:

iPhone 5S and above.

IOS 9.0 and above.

Android:

Android 4.4 and above.

Resolution: 1280 x 720 and above.

RAM: 3 GB and above.

\*\* NOTE TO SPECIFIER \*\* Additional technical information on Guardiar devices are available upon request to the manufacturer. Delete article if not required.

* 1. ACCESS CONTROL UNITS
		1. Product: Access Control Unit, No. GDR-ACS-ISC-WM, Four Door Access Control Unit by Guardiar.
			1. Features:
				1. Valid Card Holders: x 200,000.
				2. Record of Events: x 150,000.
				3. CAN Bus: Can cascade 16 sub controller modules.
				4. Verification: Card, password, fingerprint, and combinations.
				5. Reader Interface: Wiegand or RS-485.
				6. Alarms:

Door close time out.

Intrusion.

Duress.

Tamper alarm.

* + - * 1. Global anti-passback, multi-door interlock, multi-personal open, remote verification unlock.
				2. Efficient Time and Holiday Schedules: 128.
				3. Built-in RTC. DST support.
				4. Watch dog function ensure device free from halting.
				5. Surface mounted installation.
				6. Accumulator battery extension.
			1. General:
				1. RTC: Yes.
				2. Power Supply: DC 9 to 15 V / 500 mA.
				3. Working Humidity: No greater than 95 percent.
				4. Dimension(WxDxH): 8.2 x 2 x 4.2 inch (210 x 51 x 106 mm).
				5. Weight: 4.4 lbs (2 Kg).
				6. Working Environment: Indoor.
				7. Operating Temperature Range: (Minus 22 to 140 degrees F) (Minus 30 to 60 degrees C).
			2. System: Main Processor Dual-core ARM Cortex A9. 256 Mb memory.
			3. Input/Output Ports:
				1. Input: Inputs x 20; Lock state x 4, Door sensor x 4, Exit button x 4, Alarm x 8.
				2. Output: Relay x 12; Door lock x 4, Alarm x 8.
				3. Reader: Reader x 4
			4. Interface:
				1. To PC: RJ45; 10/100 M.
				2. To Reader: Wiegand/ RS-485.
			5. Function:
				1. Access Control: Anti-pass back, multi-interlock, multi-card unlock.
				2. User Management: General, VIP, guest, patrol, black list, and duress.
				3. Alarm Function: Door time out, Intrusion, Duress, and Tamper.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. KEYPADS
		1. Product: Standard Keypad Reader, No. GDR-ACS-RDR-STD, Interior Card Reader with Keypad by Guardiar.
			1. Features:
				1. Reader Interface: RS-485, or Wiegand 34 protocol, or Wiegand 26.
				2. LED Indicators: Red and Green indicators.
				3. Keypad: 12 Keys; 0 thru 9, Asterisk, and Hash-tag.

Sensitive touch. Blue backlight.

* + - * 1. Watch Dog Function: Ensures device is free from halting.
				2. Beep Tone: Buzzer.
				3. Mounting: Surface mounted.
				4. Working Environment: Indoor.
				5. Tamper Alarm: Yes.
			1. Main Processor: 8 bit.
			2. Reader:
				1. Read Format: Mifare 13.56 MHz.
				2. Read Range: 0.4 to 2 inches (10 to 40 mm).
				3. Reading Time: Less than 0.1 seconds.
			3. Interface to Controller: RS-485, Wiegand 34, or Wiegand 26.
			4. Power Supply: 9 to 15 V DC / 100 mA.
			5. Operating Temperature: Minus 22 to 140 degrees F (Minus 30 to 60 degrees C).
			6. Working Humidity: No greater than 95 percent.
			7. Dimension (WxDxH): (3.4 x 0.5 x 5.4 inches) (87 x 13 x 136 mm).
			8. Weight: 0.5 lbs (0.25 kg).
		1. Product: Mullion Keypad Reader, No. GDR-ACS-RDR-MUL, Outdoor Card Reader with Keypad by Guardiar.
			1. Features:
				1. Reader Interface: RS-485, or Wiegand 34 protocol, or Wiegand 26.
				2. LED Indicators: Red and Blue indicators.
				3. Keypad: 12 Keys; 0 thru 9, Asterisk, and Hash-tag.
				4. Water-Proof: Outdoor use.
				5. Mounting: Surface or Flush installation.
				6. Watchdog Function: Ensure device is free from halting.
			2. Main Processor: 8 bit.
			3. Reader:
				1. Read Format: Mifare 13.56 MHz.
				2. Read Range: 0.4 to 1.2 inches (10 to 30 mm).
				3. Reading Time: Less than 0.1 seconds.
			4. Tamper Alarm: Yes.
			5. Ingress Protection: IP55.
			6. Interface to Controller: RS-485, Wiegand 34, or Wiegand 26.
			7. Power Supply: 9 to 15 V DC / 100 mA.
			8. Operating Temperature: Minus 22 to 140 degrees F (Minus 30 to 60 degrees C).
			9. Working Humidity: No greater than 95 percent.
			10. Dimension (WxDxH): 5.3 x 1.9 x 0.6 inch (135 x 47.5 x 16 mm).
			11. Weight: 0.4 lbs (0.18 kg).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. VIDEO INTERCOM
		1. Product: Entrance and Video Terminal Intercom, No. GDR-ACS-VTO by Guardiar.
			1. Digital face recognition technology identifies a number of facial features and creates a face print to store in a database for future use, allowing access to particular individuals.
			2. Features:
				1. Frame: Anodized aluminum alloy.
				2. Touch Screen: 8 inch (203 mm) capacitive.
				3. Face, fingerprint, password, bluetooth, and card unlock.
				4. Face verification and profiles.
				5. Full duplex communication.
				6. Voice communication between mobile app and platform.
				7. Low illuminance wide dynamic dual camera.
				8. Alarms: Tamper and fire.
				9. Mounting: Surface or flush.
			3. Function:
				1. Unlock Mode: Remote, password, face, fingerprint, and card.
				2. Online updating.
				3. Full duplex communication.
				4. Snapshot when unlocking doors.
				5. Information Release: Words, pictures, and videos can be played on the outdoor station
				6. Leave photos and messages.
				7. Web configuration.
				8. Motion Detection: Video motion detection.
				9. Issue card locally.
				10. Auto-registration.
			4. System:
				1. Main Processor: Embedded.
				2. Internet Protocol: IPv4, FTP, DNS, RTSP, RTP, TCP, UDP, and SIP.
				3. Keyboard Type: Touch.
			5. Basic:
				1. Appearance: G serials.
				2. Display: High definition IPS screen.
				3. Screen Type: Capacitive screen.
				4. Resolution (HxV): 800 x 1280.
				5. Camera: 2 MP CMOS.
				6. WDR: 120 dB.
				7. Light Compensation:

Auto white light fill light.

Auto IR light fill light.

* + - * 1. Status Indicator: 1, blue-operation status.
				2. Voice Prompt: Yes.
				3. Housing Material: AL, PC, and ABS.
			1. Mounting: Surface mount plate. Video intercom wall mount No. GDR-ACS-VTO-JB.
			2. Performance:
				1. Face Recognition Range:

Face-Camera Distance: 11.81 x 78.74 inch (0.3 to 2.0 m).

Human Height: 43.3 x 94.5 inch (1.1 to 2.4 m).

* + - * 1. Face Recognition Configuration:

Anti-fake switch.

Recognition threshold.

Facial profile angle.

* + - * 1. Face Verification Accuracy: Greater than 99 percent.
				2. Face Comparison Time: Within 0.3 seconds
				3. Capacities:

Face Capacity: 20,000.

Card Capacity: 10,000.

Fingerprint Capacity: 10,000.

* + - 1. Alarms: Tamper, Duress, and Door Sensor Timeout.
			2. General:
				1. Ingress Protection: IP66.

Apply liquid sodium silica gel to gaps between device and wall.

* + - * 1. Power Supply: Optional.
				2. Power Supply Mode: DC 12V at 2A.
				3. Power Consumption: No greater than 24.0 W.
				4. Product Dimensions: 15.31 x 5.71 x 1.69 inch (389 x 145 x 43 mm).
				5. Packaging: Dimensions: 16.26 x 7.17 x 4.09 inch (413 x 182 x 104 mm).
				6. Operating Temperature: Minus 4 degrees F to 140 degrees F (Minus 20 to 60 degrees C).
				7. Operating Humidity: 10 to 8-0 percent relative humidity.
				8. Operating Altitude: 86 to (106 kPa).
				9. Gross Weight: 4.21 lbs (1.91 kg).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CAMERAS, BULLET TYPE
		1. Product: Ultra Bullet Camera, No. GDR-VMS-4HD-FR-B, Ultra Analyticx IR by Guardiar.
			1. With an advanced deep-learning algorithm, the Guardiar Ultra Bullet camera provides various intelligence functions to meet demands of a range of environments. Camera can accurately detect movement, people and faces, as well as motor and non-motor vehicles. Ultra-starlight night vision effect, improving imagery in low lighting. Offering dust-proof, waterproof and vandal proof protection.
			2. Complies with Standards: IP67 and IK10 functions.
			3. Features:
				1. Perimeter protection.
				2. Facial detection / recognition.
				3. Intelligent video analysis.
				4. Smart codec.
				5. Privacy protection.
				6. People counting technology.
			4. Camera:
				1. Image Sensor: 1/1.8 inch, 4 Megapixel progressive CMOS.
				2. Effective Pixels (HxV): 2688 x 1520.
				3. Illumination: 0.001 Lux at F1.2 minimum.
				4. IR Distance: 393.70 ft (120 m).
			5. Lens:
				1. Lens Type: Motorized varifocal.
				2. Focal Length: 0.31 to 1.26 inch (8 to 32 mm).
				3. Maximum Aperture: F1.6.
				4. Field of View:

Horizontal: W: 40 degrees. T: 15 degrees.

Vertical: W: 23 degrees. T: 9 degrees.

Diagonal: W: 46 degrees. T: 18 degrees.

* + - * 1. Close Focus Distance W: 8.20 ft (2.5 m). T: 19.69 ft (6 m).
				2. DORI Distance: Detect, observe, recognize, and identify distance.

Lens W:

Detect: 95.4 ft (151 m).

Observe: 199.15 ft (60.7 m).

Recognize: 99.41 ft (30.3 m).

Identity: 49.54 ft (15.1 m).

Lens T:

Detect: 1312.34 ft (400 m),

Observe: 524.93 ft (160 m),

Recognize: 262.47 ft (80 m),

Identity: 131.23 ft (40 m),

* + - 1. Intelligence:
				1. Perimeter Protection: Accurate human and vehicle recognition.

In restricted area, such as pedestrian and vehicle areas, false alarms of intelligent detection based on target type, such as tripwire, intrusion, fast moving, parking detection, loitering detection and gathering detection, are largely reduced.

* + - * 1. Face Recognition Technology: Detects a face in an image. With deep learning algorithm, the technology supports detecting, tracking, capturing and selecting the best image.
				2. Video Metadata: Capture images and attributes of human bodies, human faces, motor and non-motor vehicles.
				3. People Counting: Entry number, exit number ,and pass number with daily, monthly, and annual statistics.
				4. Intelligent Search: Work together with Smart NVR to perform refine intelligent search, event extraction and merging to event videos.
			1. Network:
				1. Network Ethernet Connections: RJ-45; 10/100/1000 Base-T.
				2. Protocol: HTTP, Https, 802.1x, TCP, ARP, RTSP, RTP, UDP, RTCP, SMTP, FTP, DHCP, DNS, DDNS, PPPoE, IPv4/v6, SNMP, QoS, UPnP, NTP, SFTP, RTMP, Genetec, and Bonjour.
				3. Interoperability: ONVIF. Profile S, Profile G, Profile T, CGI, and P2P.
				4. Edge Storage: FTP, Micro SD card (256 G), NAS, SFTP.
			2. Video:
			3. Video Compression: H.265, H.264, H.264H, H.264B, and MJPEG
			4. Smart codec.
			5. Video Frame Rate:
				1. Main Stream: 2688 x 1520 (1 to 50/60 fps).
				2. Sub Stream 1: 704 x 576 (1 to 25/30 fps).
				3. Sub Stream 2: 1920 x 1080 (1 to 25/30 fps).
				4. Sub Stream 3: 1920 x 1080 (1 to 25/30 fps).
				5. Sub Stream 4: 704 x 576 (1 to 25/30 fps).
			6. Stream Capability: 5 streams.
			7. Resolution: 4M: 2688 x 1520. 3M: 2304 x 1296. 1080p: 1920 x 1080. 1.3M: 1280 x 960. 720p: 1280 x 720. D1: 704 x 576/704 x 480. VGA: 640 x 480. CIF: 352 x 288/352 x 240.
			8. Bit Rate Control: CBR / VBR.
			9. Video Bit Rate:
				1. H.264: 32 to 10240 kbps.
				2. H.265: 12 to 10240 kbps.
			10. Day/Night: ICR switch.
			11. BLC: Yes.
			12. WDR: 140 dB.
			13. White Balance: Auto, natural, street lamp, outdoor, manual, regional, and custom.
			14. Gain Control: Auto and Manual
			15. Noise Reduction: 3D DNR
			16. Motion Detection: OFF and ON; 4 areas, rectangular.
			17. Region of Interest(RoI): Yes. 4 areas.
			18. Electronic Image Stabilization (EIS): Yes.
			19. Smart IR: Yes.
			20. Defog: Yes.
			21. Image Rotation: 0, 90, 180, and 270 degrees.
				1. Supports 90 and 270 degrees with 1080p resolution or below.
			22. Privacy Masking: 4 areas.
			23. Operating Temperature: Minus 40 to 140 degrees F (Minus 40 to 60 degrees C).
			24. Ingress Protection: IP67.
			25. Vandal Resistance: IK10.
			26. Power:
				1. Power Supply: 12 VDC, 24 VAC, POE.
				2. Power Consumption: Less than 17.3 W.
		1. Product: Pro Bullet Camera, No. GDR-VMS-4HD-AI-B, Pro Analytics Full-Color Bullet Camera by Guardiar.
			1. AI technologies, including deep-learning algorithms primarily targeting people and vehicles, providing flexibility and accuracy. Advanced applications such as facial detection, ANPR, metadata, people counting, traffic data statistics and more.
			2. Features:
				1. Perimeter protection.
				2. Smart IR technology.
				3. Intelligent video analysis.
				4. Low light performance.
				5. People counting technology.
				6. Warm supplemental lights.
			3. Camera:
				1. Image Sensor: 1/1.8 inch, 4 Megapixel progressive scan CMOS.
				2. Effective Pixels (HxV): 2688 x 1520.
				3. Electronic Shutter Speed: Auto and Manual 1/3 to 1/100,000 seconds.
				4. Illumination: 0.001 Lux at F1.0 minimum.
			4. Lens:
				1. Lens Type Fixed-focal.
				2. Focal Length 0.14 inches (3.6 mm).
				3. Maximum Aperture: F1.0.
				4. Angle of View: Horizontal: 93 degrees. Vertical: 50 degrees.
				5. DORI Distance: Detect, observe, recognize, and identify distance.

Lens: 0.14 inches (3.6 mm).

Detect: 230 ft (70 m).

Observe: 91 ft (28 m).

Recognize: 46 ft (14 m)

Identify: 23 ft (7 m).

* + - 1. Intelligence:
				1. Perimeter Protection: Reduces false alarms and decreases pixel count requirements for object detection. Custom tripwires based on object type for automation in limited access areas such as pedestrian or vehicle-only zones.
				2. Face Detection: Track, snapshot, and capture high quality pictures. Single inch photo, half length, and full length. Real-time snapshot, optimization snapshot and quality priority with face angle filter.
				3. People Counting: Advanced image processing technology able to capture information from within images. The camera pairs information with deep learning algorithms analyzing and detecting human bodies. Tracks target objects in real time. Counts entries and exits, Counts people in an area, queue management outputting yearly, monthly, weekly, and daily reports.
				4. Intelligent Search: Works with Smart NVR performing refined intelligent searches, event extraction, and merging of event videos.
			2. Network:
				1. Network Ethernet Connections: RJ-45; 10, 100, 1000 Base-T.
				2. Protocol: IPv4, IPv6, HTTP, HTTPS, TCP, UDP, ARP, RTP, RTSP, RTCP, RTMP, SMTP, FTP, SFTP, DHCP, DNS, DDNS, QoS, UPnP, NTP, Multicast, ICMP, IGMP, NFS, SAMBA, PPPoE, 802.1x, and SNMP.
				3. Interoperability: ONVIF. Profile S, Profile G, Profile T, CGI, Milestone, Genetec, P2P.
				4. Edge Storage: FTP, SFTP, Micro SD card (support max. 256 G), NAS.
			3. Video:
				1. Video Compression: H.265, H.264, H.264B, H.264H, MJPEG (sub stream).
				2. Smart Codec: Yes
				3. Frame Rate:

Main Stream: 2688 x 1520 (1 fps - 25/30 fps).

2560 x 1440 (1 fps - 25/30 fps).

1920 x 1080 (1 fps - 50/60 fps).

Sub Stream: D1 (1 fps - 25/30 fps).

D1: (1 fps - 50/60 fps).

Third Stream: 1080P (1 fps - 16 fps).

* + - * 1. Stream Capability: 3 streams.
				2. Resolution: 2688 x 1520. 2560 x 1440. 2304 x 1296. 1080P: 1920 x 1080. 1.3M: 1280 x 960. 720P: 1280 x 720. D1: 704 x 576, 704 x 480. VGA: 640 x 480. CIF: 352 x 288, 352 x 240.
				3. Bit Rate Control: CBR and VBR.
				4. Video Bit Rate: H.264: 32 to 8192 kbps. H.265: 19 to 8192 kbps.
				5. Day/Night: Electronic Color and B/W.
				6. BLC: 3D.
				7. HLC: Yes.
				8. WDR : 140 dB.
				9. Scene Self adaptation: Yes.
				10. White Balance: Auto, natural, street lamp, outdoor, and manual.
				11. Gain Control: Auto and manual.
				12. Noise Reduction: 3D DNR.
				13. Motion Detection: OFF/ON. 4 areas.
				14. Region of Interest (RoI): Yes. 4 areas.
				15. Defog: Yes.
				16. Image Rotation: 0, 90, 180, and 270 degrees.

Support 90 and 270 degrees with 1080p resolution and lower.

* + - * 1. Privacy Masking: 4 areas.
				2. Operating Temperature: Minus 22 to 140 degrees F (Minus 30 to 60 degrees C).
				3. Ingress Protection: IP67.
				4. Vandal Resistance: IK10.
				5. Power:

Power Supply: 12 VDC / POE.

Power Consumption: Less than 4.4 W.

* + 1. Product: Lite Bullet Camera, No. GDR-VMS-4HD-IVS-B, Lite Analytics AI IR Bullet Camera by Guardiar.
			1. Using advanced deep-learning algorithms, allows intelligent functions, such as perimeter protection and smart motion detection. Starlight Technology: Captures improved imagery in low light conditions.
			2. Features:
				1. Intelligent video analysis.
				2. Smart motion detection.
				3. Low light performance.
				4. Wide dynamic range.
				5. Mounting: Junction.
				6. Mounting: Pole.
				7. Mounting: Corner.
			3. Camera:
				1. Image Sensor: 1/3 inch. 4 Megapixel progressive CMOS.
				2. Effective Pixels (HxV): 2688 x 1520.
				3. Electronic Shutter Speed: Auto and Manual 1/3 to 1/100,000 seconds.
				4. Illumination: 0.001 Lux at F1.0 minimum.
				5. IR Distance: 160.0 ft (50 m).
			4. Lens:
				1. Lens Type: Fixed-focal.
				2. Focal Length 0.14 inches (3.6 mm).
				3. Maximum Aperture: F1.6.
				4. Field of View 3.6 mm: Horizontal: 84 degrees. Vertical: 45 degrees. Diagonal: 100 degrees.
				5. Close Focus Distance: 5.3 ft (1.6 m).
				6. DORI Distance:

Lens: 0.14 inches (3.6 mm).

Detect: 181.1 ft (55.2 m).

Observe: 72.5 ft (22.1 m).

Recognize: 36.1 ft (11.0 m).

Identify: 18.0 ft (5.5 m).

* + - 1. Intelligence:
				1. Perimeter Protection: Tripwire, intrusion; Recognition of human and vehicle
				2. Intelligent Search: Works with Smart NVR performing refined intelligent searches, event extraction, and merging to event videos.
			2. Network:
				1. Network Ethernet Connections: RJ-45; 10, 100, 1000 Base-T.
				2. Protocol: IPv4, IPv6, HTTP, HTTPS, TCP, UDP, ARP, RTP, RTSP, RTCP, RTMP, SMTP, FTP, SFTP, DHCP, DNS, DDNS, QoS, UPnP, NTP, Multicast, ICMP, IGMP, NFS, SAMBA, PPPoE, 802.1x, and SNMP.
				3. Interoperability: ONVIF. Profile S, Profile G, Profile T, CGI, Milestone, Genetec, P2P.
				4. Edge Storage: FTP, SFTP, Micro SD card (support max. 256 G), Dahua Cloud, and NAS
			3. Video:
				1. Video Compression: H.265, H.264, H.264H, H.264B, MJPEG.
				2. Smart Code: Yes.
				3. Frame Rate

Main Stream: 2688 x 1520 at 1 to 25/30 fps.

Sub Stream: 704 x 576 at 1 to 25 fps, and 704 x 480 at 1 to 30 fps.

Third Stream: 1280 x 720 at 1 to 25/30 fps.

* + - * 1. Stream Capability: 3 streams.
				2. Resolution: 4M: 2688 x 1520. 3M: 2304 x 1296. 1080p: 1920 x 1080. 1.3M: 1280 x 960. 720p: 1280 x 720. D1: 704 x 576, and 704 x 480. VGA: 640 x 480. CIF: 352 x 288, and 352 x 240.
				3. Bit Rate Control: CBR/VBR.
				4. Video Bit Rate:

H.264: 3 to 8192 Kbps.

H.265: 3 to 8192 Kbps.

* + - * 1. Day/Night: Auto ICR, Color, and B/W.
				2. BLC: Yes.
				3. HLC: Yes.
				4. WDR: 120 dB.
				5. Scene Self Adaptation: Yes.
				6. White Balance: Auto, natural, street lamp, outdoor, manual, and regional custom.
				7. Gain Control: Auto and Manual.
				8. Noise Reduction: 3D DNR
				9. Motion Detection: OFF/ON. 4 areas. Rectangular.
				10. Region of Interest RoI: Yes. 4 areas.
				11. Defog: Yes.
				12. Image Rotation: 0, 90, 180, and 270 degrees.

Support 90 and 270 degrees with 1080p resolution and lower.

* + - * 1. Privacy Masking: 4 areas.
				2. Operating Temperature: Minus 22 to 140 degrees F (Minus 30 to 60 degrees C).
				3. Ingress Protection: IP67.
				4. Vandal resistance: IK10.
				5. Power:

Power Supply: 12 VDC / POE.

Power Consumption: Less than 5.4 W.

* + 1. Product: Automatic Number-Plate Recognition Bullet Camera, No. GDR-VMS-2HD-ANPR, LED Bullet Camera by Guardiar
			1. Two-megapixel CMOS full HD AI access camera. High color restoration, low illuminance, and built-in white light, suitable for use in parking and access control environments.
			2. Standard Entrance Scenarios: Detects vehicles with over 99 percent capture rate, at speeds up to 25 mph (40 kmh). Structures vehicle data within an embedded deep-learning algorithm.
			3. Convenient automatic access and barrier opening to approved lists.
			4. Features:
				1. Excellent image quality.
				2. Superior performance for outdoor applications.
				3. Embedded with LPR algorithm.
				4. World-wide license plate recognition.
				5. High vehicle capture rate.
				6. Powerful 0.11 to 0.53 inch (2.7 to 13.5 mm) motorized lens and white light, ideal for monitor ANPR distance 9 to 26 ft (3 to 8 m).
			5. Camera:
				1. Image Sensor: 1/2.8 inch. 2 Megapixel CMOS.
				2. Effective Pixels (HxV): 2 MP, 1920 x 1080.
				3. Illumination: 005 Lux at F1.3 minimum.
				4. Electronic Shutter Speed: 1/50 to 1/10000.
				5. White Light Distance: Up to 39 ft (12 m).
			6. Lens:
				1. Lens Type: Motorized/ Auto Iris (DC)
				2. Focal Length: 2.7 to 13.5 mm
				3. Maximum Aperture: F1.3
				4. Angle of View (HxV): H: 119 to 32 degrees. V: 65 to 18 degrees.
				5. Focus Control: Auto.
				6. ANPR Distance: 10 to 26 ft (3 to 8 m)
			7. Intelligence:
				1. LPR Function: Embedded with Deep learning LPR engine.
				2. Vehicle Detection: High detection rate; supports vehicle direction detection.
				3. Vehicle Data Structuring: License plate recognition, vehicle size, and vehicle color detection.
				4. Vehicle Size Detection: 11 vehicle sizes detection; large bus, heavy truck, medium truck, sedan, minivan, light truck, SUV, MPV, medium bus, pick-up, and minicar.
				5. Vehicle Color Detection: 11 colors, daytime detection; white, black, blue, red, yellow, green, pinkish purple, gray, brown, orange and silver.
				6. Detection Model: Video detection or loop detection.
				7. Snapshot: Overview and cutout of plate for picture.
				8. OSD Overlay: Time, place, and plate number.
				9. White List: 10000 records database inside camera.
				10. Barrier Control: Relay out to control the barrier.
			8. Interface:
				1. Audio Interface: 1 Input and 1 Output.
				2. RS-485: 2.
				3. Alarm: 3/3 channel In and Out.
			9. Video:
				1. Video Compression: H.265, H.264M, H.264H, and H.264B.
				2. Resolution: 1080P: 1920 x 1080. 720P: 1280 x 720. D1: 704 x 576.
				3. Frame Rate:

Main Stream: 1080P: 1 to 25/30 fps.

Sub Stream: 720P and D1: 1 to 25/30 fps.

* + - * 1. Bit Rate Control: CBR and VBR.
				2. Bit Rate: 32 to 16384 Kbps.
				3. Dual Stream: Support, Main stream and sub stream.
				4. White Balance: Auto and Manual.
				5. Gain Control: Auto and Manual.
				6. Noise Reduction: 3D.
			1. Network:
				1. Ethernet: RJ-45; 100, 1000 Base-T.
				2. Interoperability: CGI, SDK, Onvif.
				3. Protocol: IPv4, IPv6, HTTP, TCP/IP, UDP, NTP, DHCP, and DNS
				4. Edge Storage: Micro SD, Max 64 GB status display local PC for instant recording.
				5. Operating Temperature: Minus 22 to 149 degrees F (Minus 30 to 65 degrees C)
				6. Ingress Protection: IP67.
				7. Power Supply: 1 to 2 VDC and POE

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CAMERAS, DOME
		1. Product: Pro Dome Camera, No. GDR-VMS-4HD-AI-D, Pro Analytics Full-Color Dome Camera by Guardiar.
			1. Face detection, perimeter protection, people counting capabilities, and starlight technology. Powered by deep-learning Artificial Intelligence algorithms, it offers significantly improved accuracy. Built-in protection from dust and water, certified to IP67 and vandal resistance to IK10 standard.
			2. Features:
				1. Perimeter protection.
				2. Face detection.
				3. Intelligent video analysis.
				4. Low light performance.
				5. People counting technology.
				6. PoE technology.
				7. Mounting: Junction and Pole.
			3. Camera:
				1. Image Sensor: 1/1.8 inch 4 Megapixel progressive scan CMOS.
				2. Effective Pixels (HxV): 2688 x 1520.
				3. Illumination: 0.001 Lux at F1.0 minimum.
				4. Pan-Tilt-Rotation Pan: 0 to 355 degrees. Tilt: 0 to 75 degrees. Rotation: 0 to 355 degrees.
			4. Lens:
				1. Lens Type: Fixed-focal.
				2. Focal Length: 1.4 inch (3.6 mm).
				3. Maximum Aperture: F1.0.
				4. Angle of View: Horizontal: 93 degrees. Vertical: 50 degrees.
				5. Focus Control: Fixed.
				6. ANPR Distance: 6.56 ft (2.0 m).
				7. DORI Distance:

Lens: 0.14 inches (3.6 mm).

Detect: 230 ft (70 m).

Observe: 91 ft (28 m).

Recognize: 46 ft (14 m).

Identify: 23 ft (7 m).

* + - 1. Intelligence:
				1. Perimeter Protection: Reduces false alarms and decreases pixel count requirements for object detection. Features custom tripwires based on object type for automation in limited access areas such as pedestrian or vehicle-only zones.
				2. Face Detection: Able to track, snapshot and capture high quality pictures. Single inch photo, half-length and full length. Real-time snapshot, optimization snapshot and quality priority with face angle filter.
				3. People Counting: Advanced image processing technology, able to capture information from within images. The camera pairs this information with deep learning algorithms to analyze and detect human bodies and track target objects in real time. Counts entries and exits number, a number of people in an area, queue management outputting yearly/monthly/weekly/daily reports.
				4. Intelligent Search: Work together with Smart NVR to perform refine intelligent search, event extraction and merging to event videos.
			2. Network:
				1. Ethernet: RJ-45; 10, 100 Base-T.
				2. Protocol: IPv4, IPv6, HTTP, HTTPS, TCP, UDP, ARP, RTP, RTSP, RTCP, RTMP, SMTP, FTP, SFTP, DHCP, DNS, DDNS, QoS, UPnP, NTP, Multicast, ICMP, IGMP, NFS, SAMBA, PPPoE, 802.1x, and SNMP.
				3. Interoperability: CGI, Milestone, Genetec, P2P, and ONVIF; Profile S, Profile G, and Profile T.
				4. Edge Storage: FTP, SFTP, NAS, and Micro SD card; support max. 256 G.
			3. Video:
				1. Video Compression: H.265, H.264, H.264B, H.264H, MJPEG; sub stream.
				2. Smart codec.
				3. Frame Rate:

Main Stream: 2688 x 1520: 1 to 25/30 fps.

2560 x 1440: 1 to 25/30 fps.

1920 x 1080: 1 to 50/60 fps.

Sub Stream: D1: 1 to 25/30 fps.

D1: 1 to 50/60 fps.

Third Stream: 1080P: 1 to 16 fps.

* + - * 1. Stream Capability: 3 streams.
				2. Resolution:

2688 x 1520, 2560 x 1440, 2304 x 1296, 1080P: 1920 x 1080, 1.3M: 1280 x 960, 720P: 1280 x 720, D1: 704 x 576, and 704 x 480, VGA: 640 x 480, CIF: 352 x 288, and 352 x 240.

* + - * 1. Bit Rate Control: CBR and VBR.
				2. Video Bit Rate:

H.264: 32 to 8192 kbps.

H.265: 19 to 8192 kbps.

* + - * 1. Day/Night: Electronic Color. B/W.
				2. BLC: Yes.
				3. HLC: Yes.
				4. WDR: 140 dB.
				5. Scene self-adaptation.
				6. White Balance: Auto, natural, street lamp, and outdoor.
				7. Gain Control: Auto and Manual.
				8. Noise Reduction: 3D DNR.
				9. Motion Detection: OFF/ON. 4 areas.
				10. Region of Interest: 4 areas.
				11. Defog: Yes.
				12. Image Rotation: 0, 90, 180, and 270 degrees.

Support 90 and 270 degrees with 1080p resolution and lower.

* + - * 1. Privacy Masking: 4 areas.
				2. Operating Temperature: Minus 22 to 140 degrees F (Minus 30 to 60 degrees C).
				3. Ingress Protection: IP67.
				4. Vandal resistance: IK10.
				5. Power:

Power Supply: 12 VDC and POE.

Power Consumption: Less than 4.4 W.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CAMERAS, PAN-TILT-ZOOM
		1. Product: PTZ Camera, No. GDR-VMS-4HD-AI-PTZ, Pan-Tilt-Zoom IR Dome Camera by Guardiar.
			1. Deep learning algorithms that primarily target people and vehicles, providing greater flexibility and accuracy for end-users. AI allows devices to analyze the environment. Wide monitor range, that always presents a clear, focused image while zooming.
			2. Features:
				1. Perimeter protection.
				2. Intelligent video analysis.
				3. Low light performance.
				4. Wide dynamic range.
				5. SMD plus.
				6. Powerful 25x optical zoom.
				7. IR distance up to 328 ft (100 m).
				8. Mounting: Wall mount.
				9. Mounting: Junction mount.
				10. Mounting: Pole mount.
				11. Mounting: Corner mount.
			3. Camera:
				1. Image Sensor: 1/2.8 inch STARVIS CMOS.
				2. Effective Pixels: 4 MP.
				3. Resolution (HxV): 2560 x 1440.
				4. Electronic Shutter Speed: 1/1 to 1/30,000 seconds.
				5. Illumination: Minimum.

Color: 0.005 Lux at F1.6.

B/W: 0.0005 Lux at F1.6.

0 Lux at F1.6; IR light on.

* + - * 1. IR Distance: 328.08 ft (100 m)
			1. Lens:
				1. Focal Length: 4.8 to 120 mm.
				2. Max. Aperture: F1.6 and F4.0.
				3. Field of View: H: 60.0 to 2.5 degrees, V: 30.8 to 2.2 degrees, D: 66.7 to 2.9 degrees.
				4. Optical Zoom: 25x.
				5. Focus Control: Auto, Semi-Auto, and Manual.
				6. Iris Type: Auto and Manual.
				7. Iris Control: DORI - Detect Observe Recognize Identify.

Detect: 8333.3 ft (2540 m).

Observe: 3333.3 ft (1016 m).

Recognize: 1667 ft (508 m).

Identify: 833.3 ft (254 m).

* + - 1. Pan-Tilt-Zoom (PTZ):
				1. Pan/Tilt Range: Pan: 0 to 360 degrees; endless. Tilt: Minus 15 to 90 degrees; auto flip 180 degrees.
				2. Manual Control Speed: Pan: 0.1 to 200 degrees per second. Tilt: 0.1 to 120 degrees per sec.
				3. Presets: 300.
				4. Tour: 8. Up to 32 presets per tour.
				5. Idle Motion: Preset, Tour, Pattern, and Scanning.
				6. Protocol: DH-SD Pelco-P/D; auto recognition.
			2. Network:
				1. Ethernet: RJ-45; 0, 100 Base-T.
				2. Protocol: IPv4, IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, RTCP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, 802.1x
				3. Interoperability: ONVIF Profile SandG, CGI.
				4. Edge Storage: NAS, Local PC, Micro SD card; 256 G.
			3. Intelligence:
				1. Event Trigger: Motion detection, Video tampering, Scene changing, Network disconnection, IP address conflict, Illegal Access, and Storage anomaly.
				2. General Intelligence: Object Abandoned, or Missing.
				3. Perimeter Protection: Tripwire and intrusion. Support alarm triggering by target types, human and vehicle. Support filtering false alarms caused by animals, rustling leaves, bright lights, etc.
				4. Face detection.
				5. Video Metadata: Human, motor vehicle and non-motor vehicle image capture.
			4. Video:
				1. Video Compression: H.265+, H.265, H.264+, H.264, MJPEG; sub stream.
				2. Smart Codec: 3 streams.
				3. Frame Rate:

Main Stream: 4MP, 3MP, 1080P, 1.3MP, 720P; 1 to 25 fps.

Sub Stream 1: D1/CIF; 1 to 25 fps.

Sub Stream 2: 1080P, 1.3M, 720P; 1 to 25 fps.

* + - * 1. Stream Capability: 3 streams
				2. Resolution: 4M: 2560 x 1440. 3M: 2048 x 1536. 1080P: 1920 x 1080. 1.3M: 1280 x 960. 720P: 1280 x 720. D1: 704 x 576 and 704 x 480. CIF: 352 x 288 and 352 x 240.
				3. Bit Rate Control: Variable and constant bit rate.
				4. Video Bit Rate: H.265 and H.264: 3 to 20480 kbps.
				5. Day/Night: Auto ICR, Color, and B/W.
				6. BLC: Yes.
				7. HLC: Yes.
				8. WDR: 120 dB.
				9. White Balance: Auto, Indoor, Outdoor, Track, Manual, Sodium lamp, Natural light, and Street lamp.
				10. Gain Control: Auto and Manual.
				11. Noise Reduction: Ultra DNR; 2D and 3D.
				12. Motion Detection: Support.
				13. Region of Interest: Support.
				14. Electronic Image Stabilization: Support.
				15. Electronic Defog: Support.
				16. Image Rotation: 0, 90, 180, 270 degrees.

Support 90 and 270 degrees with 1080p resolution and lower.

* + - * 1. Flip: 180 degrees
				2. Privacy Masking: 4 up to 24 areas, and up to 8 areas in the same view.
				3. Operating Temperature: Minus 40 to 158 degrees F (Minus 40 to 70 degrees C).
				4. Ingress Protection: IP66
				5. Power Power Supply: 12 VDC at 3 A and POE+.
				6. Power Consumption: 3 W. IR On: 21 W.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
	4. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturers recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION