

BIDDING REQUIREMENTS for PURCHASING
NOTICE AND INFORMATION FOR BIDDERS

Attachment A: Bid Breakdown & Schedule

Bidder: _____

DASNY Contact: Theresa Graffeo, Purchasing Coordinator
tgraffeo@dasny.org

Request for Information (RFI's): July 13, 2023

Services/Product Required By: January 2024 - March 2024

Description: Furnish, Deliver and Install Security/Surveillance Equipment to the Capital District Youth Center

Bid Open Location: DASNY, Corporate Headquarters, 515 Broadway, Albany, NY 12207

Bid Due Date: July 26, 2023 at 2:30PM

Item No.	Description	UOM	Extended Price
1	Equipment as specified in Attachment B, Part 2 - Products*	LS	\$
2	Integration	LS	\$
3	Installation	LS	\$
4	Bonds	LS	\$

*Attach an itemized and detailed price sheet with unit cost for all product (manufacturer/model/quantity/unit cost/ extended total). If providing substitutions for any of the specified product, provide information on proposed manufacturer's product. The burden of proof equality is on the bidder, and only complete submittals, as requested, will be considered and evaluated by DASNY. Failure to comply with any or all above shall result in immediate disqualification.

INSTALLATION LABOR (if required)
LABOR TO INSTALL _____

Estimated No. of Hours _____
Hourly Rate (Prevailing Wage rates are required for this work) _____

Total Materials/Equipment/Commodities: _____

Total Installation: _____

TOTAL BID _____

BIDDING REQUIREMENTS for PURCHASING

NOTICE AND INFORMATION FOR BIDDERS

(The below questions 1) and 2) need only be answered if the above total bid is for one million dollars or more)

1. Does your firm anticipate the use of subcontractors and outside suppliers specific to this procurement
Yes No
2. Does your firm anticipate the creation of employment opportunities arising from this procurement?
Yes No

(The below information must be completed for all bids.)

Identify all subcontractors, if any: _____

STATE, PROVINCE FOR FOREIGN COUNTRY
THAT YOUR FIRM'S PRINCIPAL PLACE OF
BUSINESS IS LOCATED:

ADDRESS OF FACTORY OR PLANT WHERE
ITEMS ARE MANUFACTURED AND/OR
ASSEMBLED. (Attach additional sheet(s) if more
than one manufacturer)

BIDDER (FIRM NAME)

SIGNATURE

NAME (TYPE/PRINTED)

TITLE

Date

BIDDING REQUIREMENTS for PURCHASING

NOTICE AND INFORMATION FOR BIDDERS

Attachment B: Detailed Specifications and Scope of Work

See attached

Video Surveillance Bid Set dated June 13, 2023.

CAPITAL DISTRICT JUVENILE SECURE DETENTION FACILITY

838 ALBANY SHAKER RD, LOUDONVILLE, NY 12211

VIDEO SURVEILLANCE BID SET

JUNE 13, 2023



FOR ILLUSTRATIVE PURPOSES ONLY - NOT FOR CONSTRUCTION



Albany County
838 Albany Shaker Rd
Loudonville, NY 12211
CLIENT



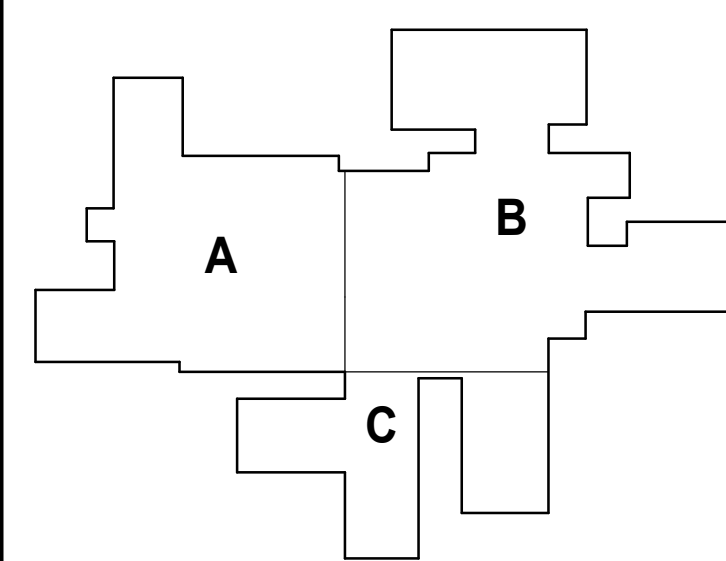
Architecture • Engineering • Planning

SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtnyc.com



Gilbane Building Company

CONSTRUCTION MANAGER



KEY PLAN
N.T.S.

IT IS A VIOLATION OF THE LAWS OF THE STATE OF NEW YORK FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER TO ALTER THIS DRAWING. IF THIS DRAWING IS ALTERED, THE ALTERING ARCHITECT/ENGINEER SHALL AFFIX THEIR SEAL WITH THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, DATE AND DESCRIPTION OF THE ALTERATION.

REV	DESCRIPTION	DATE

VIDEO SURVEILLANCE BID SET

JUNE 13, 2023

CURRENT ISSUE STATUS:



PROJECT NORTH:
ALBANY COUNTY

CAPITAL DISTRICT JUVENILE
SECURE DETENTION FACILITY
838 ALBANY SHAKER RD, LOUDONVILLE, NY 12211

COVER SHEET

SHEET TITLE:



SCALE: AS NOTED

PROJECT MANAGER: Approver PROJECT NO: 18077-00

A/E OF RECORD: Designer

JOB CAPTAIN: Checker

DRAWN BY: Author

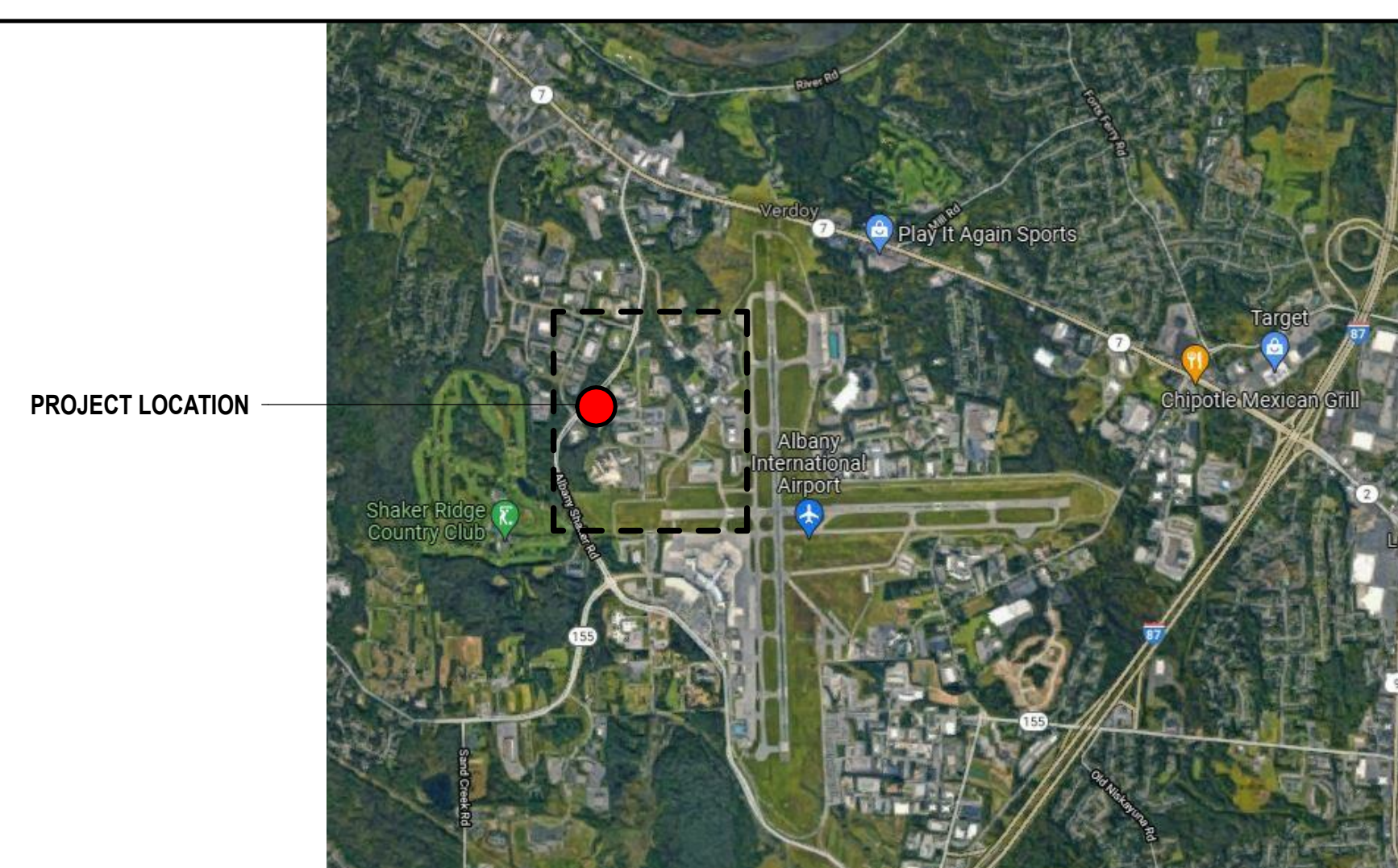
SMRT FILE: 18077-00 - CS SHEET No. CS

CS

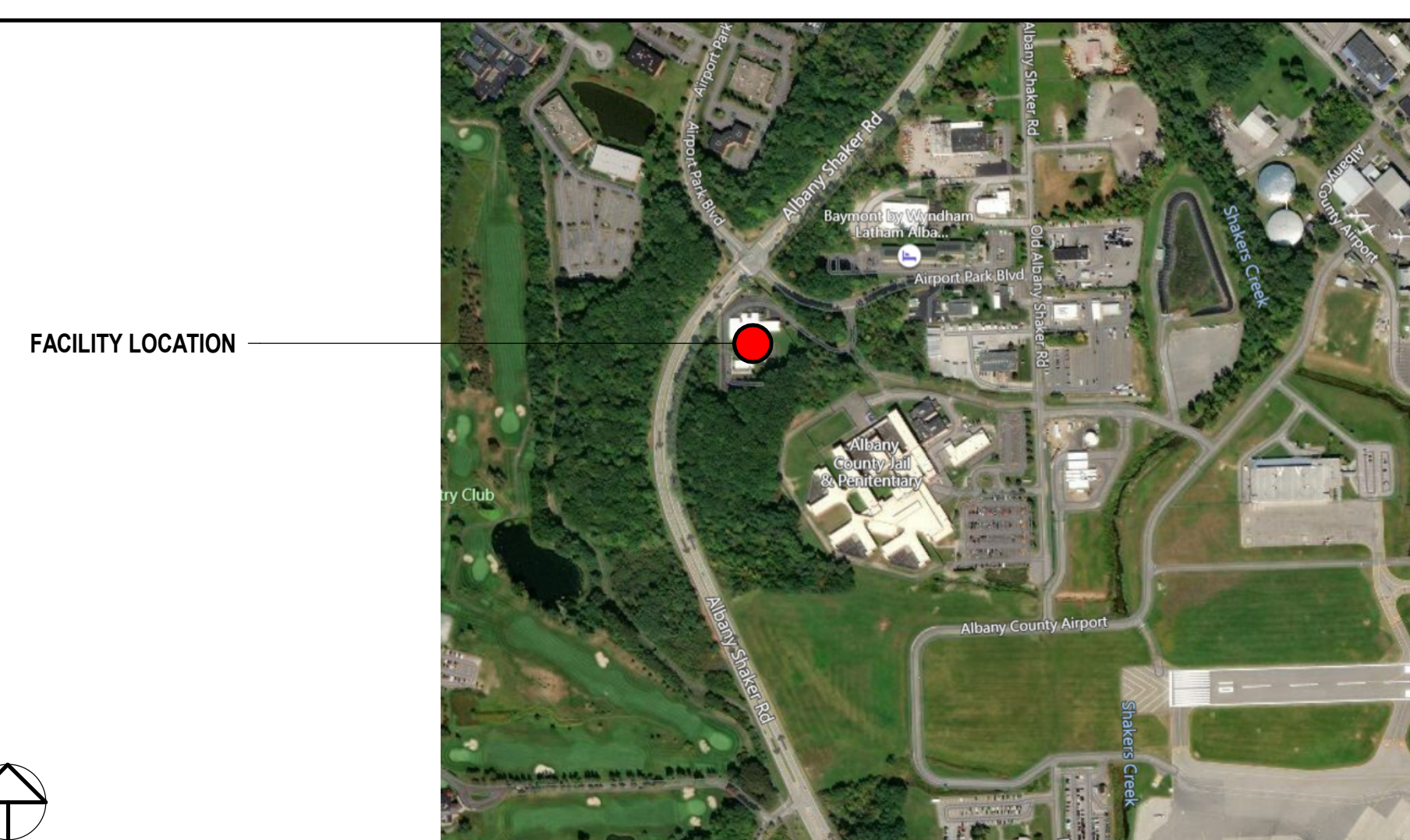
- LIST OF SHEETS -

SHEET #	SHEET NAME
SK-G101	PHASE 1
Y001	VIDEO SURVEILLANCE LEGEND AND GENERAL NOTES
Y101	EXTERIOR VIDEO SURVEILLANCE PLAN
Y101A	AREA A FIRST LEVEL VIDEO SURVEILLANCE PLAN
Y101B	AREA B FIRST LEVEL VIDEO SURVEILLANCE PLAN
Y101C	AREA C FIRST LEVEL VIDEO SURVEILLANCE PLAN
Y601	VIDEO SURVEILLANCE SCHEDULE

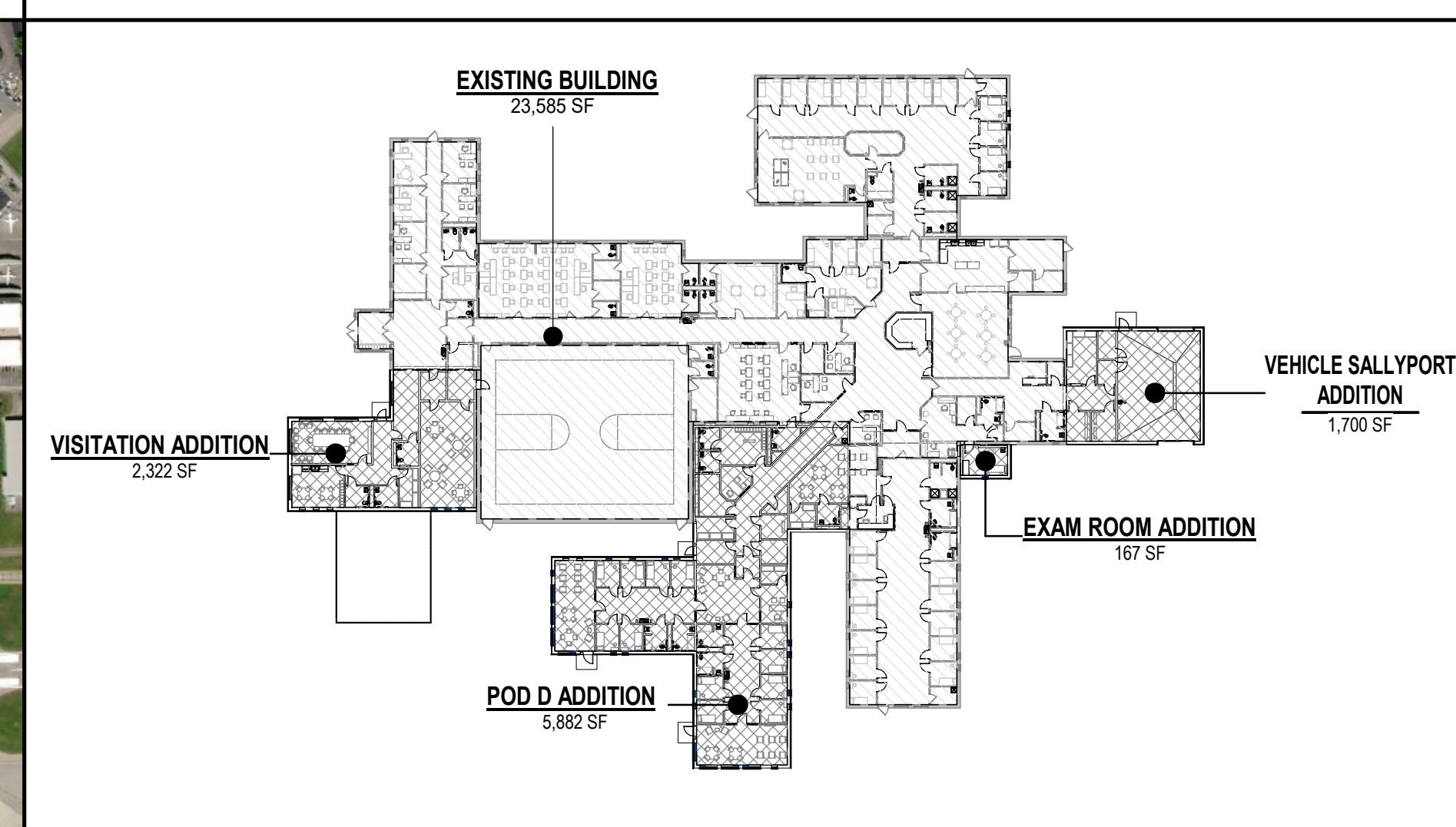
PROJECT VICINITY MAP



PROJECT LOCATION MAP



PROJECT KEY PLAN



SECURITY SYSTEMS

- DOOR CONTACT
- CARD READER
- REQUEST TO EXIT
- KEY PAD
- CLOSED CIRCUIT TELEVISION CAMERA
- CAMERA NUMBER - REFER TO CAMERA SCHEDULE FOR ADDITIONAL INFORMATION
- ELECTRIC STRIKE
- MAG LOCK
- MOTION SENSOR
- CONTROLLED DOOR TAG -
 - A CONTROLLED AND MONITORED (BYING DOOR)
 - B MONITORED ONLY (BYING DOOR)
 - C CONTROLLED AND MONITORED (BULDER'S HARDWARE, BYING DOOR)
 - D MONITORED ONLY (BULDER'S HARDWARE, BYING DOOR)
 - E CONTROLLED AND MONITORED (SLIDING DOOR)
 - F CONTROLLED AND MONITORED (SLIDING DOOR)
 - G MONITORED ONLY (ROLLUP DOOR)
 - H CONTROLLED AND MONITORED (GATE)
 - I MONITORED ONLY (GATE)
- INTERLOCKING DOORS
- INDICATES NUMBER OF DOORS INTERLOCKED
- INTERCOM STATION
- INDICATES INTERCOM STATION WITH INTEGRAL CAMERA
- DOOR RELEASE PUSHBUTTON
- ELECTRIC STRIKE

LINE TYPES

- EXISTING
- NEW
- DEMOLITION

ABBREVIATIONS

- | | | | |
|-------|--|-----------------|------------------------------------|
| A.AMP | AMPERE | LA | LIGHTNING ARRESTER |
| AFF | ABOVE FINISHED FLOOR | LCP | LIGHTING CONTROL PANEL |
| AFS | ABOVE FINISHED GRADE | LTS | LIGHTING |
| AHJ | AUTHORITY HAVING JURISDICTION | MC | METAL CLAD |
| AIC | AMPERE INTERRUPTING CAPACITY | MCB | MAIN CIRCUIT BREAKER |
| AWG | AMERICAN WIRE GAUGE | MR | MANUFACTURER |
| BFG | BELOW FINISHED GRADE | MI | MINERAL INSULATED |
| BOS | BOTTOM OF STEEL | MLO | MAIN LUG ONLY |
| C | CONDUIT, CONDUCTOR | MTD | MOUNTED |
| CATV | CABLE TELEVISION | MV | MEDIUM VOLTAGE |
| CB | CIRCUIT BREAKER | NC | NORMALLY CLOSED |
| CCTV | CLOSED CIRCUIT TELEVISION | NEC | NATIONAL ELECTRICAL CODE |
| CPT | CONTROL POWER TRANSFORMER | NEG | NEGATIVE |
| CT | CURRENT TRANSFORMER | NEUT | NEUTRAL |
| CJ | COPPER | NOT IN CONTRACT | NORMALLY OPEN |
| DACT | DIGITAL ALARM COMMUNICATOR TRANSMITTER | NO | NORMALLY OPEN |
| DB | DIRECT BURIED | NTS | NOT TO SCALE |
| DISC | DISCONNECT | PF | POWER FACTOR |
| DN | DOWN | PH | PHASE |
| E | EXISTING DEVICE TO REMAIN IN EXISTING LOCATION | PVC | POLYVINYL CHLORIDE |
| EMT | ELECTRICAL METALLIC TUBING | RGS | RIGID STEEL CONDUIT |
| ER | EXISTING DEVICE RELOCATED TO NEW LOCATION | RSC | RIGID STEEL CONDUIT |
| EVC | ELECTRIC WATER COOLER | RTD | RESISTANCE TEMPERATURE DETECTOR |
| FAA | FIRE ALARM ANNUNCIATOR | SN | SOLID NEUTRAL |
| FACP | FIRE ALARM CONTROL PANEL | STP | SHIELDED TWISTED PAIR |
| FBO | FURNISHED BY OTHERS | STT | SHIELDED TWISTED TRIPLET |
| FU | FUSE | SWBD | SWITCHBOARD |
| FWE | FURNISHED WITH EQUIPMENT | SWGR | SWITCHGEAR |
| GEN | GENERATOR | TOS | TOP OF STEEL |
| GFCI | GROUND FAULT CIRCUIT BREAKER | TRANSF | TRANSFORMER |
| GND | GROUND | TVSS | TRANSIENT VOLTAGE SURGE SUPPRESSOR |
| HP | HORSEPOWER | V | VOLT |
| HTR | HEATER | VA | VOLT-AMPERE |
| IG | ISOLATED GROUND | VAR | VOLT-AMPERE REACTIVE |
| IMC | INTERMEDIATE METAL CONDUIT | WM | WATT METER |
| K | KILO | WP | WEATHER PROOF |
| KOML | THOUSAND CIRCULAR MILS | XPMR | TRANSFORMER |
| KV | KILOVOLT | XP | EXPLOSION PROOF |
| KVA | KILOVOLT-AMPERE | | |
| KVAR | KILOVOLT-AMPERE REACTIVE | | |
| KW | KILOWATT | | |
| KWH | KILOWATT-HOUR | | |

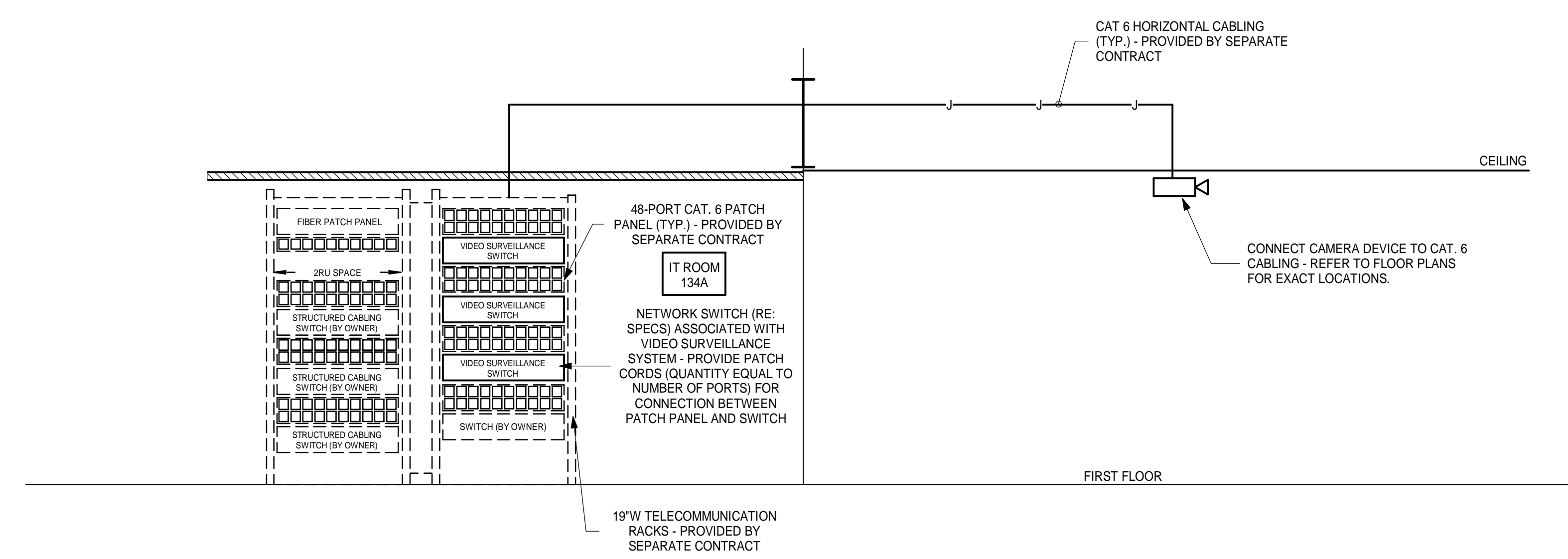
GENERAL NOTES:

- WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC).
- CAMERA STATION INSTALLATION:
 - A. IN AREAS WHERE MULTIPLE CAMERA STATIONS ARE SHOWN, THE STATIONS SHALL BE LOCATED AND AIMED SO THAT THE ENTIRE SPACE IS COMPLETELY VIEWED BY THE CAMERAS IN THE AREA. THERE SHALL BE NO LOCATION WITHIN THESE SPACE THAT IS NOT UNDER SURVEILLANCE BY AT LEAST ONE CAMERA.
 - B. IN AREAS WHERE A SINGLE CAMERA STATION IS SHOWN, THE CAMERA STATION SHALL BE LOCATED AND AIMED TO PROVIDE AS MUCH SURVEILLANCE OF THE SPACE AS POSSIBLE WITHIN THE FIELD OF VIEW LIMITS OF THE CAMERA.
 - C. EXTERIOR CAMERA STATIONS SHALL BE AIMED AS DIRECTED. PRIOR TO INSTALLATION, COORDINATE EXACT LOCATION AND INSTALLATION HEIGHT IN FIELD.
 - D. THE COMPANY FIELD ADVISOR IS TO CONDUCT PRELIMINARY TEST RECORDINGS OF EACH CAMERA STATION LOCATION TO CONFIRM APPROPRIATE PLACEMENT OF THE CAMERA STATION AND TO MAKE RECOMMENDATIONS IF ADJUSTMENT TO THE CAMERA STATION IS REQUIRED.
- WHERE THE WORK ASSOCIATED WITH THE VIDEO SURVEILLANCE WILL INTERFERE WITH THE WORK OF OTHER TRADES, ALL TRADES MUST ASSIST IN WORKING OUT SPACE CONDITIONS.

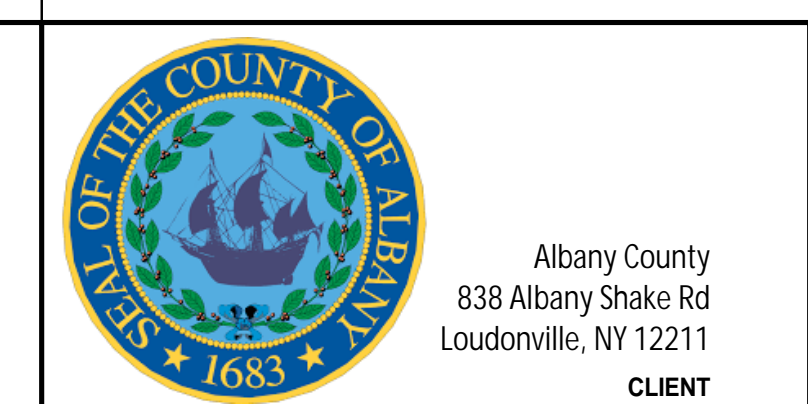
GENERAL NOTE

ALL GENERAL NOTES, SYMBOL LISTS, AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.

2020 ENERGY CONSERVATION CODE OF NEW YORK STATE (SECTION C.105.2.2 WRITTEN STATEMENT), TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CODE.



VIDEO SURVEILLANCE RISER DIAGRAM NONE C1



Albany County
838 Albany Shaker Rd
Loudonville, NY 12121
CLIENT



SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtnyc.com



CONSTRUCTION MANAGER

IT IS A VIOLATION OF THE LAWS OF THE STATE OF NEW YORK FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER TO ALTER THIS DRAWING. IF THIS DRAWING IS ALTERED, THE ALTERING ARCHITECT/ENGINEER SHALL AFFIX THEIR SEAL WITH THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, DATE AND DESCRIPTION OF THE ALTERATION.

REV	DESCRIPTION	DATE

ISSUED FOR CONSTRUCTION
JUNE 13, 2023

CURRENT ISSUE STATUS:

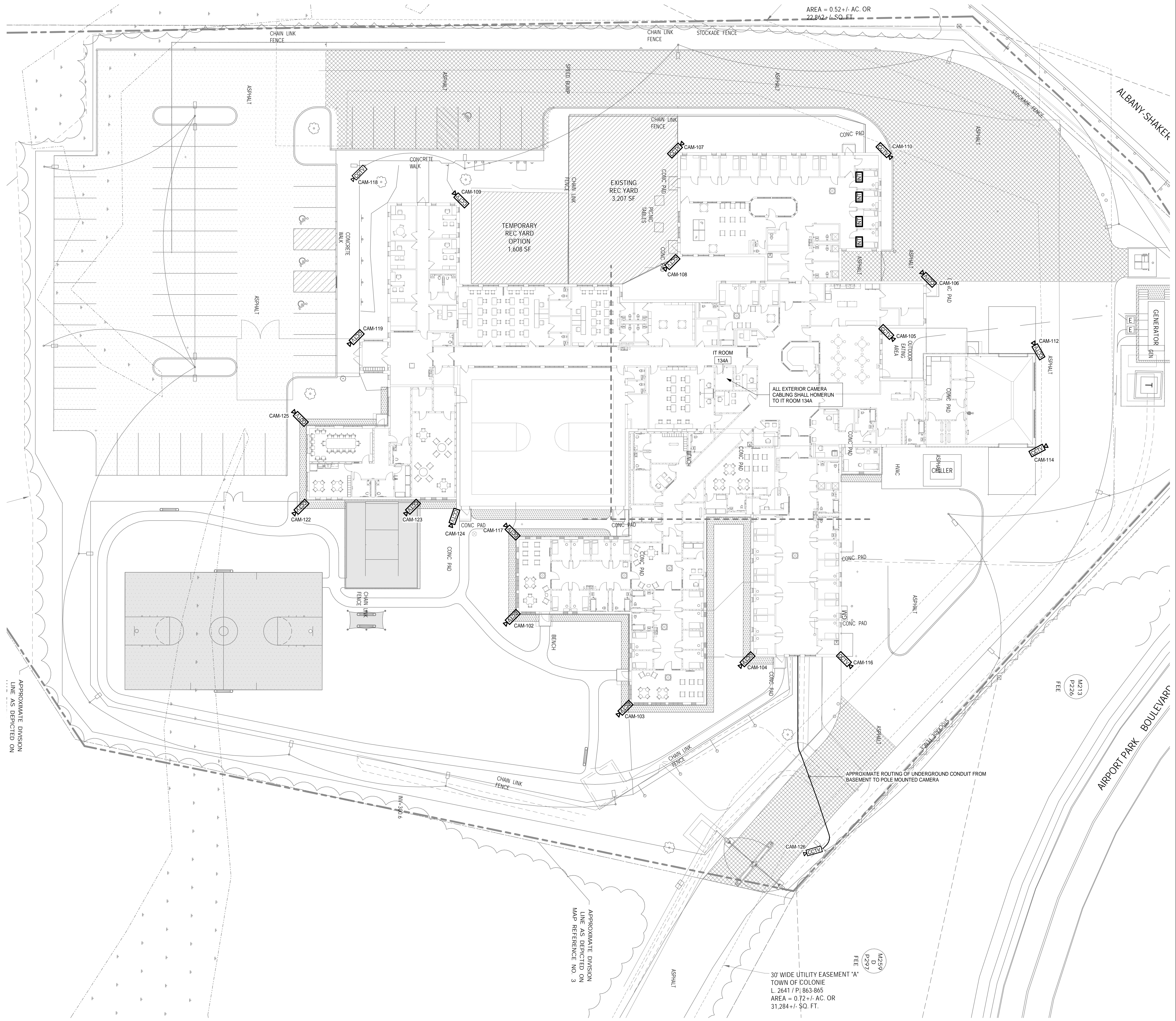
ALBANY COUNTY
CAPITAL DISTRICT JUVENILE
SECURE DETENTION FACILITY
838 ALBANY SHAKER RD, LOUDONVILLE, NY 12121

VIDEO SURVEILLANCE LEGEND AND NOTES

SHEET TITLE:

SCALE: AS NOTED

PROJECT MANAGER:	MLC	PROJECT NO.:	18077
A/E OF RECORD:	LJW		
JOB CAPTAIN:	BEL		
DRAWN BY:	LJW		
SMRT FILE:	18077 - Y-001	SHEET No.:	Y-001



AREA = 0.52 +/- AC. OR
22,862 +/- SQ. FT.

ALL EXTERIOR CAMERA
CABLING SHALL HOMERUN
TO IT ROOM 134A

APPROXIMATE ROUTING OF UNDERGROUND CONDUIT FROM
BASEMENT TO POLE MOUNTED CAMERA

30' WIDE UTILITY EASEMENT 'A'
TOWN OF COLONIE
L. 2641 / P. 863-865
AREA = 0.72 +/- AC. OR
31,284 +/- SQ. FT.

NOTES:

- SEE SHEET Y-001 FOR LEGEND AND GENERAL NOTES.
- ALL CAMERA DEVICES, VIDEO SURVEILLANCE HEAD END EQUIPMENT, MOUNTING ACCESSORIES, LICENSING, AND PROGRAMMING ASSOCIATED WITH VIDEO SURVEILLANCE SYSTEM SHALL BE PROVIDED UNDER THIS PROJECT'S SCOPE OF WORK.
- UNLESS SPECIFICALLY NOTED OTHERWISE, ALL OTHER ELECTRICAL WORK ASSOCIATED WITH THE VIDEO SURVEILLANCE SYSTEM INDICATED ON THIS DRAWING (CABLING, PATHWAYS, TERMINATIONS, ETC.) SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR UNDER A SEPARATE CONTRACT.



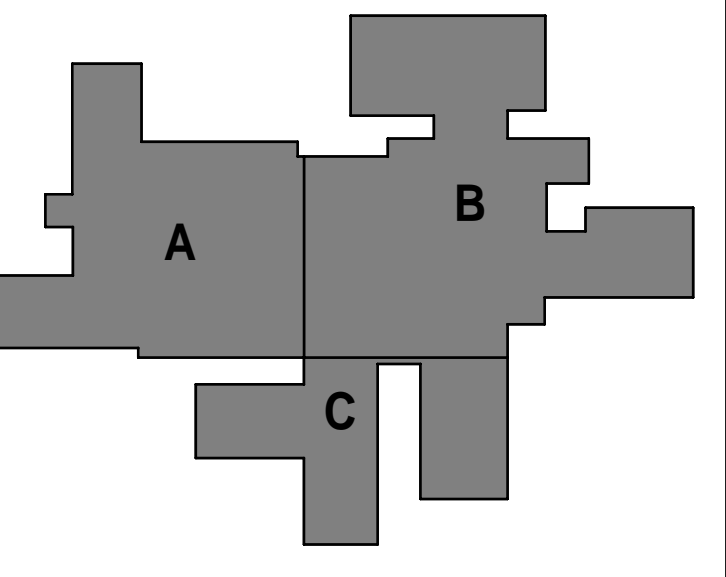
Albany County
838 Albany Shaker Rd
Loudonville, NY 12211
CLIENT



Architecture • Engineering • Planning
SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtnyc.com



Gilbane Building Company
CONSTRUCTION MANAGER



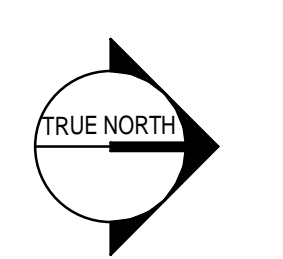
KEY PLAN
N.T.S.

IT IS A VIOLATION OF THE LAWS OF THE STATE OF NEW YORK FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER TO ALTER THIS DRAWING. IF THIS DRAWING IS ALTERED, THE ALTERING ARCHITECT/ENGINEER SHALL AFFIX THEIR SEAL WITH THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, DATE AND DESCRIPTION OF THE ALTERATION.

REV	DESCRIPTION	DATE

ISSUED FOR CONSTRUCTION
JUNE 13, 2023

CURRENT ISSUE STATUS:

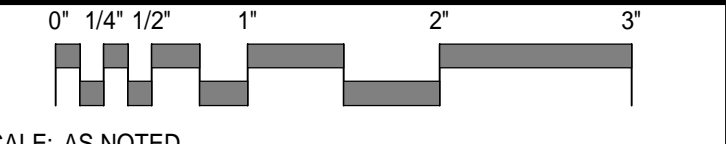


PROJECT NORTH:
ALBANY COUNTY

CAPITAL DISTRICT JUVENILE
SECURE DETENTION FACILITY
838 ALBANY SHAKER RD, LOUDONVILLE, NY 12211

EXTERIOR VIDEO
SURVEILLANCE PLAN

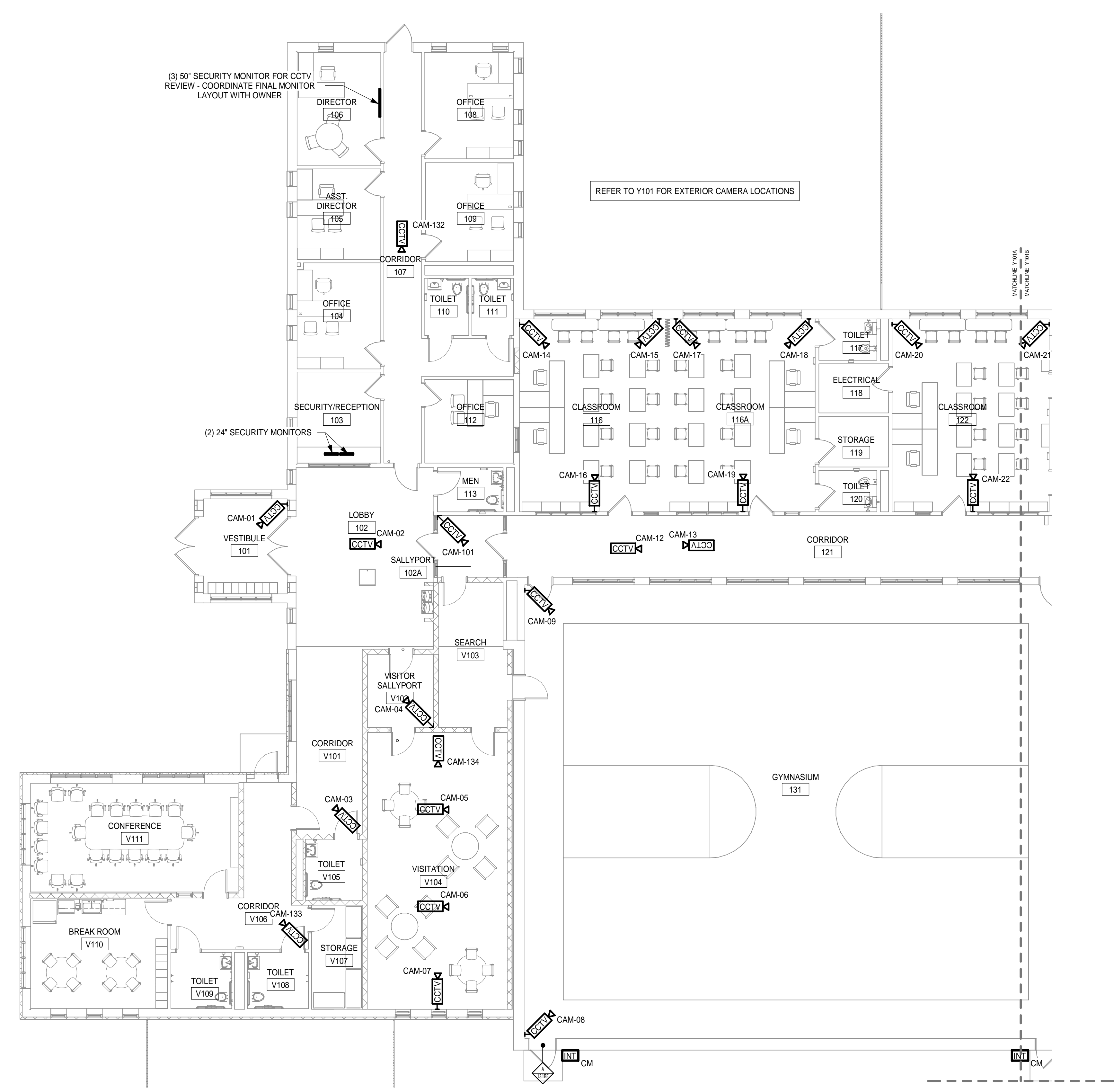
SHEET TITLE:



SCALE: AS NOTED

PROJECT MANAGER:	MLC	PROJECT NO.:	18077
A/E OF RECORD:	LJW		
JOB CAPTAIN:	BEL		
DRAWN BY:	LJW		
SMRT FILE:	18077 - Y101	SHEET No.:	Y101

LEVEL 1 OVERALL VIDEO SURVEILLANCE PLAN
1/16" = 1'-0" A3



NOTES:

- SEE SHEET Y-001 FOR LEGEND AND GENERAL NOTES.
- ALL CAMERA DEVICES, VIDEO SURVEILLANCE HEAD END EQUIPMENT, MOUNTING ACCESSORIES, LICENSING, AND PROGRAMMING ASSOCIATED WITH VIDEO SURVEILLANCE SYSTEM SHALL BE PROVIDED UNDER THIS PROJECT'S SCOPE OF WORK.
- UNLESS SPECIFICALLY NOTED OTHERWISE, ALL OTHER ELECTRICAL WORK ASSOCIATED WITH THE VIDEO SURVEILLANCE SYSTEM INDICATED ON THIS DRAWING (CABLING, PATHWAYS, TERMINATIONS, ETC.) SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR UNDER A SEPARATE CONTRACT.



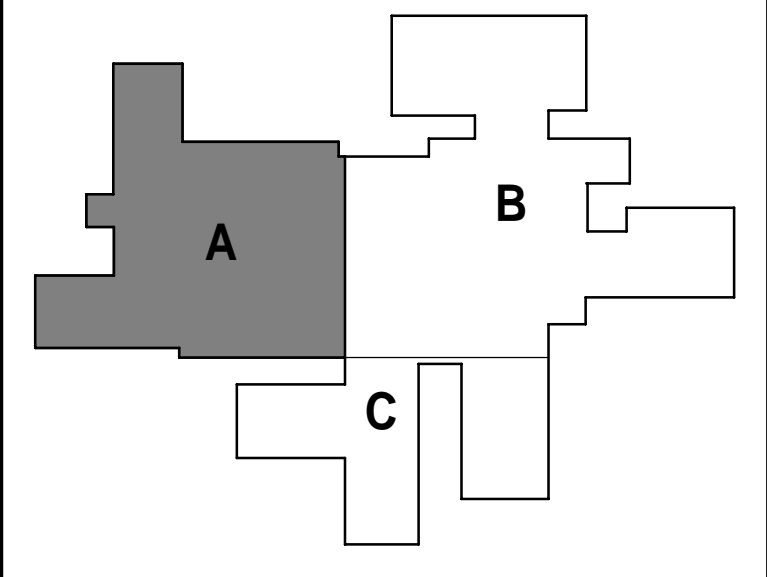
Albany County
838 Albany Shake Rd
Loudonville, NY 12211
CLIENT



SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtinc.com



Gilbane Building Company
CONSTRUCTION MANAGER



KEY PLAN
N.T.S.

IT IS A VIOLATION OF THE LAWS OF THE STATE OF NEW YORK FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER TO ALTER THIS DRAWING. IF THIS DRAWING IS ALTERED, THE ALTERING ARCHITECT/ENGINEER SHALL AFFIX THEIR SEAL WITH THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, DATE AND DESCRIPTION OF THE ALTERATION.

REV	DESCRIPTION	DATE

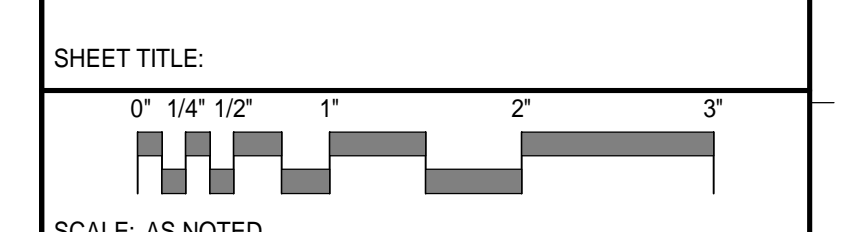
ISSUED FOR CONSTRUCTION
JUNE 13, 2023

CURRENT ISSUE STATUS:

PROJECT NORTH:
ALBANY COUNTY

CAPITAL DISTRICT JUVENILE
SECURE DETENTION FACILITY
838 ALBANY SHAKE RD, LOUDONVILLE, NY 12211

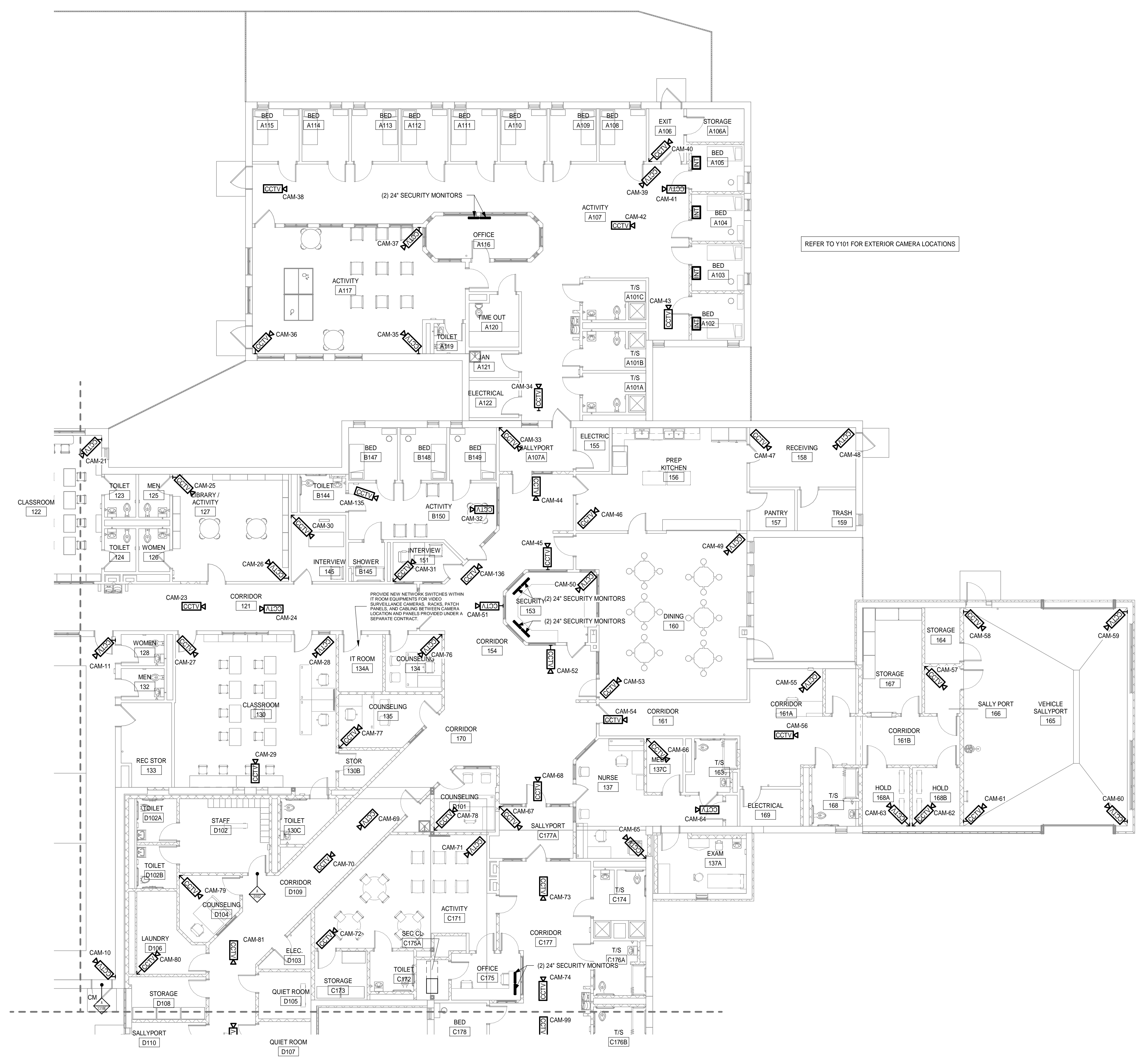
AREA A FIRST LEVEL VIDEO
SURVEILLANCE PLAN



SCALE: AS NOTED

PROJECT MANAGER:	MLC	PROJECT NO.:	18077
A/E OF RECORD:	LJW		
JOB CAPTAIN:	BEL		
DRAWN BY:	LJW		
SMRT FILE:	18077 - Y101A	SHEET No.:	Y101A

LEVEL 1 AREA A SECURITY PLAN - VIDEO SURVEILLANCE
1/8" = 1'-0" (A3)



NOTES:

- SEE SHEET Y-001 FOR LEGEND AND GENERAL NOTES.
- ALL CAMERA DEVICES, VIDEO SURVEILLANCE HEAD END EQUIPMENT, MOUNTING ACCESSORIES, LICENSING, AND PROGRAMMING ASSOCIATED WITH VIDEO SURVEILLANCE SYSTEM SHALL BE PROVIDED UNDER THIS PROJECT'S SCOPE OF WORK.
- UNLESS SPECIFICALLY NOTED OTHERWISE, ALL OTHER ELECTRICAL WORK ASSOCIATED WITH THE VIDEO SURVEILLANCE SYSTEM INDICATED ON THIS DRAWING (CABLING, PATHWAYS, TERMINATIONS, ETC.) SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR UNDER A SEPARATE CONTRACT.



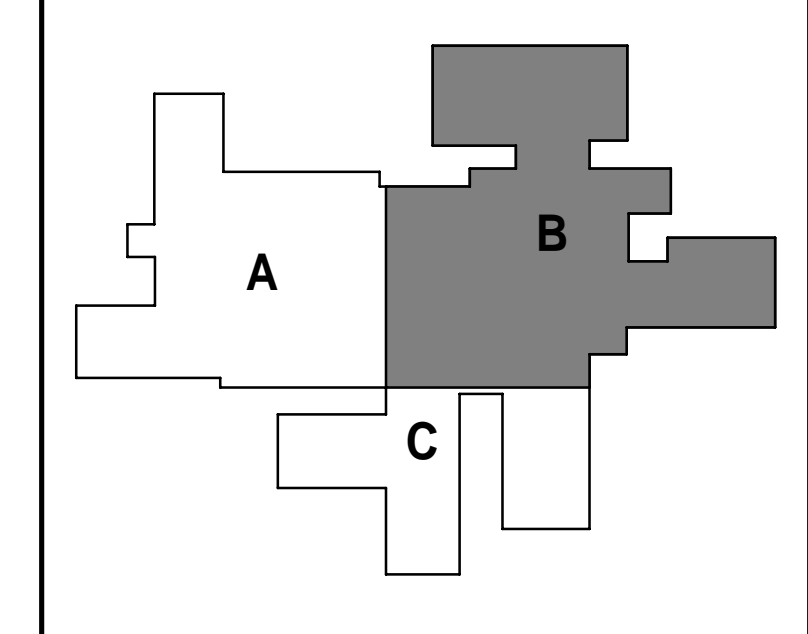
Albany County
838 Albany Shake Rd
Loudonville, NY 12211
CLIENT



SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtinc.com



CONSTRUCTION MANAGER



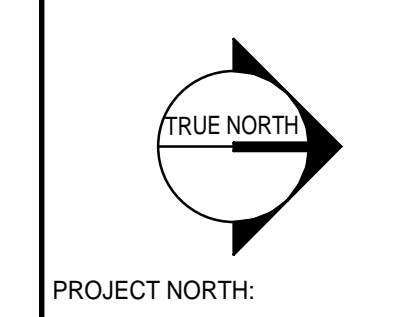
KEY PLAN
N.T.S.

IT IS A VIOLATION OF THE LAWS OF THE STATE OF NEW YORK FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT/ENGINEER TO ALTER THIS DRAWING. IF THIS DRAWING IS ALTERED, THE ALTERING ARCHITECT/ENGINEER SHALL AFFIX THEIR SEAL WITH THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, DATE AND DESCRIPTION OF THE ALTERATION.

REV	DESCRIPTION	DATE

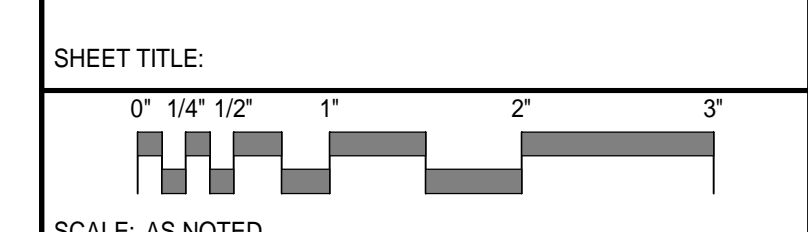
ISSUED FOR CONSTRUCTION
JUNE 13, 2023

CURRENT ISSUE STATUS:



PROJECT NORTH:
ALBANY COUNTY

**CAPITAL DISTRICT JUVENILE
SECURE DETENTION FACILITY**
838 ALBANY SHAKE RD, LOUDONVILLE, NY 12211
**AREA B FIRST LEVEL VIDEO
SURVEILLANCE PLAN**



SHEET TITLE:
SCALE: AS NOTED

PROJECT MANAGER:	MLC	PROJECT NO.:	18077
A/E OF RECORD:	LJW		
JOB CAPTAIN:	BEL		
DRAWN BY:	LJW		
SMRT FILE:	18077 - Y101B	SHEET No.:	Y101B

LEVEL 1 AREA B SECURITY PLAN - VIDEO SURVEILLANCE
1/8" = 1'-0" (A3)



Albany County
838 Albany Shake Rd
Loudonville, NY 12211
CLIENT



Architecture • Engineering • Planning

SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtinc.com



Gilbane Building Company

CONSTRUCTION MANAGER

CAMERA SCHEDULE

CAMERA DESIGNATION	AREA OF COVERAGE	PLAN AREA	CAMERA TYPE	CAMERA VIEW	CAMERA MODEL NO. 1	MOUNTING INFORMATION		PHASE MILESTONES (START-FINISH)	NOTES
						TYPE	HEIGHT		
CAM-01	VESTIBULE 101	AREA A	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-02	LOBBY 102	AREA A	MULTISENSOR	360 DEG.	M3058-PLVE	CEILING	---	2 (04/22/24-8/24/24)	
CAM-03	CORRIDOR V101	AREA A	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-04	VISITOR SALLYPORT A009	AREA A	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-05	VISITATION A010	AREA A	PAN-TILT-ZOOM	VARIABLES	O6078-E	CEILING	---	1 (01/23/23-02/23/24)	PROVIDE W/ RECESSED MOUNT FOR CEILING MTG
CAM-06	VISITATION A010	AREA A	PAN-TILT-ZOOM	VARIABLES	O6078-E	CEILING	---	1 (01/23/23-02/23/24)	PROVIDE W/ RECESSED MOUNT FOR CEILING MTG
CAM-07	VISITATION A010	AREA A	MULTISENSOR	180 DEG.	P3807-PVE	WALL	8'-6"	1 (01/23/23-02/23/24)	
CAM-08	GYM 131	AREA A	FIXED	---	P3265-LV	WALL	10'-0"	2 (04/22/24-8/24/24)	
CAM-09	GYM 131	AREA A	FIXED	---	P3265-LV	WALL	10'-0"	2 (04/22/24-8/24/24)	
CAM-10	GYM 131	AREA A	FIXED	---	P3265-LV	WALL	10'-0"	3 (10/09/24-02/07/25)	
CAM-11	GYM 131	AREA A	FIXED	---	P3265-LV	WALL	10'-0"	3 (10/09/24-02/07/25)	
CAM-12	CORRIDOR 121	AREA A	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-13	CORRIDOR 121	AREA A	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-14	CLASSROOM 116	AREA A	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-15	CLASSROOM 116	AREA A	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-16	CLASSROOM 116	AREA A	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-17	CLASSROOM 116A	AREA A	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-18	CLASSROOM 116A	AREA A	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-19	CLASSROOM 116A	AREA A	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-20	CLASSROOM 122	AREA A	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-21	CLASSROOM 122	AREA A	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-22	CLASSROOM 122	AREA A	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-23	CORRIDOR 121	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-24	CORRIDOR 121	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-25	LIBRARY/ACTIVITY 162	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-26	LIBRARY/ACTIVITY 162	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-27	CLASSROOM 130	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-28	CLASSROOM 130	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-29	CLASSROOM 130	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-30	INTERVIEW 145	AREA B	FIXED	---	O9216-SLV	CORNER	---	2 (04/22/24-8/24/24)	
CAM-31	INTERVIEW 151	AREA B	FIXED	---	O9216-SLV	CORNER	---	3 (10/09/24-02/07/25)	
CAM-32	ACTIVITY 150	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-33	SALLYPORT A107A	AREA B	FIXED	---	O9216-SLV	CORNER	---	3 (10/09/24-02/07/25)	
CAM-34	ACTIVITY A107	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-35	ACTIVITY A117	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-36	ACTIVITY A117	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-37	ACTIVITY A117	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-38	ACTIVITY A107	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-39	ACTIVITY A107	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-40	EXIT A106	AREA B	FIXED	---	O9216-SLV	CORNER	---	3 (10/09/24-02/07/25)	
CAM-41	ACTIVITY A107	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-42	ACTIVITY A107	AREA B	MULTISENSOR	360 DEG.	M3058-PLVE	CEILING	---	3 (10/09/24-02/07/25)	
CAM-43	ACTIVITY A107	AREA B	FIXED	---	P3265-LV	CEILING	---	3 (10/09/24-02/07/25)	
CAM-44	CORRIDOR 154	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-45	CORRIDOR 154	AREA B	MULTISENSOR	180 DEG.	P3807-PVE	WALL	8'-6"	1 (01/23/23-02/23/24)	
CAM-46	PREP KITCHEN 156	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-47	RECEIVING 158	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-48	RECEIVING 158	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-49	DINING 160	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-50	SECURITY 153	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-51	CORRIDOR 154	AREA B	MULTISENSOR	180 DEG.	P3807-PVE	WALL	8'-6"	1 (01/23/23-02/23/24)	
CAM-52	CORRIDOR 154	AREA B	MULTISENSOR	180 DEG.	P3807-PVE	WALL	8'-6"	1 (01/23/23-02/23/24)	
CAM-53	DINING 160	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-54	CORRIDOR 161.1	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-55	CORRIDOR 161.1	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-56	CORRIDOR 161.1	AREA B	MULTISENSOR	360 DEG.	M3058-PLVE	CEILING	---	1 (01/23/23-02/23/24)	
CAM-57	SALLYPORT 166	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-58	VEHICLE SALLYPORT 165	AREA B	FIXED	---	P3265-LV	WALL	10'-0"	1 (01/23/23-02/23/24)	
CAM-59	VEHICLE SALLYPORT 165	AREA B	FIXED	---	P3265-LV	WALL	10'-0"	1 (01/23/23-02/23/24)	
CAM-60	VEHICLE SALLYPORT 165	AREA B	FIXED	---	P3265-LV	WALL	10'-0"	1 (01/23/23-02/23/24)	
CAM-61	VEHICLE SALLYPORT 165	AREA B	FIXED	---	P3265-LV	WALL	10'-0"	1 (01/23/23-02/23/24)	
CAM-62	HOLD 168.2	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-63	HOLD 168.1	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-64	NURSE 137	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-65	NURSE 137	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-66	MEDS 130	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-67	SALLYPORT 166	AREA B	FIXED	---	O9216-SLV	CORNER	---	2 (04/22/24-8/24/24)	
CAM-68	CORRIDOR 154	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-69	CORRIDOR 4.25	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-70	CORRIDOR 4.25	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-71	ACTIVITY C171	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-72	ACTIVITY C171	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-73	CORRIDOR 177	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-74	CORRIDOR 177	AREA B	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-75	CORRIDOR 177	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	

NOTES:
1 ALL MODEL NUMBERS ARE AXIS COMMUNICATIONS, UNLESS NOTED OTHERWISE

CAMERA SCHEDULE

CAMERA DESIGNATION	AREA OF COVERAGE	PLAN AREA	CAMERA TYPE	CAMERA VIEW	CAMERA MODEL NO. 1	MOUNTING INFORMATION		PHASE MILESTONES (START-FINISH)	NOTES
						TYPE	HEIGHT		
CAM-76	COUNSELING 134	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-77	COUNSELING 135	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-78	COUNSELING D101	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-79	COUNSELING D104	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-80	LAUNDRY D106	AREA B	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-81	CORRIDOR D109	AREA B	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-82	SPARE DESIGNATION								
CAM-83	SALLYPORT D110	AREA C	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-84	SALLYPORT D111	AREA C	FIXED	---	O9216-SLV	CORNER	---	1 (01/23/23-02/23/24)	
CAM-85	ACTIVITY D112	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-86	ACTIVITY D112	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-87	CORRIDOR D113	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-88	CORRIDOR D113	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-89	ACTIVITY D122	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-90	SPARE DESIGNATION								
CAM-91	ACTIVITY D122	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-92	SPARE DESIGNATION								
CAM-93	CORRIDOR D123	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-94	CORRIDOR D123	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-95	ACTIVITY D132	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-96	SPARE DESIGNATION								
CAM-97	SPARE DESIGNATION								
CAM-98	ACTIVITY D132	AREA C	FIXED	---	P3265-LV	CEILING	---	1 (01/23/23-02/23/24)	
CAM-99	CORRIDOR 177	AREA C	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-100	CORRIDOR 177	AREA C	FIXED	---	P3265-LV	CEILING	---	2 (04/22/24-8/24/24)	
CAM-101	SALLYPORT 102A	AREA A	FIXED	---		CORNER	---	1 (01/23/23-02/23/24)	
CAM-102	EXTERIOR BUILDING - SOUTHEAST	AREA C	FIXED	360 DEG., QUAD	P3719-PLE	EXT. CORNER	12'-0"	1 (01/23/23-02/23/24)	PROVIDE W/ EXT. CORNER, PENDANT MTG
CAM-103	EXTERIOR BUILDING - EAST	AREA C	FIXED	360 DEG., QUAD	P3719-PLE	EXT. CORNER	12'-0"	1 (01/23/23-02/23/24)	PROVIDE W/ EXT. CORNER, PENDANT MTG
CAM-104	EXTERIOR BUILDING - EAST	AREA C	FIXED	360 DEG., QUAD	P3719-PLE	EXT. CORNER	12'-0"	2 (04/22/24-8/24/24)	PROVIDE W/ EXT. CORNER, PENDANT MTG
CAM-105	EXTERIOR BUILDING - NORTH	AREA B	MULTISENSOR	360 DEG.	M3058-PLVE	CEILING	---	2 (04/22/24-8/24/24)	
CAM-106	EXTERIOR BUILDING - NORTH	AREA B	FIXED	360 DEG., QUAD	P3719-PLE	EXT. CORNER	12'-0"	2 (04/22/24-8/24/24)	PROVIDE W/ EXT. CORNER, PENDANT MTG
C									

PROJECT MANUAL FOR:

Video Surveillance Bid Set
01/05/2023



CAPITAL DISTRICT JUVENILE SECURE DETENTION FACILITY VIDEO SURVEILLANCE PROJECT

838 ALBANY SHAKER ROAD
LOUDONVILLE, NY 12211



PREPARED BY:

SMRT

Architecture • Engineering • Planning

SMRT Architects and Engineers
433 State Street, 5th Floor
Schenectady, New York 12305
1.877.700.7678
www.smrtinc.com

Gilbane

Gilbane Building Company

PROJECT NUMBER 18077
VIDEO SURVEILLANCE BID SET
JUNE 13, 2023

DIVISION SECTION TITLE

DIVISION 28 ELECTRONIC SAFETY AND SECURITY

282300 VIDEO SURVEILLANCE

DOCUMENT 000107 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

- A. Electrical Engineer
 - A. Lura J. Wade, PE.
 - B. New York License #106802.



SECTION 282300 - VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions of the Contract and of the Contract Documents apply to this section.

1.2 SYSTEM DESCRIPTION

- A. Provide a complete video surveillance system.
- B. The system shall consist of cameras, network infrastructure and monitoring stations.
- C. Furnish and install all security video cameras, mounts, housings, power supply systems, connectors, monitors and consoles, computer-controlled network switches, workstations, storage, decoders, equipment cabinet (for servers and storage dedicated to video surveillance system) and all other hardware and software to provide a fully operational system. UTP and fiber cables, network cables, and equipment racks associated with horizontal cabling connections shall be provided by Electrical Contractor through a separate contract.
- D. In all cases, the equipment shall be state of the art, standardized commercial off-the-shelf, and modular.
- E. In all cases, the method of communication from remote locations within the network to the central components shall be transparent to the user.
- F. The security video system shall provide unlimited expansion capability for the addition or modification of video inputs.
- G. Equipment shall be selected and installed so repairs may be accomplished on site by module replacement, utilizing spare components.
- H. Refer to camera schedule for resolution requirements.
- I. The cameras shall be equipped with low light capability as indicated in the camera specifications.
- J. Pan/tilt zoom (PTZ) cameras shall be located as shown on the drawings and schedules.
- K. The video system shall be an IP network-based, fully distributed digital video system.
- L. The security video system will utilize the local area network (LAN) as a transmission medium for video, configuration, as well as storage of all video and data.
 - 1. Network switches shall be provided in each telecommunication room (see Paragraph 2.10 below) to support Power over Ethernet (PoE) connection to each cameras.

- a. Where power requirements exceed POE capabilities based on distant from IDF indicated on plans, provide power supplies or injectors as required.
 2. Network switches shall be connected to fiber backbone (provided by Electrical Contractor under separate scope of work).
 3. Horizontal cabling between each camera location and associated patch panels shall be provided by Electrical Contractor under separate scope of work).
- M. The cameras shall have the capability of transmitting audio to the recording system. An external microphone shall be utilized to provide audio recording the interview rooms.
- N. The security video system shall provide full video control at the monitor stations with additional full selection capability at any point within the network utilizing a workstation or a decoder.
- O. The IP video system shall permit normal and event monitoring of all secured areas on digital monitors.
- P. Video monitoring of any cameras shall be possible at the video monitoring station but shall be limited by user and defined access to each camera.
- Q. The system shall allow review of the digitally recorded video, via the secure network, without interruption to recording capabilities.
- R. - The core directory servers for the IP video system based digital recording and monitoring system must be redundant and hosted on separate physical servers. Archivers shall be fault tolerant and support fail-over archiving such that no significant amount of video is lost if an archiver is offline for maintenance or due to failure.
- S. Power supplies for the encoder and Network Storage Managers shall be capable of redundancy.
- T. All Network Storage Managers shall provide either RAID 5 or RAID 6 redundancy for the storage drives. Additionally, RAID 1 mirroring shall be provided for boot volumes.
- U. Network Storage Manager devices shall be sized as specified to accomplish the desired storage retention.
1. Storage retention shall be a minimum of 90 days.
 2. Storage shall be at camera native resolution. Storage shall be a minimum of 15 frames per second for all recordings (both motion and idle recordings).
 3. ~~Minimum recording at non motion shall be 5 frames per second.~~
 4. Assume 50% motion as average for the facility.
 5. Contractor will provide, as part of the submittal, all calculations and assumption made to meet the above requirements. Calculations should be based on the equipment proposed and conditions applicable to the facility type.
- V. Multi-level diagnostics of each component in all critical areas shall be provided.
1. Diagnostics shall be reported to a diagnostic console for processing.
- W. Diagnostic and alarm data shall be capable of being scripted into actionable events within the system. The system shall consist of cameras, lenses, monitors, mounting hardware, housings, switchers, signal generating, processing equipment, network video recorders and amplifiers.

- X. Provide cameras as shown on the drawings and described herein.
- Y. Each workstation shall consist of 24"to 27" spot monitor with multiple views on the monitor. The monitor shall view the cameras associated with all workstation associated areas. Two pairs of the monitor shall be dedicated to intercom selection and shall display both side of door when an intercom is selected.
- Z. Each workstation shall have two (2) large 48"-55"multiple view monitors as shown on the drawings in addition to the spot monitors
- AA. Each workstation shall also be capable of viewing multiple camera views at the same time utilizing the same monitor. The workstations shall consist of a computer running client software or encoder and controls for selection and control of cameras associated with the respective area. Selection of cameras should be limited to the cameras associated with work station responsibility.
- BB. Provide unlimited licenses for remote viewing of video in addition to those required for workstations shown on drawings. The software shall be loaded on facility computers as directed. A separate network connection for interfacing from these computers shall be provided by the facility. The remote connections shall include client software for viewing both live and recorded video.
- CC. Cameras that are mounted on the wall outside the building shall include surge suppression for power and signal to the camera.
- DD. Cameras that are mounted on poles outside the building envelope shall include fiber encoder/decoder to isolate the camera. Coordinate with electrical to provide power at these locations.
- EE. Video surveillance system contractor shall also provide integration needed to connect new video surveillance system to Owner's existing Genetec Security Center system.

1.3 QUALITY ASSURANCE

- A. NEC Compliance. Comply with applicable requirements pertaining to TV equipment and signal distribution systems
- B. UL Compliance. Comply with applicable requirements of UL safety standards pertaining to television equipment and accessories. Provide TV equipment and accessories, which are UL-listed and labeled.
- C. EIA Compliance. Comply with applicable requirements of Electronic Industries Associations standards pertaining to television cameras and monitors.
- D. The contractor or vendor shall be a licensed security contractor/vendor with a minimum of five (5) years' experience installing and serving systems of similar scope and complexity and evidence that is completed at least three (3) projects of similar design and is currently engaged in the installation and maintenance of systems herein described.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Basis of Design: Genetec Security Center, Version 5.11.
- B. The following system components shall be provided under the specification section:
 - 1. Interior Cameras
 - 2. Exterior Cameras
 - 3. Camera Mounting Accessories
 - 4. Video Surveillance System Servers, including all required licensing
 - 5. Video Surveillance Workstations
 - 6. Uninterruptible Power Supplies associated with video surveillance equipment racks and workstations.
 - 7. Any other components, not specifically mentioned, required for complete and operational system as described.
- C. The video surveillance system shall be IP-based and comply with established network and video standards.
- D. The video surveillance system shall be powered by the network switched utilizing network cable.
- E. The video surveillance system shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third-party applications.

2.2 INDOOR, VANDAL-RESISTANT 2MP FIXED DOME CAMERA

- A. Basis of Design: Axis, Model No. P3265-LVE.
- B. Camera
 - 1. Resolution support of at least 2M (1920x1080) with 16:9 full HD (1080p) resolution imaging device.
 - 2. Imaging Sensor: RGB CMOS
 - 3. Scanning System Progressive
 - 4. Min. Illumination (with Forensic WDR and Lightfinder 2.0)
 - a. Color: 0.1 Lux (F1.8, 50IRE)
 - b. Black/White: 0.08 Lux (F1.8, 50IRE)
 - 5. SN Ratio: 50dB
 - 6. Video Output: RJ45 10BASE-T/100BASE-TX PoE
 - 7. Features:
 - a. Privacy zones (minimum of 2 independent programmable zones)
 - b. Day and Night Color, B/W, Auto switch
 - c. Electronic Shutter Speed
 - d. Automatic Gain Control

- e. White Balance
- f. Wide dynamic range of minimum 76db
- 8. Lens
 - a. Focal Length 3.4-8.9mm.
 - b. Minimum Zoom Ratio: 3X
 - c. Aperture ratio F1.8
 - d. Angular Field of View H: approximately 100°(Wide) ~ 36°(Tele)
- 9. Focus Control
 - a. Simple focus (Motorized V/F)
- 10. Power
 - a. Input Voltage 24V AC, 12V DC, PoE (IEEE802.3af)
 - b. Power Consumption, max. 9W

C. Operational Specifications

- 1. Operating System Embedded Linux
- 2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
- 3. Alarm 2 inputs, 1 output (relay)
- 4. Video
 - a. Compression: H.264 and/or MPEG-4, MJPEG Multiple codec
 - b. Resolution HD (16:9) 1280 x 720P
 - c. Streaming H.264, MPEG-4, MJPEG multiple streaming (Individual streaming simultaneously)
- 5. Audio
 - a. Streaming: Two-way, full duplex

D. Video Analytics

- 1. Camera shall be capable of processing and analyzing video within the camera itself, with no extra hardware required.
- 2. Analytics shall include
 - a. Motion detection - detect any motion in the field of view.
 - b. Trip wire detection - Allows an alarm any time a specified line is crossed.
 - c. Adaptive Motion: Detects and tracks objects that enter a scene and then triggers an alarm when the objects enter a user-defined zone.
 - d. Directional Motion: Generates an alarm in a high traffic area when a person or object moves in a specified direction.
 - e. Object Counting: Counts the number of objects that enter a defined zone or cross a tripwire.
 - f. Abandoned Object: Detects objects placed in a defined zone and triggers an alarm if the object remains in the zone longer than the user-defined time allows.
 - g. Camera Sabotage: Detects contrast changes in the field of view. An alarm is triggered if the lens is obstructed with spray paint, a cloth, or a lens cap. Any unauthorized repositioning of the camera also triggers an alarm.
 - h. Loitering Detection: Identifies when people or vehicles remain in a defined zone longer than the user-defined time allows.
 - i. Object Removal: Triggers an alarm if an object is removed from a defined zone.

3. Stopped Vehicle: Detects vehicles stopped near a sensitive area longer than the user-defined time allows.

E. Environmental Specifications

1. Operating Temperature +32°F ~ +122°F
2. Operating Humidity 10%-85% RH, non-condensing
3. Ingress Protection (minimum): IP52
4. IK10-rated.

F. Physical Specifications

1. Color: White
2. Materials: Aluminum

G. Certifications

1. UL Listed
2. UL Listed to Canadian safety standards
3. CE mark
4. FCC mark
5. Onvif Profile S

H. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

I. Warranty

1. 3 years, parts and labor.

2.3 INDOOR, FIXED 360° 12MP CAMERA

A. Basis of Design: Axis, Model No. M3058-PLVE

B. General Description

1. The camera shall support 360° overview, de-warped panorama, double panorama, corridor and quad views. Up to four individually cropped out and de-warped view areas. The 360° overview can be streamed simultaneously with four view areas or one other de-warped view.

C. Camera

1. Imaging Sensor: RGB CMOS
2. Scanning System Progressive
3. Min. Illumination :
 - a. Color: 0.19 lux at 50 IRE, F2.2
 - b. B/W: 0.04 lux at 50 IRE, F2.2

- c. 0 lux with IR illumination on
- 4. Features:
 - a. Progressive scan megapixel sensor.
 - b. Day and Night Color, Auto switch
 - c. Electronic Shutter Speed
 - d. Automatic and Manual White Balance
 - e. Wide dynamic range functionality, up to 120 dB dynamic range.
- 5. Lens
 - a. Length: 1.3mm.
 - b. Aperture ratio: F2.2
 - c. Angular Field of View H: 181°
 - d. Angular Field of View, V: 181°
 - e. Fixed focus.
 - f. Fixed iris,
 - g. IR corrected.
- 6. PTZ
 - a. Digital PTZ functionality
 - b. Preset positions functionality.
 - c. Digital pan (except panorama at wall mount) and tilt of panorama, corner, corridor, and quad views.
 - d. Guard tour functionality which allows the dome to automatically move between selected presets using an individual speed and viewing time for each preset.
- 7. Network Interface
 - a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
- 8. Power
 - a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3af)
 - b. Power Consumption, max. 13W
 - c. Power Consumption, typical: 8W

D. Operational Specifications

- 1. Operating System: Embedded Linux
- 2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
- 3. Alarm 2 inputs, 1 output (relay)
- 4. Video
 - a. Configurable Compression Levels.
 - b. Resolution:
 - 1) Overview: 2992 x 2992 to 160 x 160
 - 2) Panorama: 3584x1344 to 192x72
 - 3) Double Panorama: 3584x2688 to 256x144
 - 4) Quad View: 3584x2688 to 256x144
 - 5) View Area 1-4: 2048x1152 to 256x144 (16:9); 2048x1536 to 320x240 (4:3)
 - 6) Panorama, Corner Left of Right: 3200x1600 to 192x72
 - 7) Double Panorama Corner: 2880x2880 to 320x240
 - 8) Corridor: 2560x1920 to 256x144

- c. Format:
 - 1) Standard (Landscape) Format: 16:9 or 4:3
 - 2) Corridor Format: 3:4 or 9:16
 - d. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)
5. Audio
- a. Input/Output: Two-way audio connectivity via audio accessory and I/O interfaces with portcast technology.

E. User Interface

- 1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
- 2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
- 3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
 - c. The camera shall provide support for both IPv4 and IPv6.

F. Event Functionality

- 1. The camera shall be equipped with an integrated event functionality:
 - a. Video motion detection
 - b. Camera tampering
 - c. Manual trigger/virtual inputs
 - d. PTZ functionality
 - e. Embedded third party applications
 - f. Edge storage fail-over recording detection
 - g. Open Casing
- 2. Response to triggers shall include event actions:
 - a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. Pre- and post-alarm video or image buffering for recording or upload
 - e. PTZ control functionality
 - f. External output activation
 - g. WDR mode
 - h. Day and night mode
- 3. The camera shall provide memory for pre- and post-alarm recordings.

G. Storage

- 1. The camera shall support continuous and event controlled recording to:
 - a. Local memory added to the cameras microSD-card slot
 - b. Network attached storage, located on the local network.
- 2. The camera shall incorporate encryption functionality for the SD card.

3. The camera shall be able to detect and notify edge storage disruptions.

H. Environmental Specifications

1. Operating Temperature -40°F ~ +122°F
2. Operating Humidity 10%-100% RH, non-condensing
3. Ingress Protection (minimum): IP66
4. Minimum Impact Resistance Rated: IK10.

I. Physical Specifications

1. Color: White
2. Materials: Aluminum with polycarbonate dome.
3. Dehumidifying membrane.

J. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

K. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

L. Warranty

1. 3 years, parts and labor.

2.4 INDOOR, FIXED 180° 8MP PANORAMIC CAMERA

A. Basis of Design: Axis, Model No. P3807-PVE

B. General Description

1. The camera shall provide 180° panoramic overview by four sensors.

C. Camera

1. The camera shall be designed to provide video streams in 8.3MP up to 25/30 frames per second (50/60Hz) and 7.5MP (dewarped) up to 12.5/15 frames per second with power line frequency 50/60Hz using H.264.
2. Imaging Sensor: RGB CMOS
3. Scanning System Progressive
4. Min. Illumination :
 - d. Color: 0.17 lux
 - e. B/W: 0.05 lux
5. Features:

- a. Manual 3-axis (pan/tilt/zoom) positioning to allow adjustment for optimum camera rotation and placement.
 - b. Day and Night Color, B/W, Auto switch
 - c. Electronic Shutter Speed
 - d. Automatic and Manual White Balance
 - e. Wide dynamic range functionality, up to 120 dB dynamic range.
6. Lens
- a. Fixed, Length:3.2mm.
 - b. Aperture ratio: F2.0
 - c. Angular Field of View H: 180°
 - d. Angular Field of View, V: 90°
 - e. M12 mount.
7. Network Interface
- a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
8. Power
- a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3at)
 - b. Power Consumption, max. 13W
 - c. Power Consumption, typical: 7W

D. Operational Specifications

1. Operating System: Embedded Linux
2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
3. Alarm 2 inputs, 1 output (relay)
4. Video
 - a. Configurable Compression Levels.
 - b. Resolution:
 - 1) 1920 x 1080 (HDTV 1080p)
 - 2) 1280 x 720 (HDTV 720p)
 - c. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)
5. Audio
 - a. Input/Output: Two-way audio connectivity via audio accessory and I/O interfaces with portcast technology.

E. User Interface

1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

- b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
- c. The camera shall provide support for both IPv4 and IPv6.

F. Event Functionality

- 1. The camera shall be equipped with an integrated event functionality:
 - a. Detectors functionality
 - 1) Video motion detection
 - 2) Shock detection
 - b. Hardware functionality
 - c. I/O
 - 1) External input
 - 2) Manual trigger/ virtual inputs
 - 3) Camera tampering
 - d. Storage functionality
 - e. System functionality
 - 1) Embedded third party applications
 - 2) Edge storage fail-over recording detection
- 2. Response to triggers shall include event actions:
 - a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. Overlay Text
 - e. Day and night mode
- 3. The camera shall provide memory for pre- and post-alarm recordings.

G. Storage

- 1. The camera shall support continuous and event controlled recording to:
 - a. Local memory added to the cameras microSD-card slot
 - b. Network attached storage, located on the local network.
- 2. The camera shall incorporate encryption functionality for the SD card.
- 3. The camera shall be able to detect and notify edge storage disruptions.

H. Environmental Specifications

- 1. Operating Temperature -22°F ~ +122°F
- 2. Operating Humidity 10%-100% RH, non-condensing
- 3. Ingress Protection (minimum): IP66
- 4. Minimum Impact Resistance Rated: IK10.

I. Physical Specifications

- 1. Color: White
- 2. Materials: Aluminum with polycarbonate dome.
- 3. Dehumidifying membrane.

J. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

K. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

L. Warranty

1. 3 years, parts and labor.

2.5 INDOOR, VANDEL-RESISTANT, DUAL SENSOR, 4MP MULTI-DIRECTIONAL CAMERA

A. Basis of Design: Axis, Model No. P4705-PLVE.

B. General Description

1. The camera shall be comprised of (2) 2MP (minimum) dome network cameras within a single housing.
2. The camera shall provide multi directional view and produce video in various view mode.

C. Camera

1. The camera shall be designed to provide video streams in 2 x HDTV 1080p (1920x1080) at up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264.
2. Imaging Sensor: RGB CMOS
3. Scanning System Progressive
4. Min. Illumination :
 - f. Color: 0.15 lux at 50 IRE, F1.9
 - g. B/W: 0 lux at 50 IRE, F1.9
 - h. 0 lux with IR illumination on
5. Features:
 - a. Manual 3-axis (pan/tilt/zoom) positioning to allow adjustment for optimum camera rotation and placement.
 - b. Day and Night Color, Auto switch
 - c. Electronic Shutter Speed
 - d. Automatic and Manual White Balance
 - e. Wide dynamic range functionality.
6. Lens
 - a. Varifocal Length, 3-8mm.
 - b. Aperture ratio: F1.9-2.8
 - c. Angular Field of View H: 107° ~ 39°
 - d. Angular Field of View, V: 55° ~ 22°
 - e. Motorized focus,
 - f. Motorized zoom.

7. Network Interface
 - a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
8. Power
 - a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3af)
 - b. Power Consumption, max. 13W
 - c. Power Consumption, typical: 7W

D. Operational Specifications

1. Operating System: Embedded Linux
2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
3. Alarm 2 inputs, 1 output (relay)
4. Video
 - a. Configurable Compression Levels.
 - b. Format:
 - 1) Standard (Landscape) Format: 16:9 or 4:3
 - 2) Corridor Format: 3:4 or 9:16
 - c. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)
5. Audio
 - a. Input/Output: Two-way audio connectivity via optional AXIS T61 Audio and I/O interfaces with portcast technology.

E. User Interface

1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
 - c. The camera shall provide support for both IPv4 and IPv6.

F. Event Functionality

1. The camera shall be equipped with an integrated event functionality:
 - a. Device Status
 - 1) Above operating temperature
 - 2) Above or below operating temperature
 - 3) Below operating temperature
 - 4) Casing open

- 5) IP address
- 6) Network lost
- 7) Storage failure
- 8) System ready
- 9) Within operating temperature
- b. Edge Storage
 - 1) Recording ongoing
 - 2) Storage disruption
- c. I/O
 - 1) Manual trigger
 - 2) Virtual inputs
- d. Scheduled and recurring
- e. Video
 - 1) Average bitrate degradation
 - 2) Day-night mode
 - 3) Live stream open
 - 4) Tampering
2. Response to triggers shall include event actions:
 - a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. Pre- and post-alarm video or image buffering for recording or upload
 - e. PTZ: PTZ present, start/stop guard tour.
 - f. Overlay text
 - g. External output activation
 - h. Play audio clip
 - i. Zoom preset
 - j. Day and night mode
 - k. Status LED
3. The camera shall provide memory for pre- and post-alarm recordings.

G. Storage

1. The camera shall support continuous and event controlled recording to:
 - a. Local memory added to the cameras microSD-card slot
 - b. Network attached storage, located on the local network.
2. The camera shall incorporate encryption functionality for the SD card.
3. The camera shall be able to detect and notify edge storage disruptions.

H. Environmental Specifications

1. Operating Temperature +22°F ~ +122°F
2. Operating Humidity 10%-100% RH, non-condensing
3. Ingress Protection (minimum): IP66
4. Minimum Impact Resistance Rated: IK10.

I. Physical Specifications

1. Color: White
2. Materials: Aluminum with polycarbonate dome.

J. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

K. Approved Manufacturers:

1. Bosch
2. Hanwha

L. Warranty

1. 3 years, parts and labor.

2.6 INDOOR, IMPACT RESISTANT, ANTI-LIGATURE CORNER-MOUNT CAMERA

A. Basis of Design: Axis, Model No. Q9216-SLV (White)

B. General Description

1. The camera shall be able to view the entire floor and all four walls of a 15-foot square room (4.5x4.5 m), including the two walls to which it is attached.
2. The camera shall be available with a 2.4 mm wide-angle lens allowing a full 125° H-FoV and 95° V-FoV of the entire room.

C. Camera

1. The camera shall be designed to provide video streams in 4MP (2304 x 1728) up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264.
2. Imaging Sensor: RGB CMOS
3. Scanning System Progressive
4. Min. Illumination :
 - i. Color: 0.23 lux at F2.1
 - j. B/W: 0.05 lux at F2.1
 - k. 0 lux with IR illumination on
5. Features:
 - a. Two individually cropped out view areas.
 - b. Day and Night Color, Auto switch
 - c. Electronic Shutter Speed
 - d. Automatic and Manual White Balance
 - e. Wide dynamic range functionality.
6. Lens
 - a. Length: 2.4 mm.
 - b. Aperture ratio: F2.0
 - c. Angular Field of View H: 125°
 - d. Angular Field of View, V: 95°
 - e. Fixed focus.
 - f. Fixed iris.

7. PTZ
 - a. Digital PTZ functionality
 - b. Digital pan (except panorama at wall mount) and tilt of panorama, corner, corridor, and quad views.
 - c. Guard tour functionality which allows the dome to automatically move between selected presets using an individual speed and viewing time for each preset.
8. Network Interface
 - a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
9. Power
 - a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3af)
 - b. Power Consumption, max. 11W
 - c. Power Consumption, typical: 4W

D. Operational Specifications

1. Operating System: Embedded Linux
2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
3. Alarm 2 inputs, 1 output (relay)
4. Video
 - a. Configurable Compression Levels.
 - b. Supported Resolution:
 - 1) 2304 x 1728 (4MP)
 - 2) 1920 x 1080 (HDTV 1080p)
 - 3) 1280 x 720 (HDTV 720p)
 - c. Format:
 - 1) Standard (Landscape) Format: 16:9 or 4:3
 - 2) Corridor Format: 3:4 or 9:16
 - d.
 - e. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)
5. Audio
 - a. Input/Output: (1) 3.5mm jack for line/mic input and (1) 3.5 mm jack for line output.

E. User Interface

1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

- b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
- c. The camera shall provide support for both IPv4 and IPv6.

F. Event Functionality

- 1. The camera shall be equipped with an integrated event functionality:
 - a. Audio
 - 1) Audio detection
 - b. Device Status
 - 1) Operating temperature
 - 2) Casing open
 - 3) IP address
 - 4) Network lost
 - 5) Shock detection
 - 6) Storage failure
 - 7) System ready
 - c. Edge Storage
 - 1) Recording ongoing
 - d. I/O
 - 1) Digital Input
 - 2) Manual trigger
 - 3) Virtual inputs
 - e. PTZ
 - 1) Malfunctioning
 - 2) Movement
 - 3) Preset position reached
 - 4) Ready
 - f. Scheduled and recurring
 - g. Video
 - 1) Live stream open
- 2. Response to triggers shall include event actions:
 - a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. PTZ: PTZ present, start/stop guard tour.
 - e. Overlay text
 - f. Play audio clip
 - g. Day and night mode
 - h. Status LED
 - i. Make call
- 3. The camera shall provide memory for pre- and post-alarm recordings.

G. Storage

- 1. The camera shall support continuous and event controlled recording to:
 - a. Local memory added to the cameras microSD-card slot
 - b. Network attached storage, located on the local network.
- 2. The camera shall incorporate encryption functionality for the SD card.
- 3. The camera shall be able to detect and notify edge storage disruptions.

H. Environmental Specifications

1. Operating Temperature -4°F ~ +122°F
2. Operating Humidity 10%-85% RH, non-condensing
3. Ingress Protection (minimum): IP66
4. Minimum Impact Resistance Rated: IK11.

I. Physical Specifications

1. Materials:
 - a. Body: Stainless Steel, powder-coat painted in white.
 - b. Dome: Hard polycarbonate dome.

J. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

K. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

L. Warranty

1. 3 years, parts and labor.

2.7 INDOOR, VANDEL-RESISTANT, 4MP PAN-TILT-ZOOM (PTZ) CAMERA

A. Basis of Design: Axis, Model No. Q6078-E

B. General Description

1. The camera shall provide approximately 4.4~88mm (20X) optical zoom with minimum 12X digital zoom. It shall port PoE plus, SD memory, and bi-directional audio.

C. Camera

1. The camera shall be designed to provide video streams in 4K at up to 25 frames per second (60Hz mode) or 30 frames per second (50Hz mode) using H.264.
2. Imaging Sensor: RGB CMOS
3. Scanning System Progressive
4. Min. Illumination :
 - a. Color: 0.2 lux at 30 IRE, F2.0.
 - b. B/W: 0.02 lux at 30 IRE, F2.0.
5. Features:
 - a. Day and Night Color, Auto switch
 - b. Electronic Shutter Speed

- c. Automatic and Manual White Balance
- d. Wide dynamic range functionality, up to 120 dB dynamic range.
- e. Automatic defog functionality.
- f. Backlight compensation functionality.
- 6. Lens
 - a. Length: 4.4-88.4 mm.
 - b. Aperture ratio: F2.0-3.8
 - c. Angular Field of View H: 68.3°-4.2°
 - d. Angular Field of View, V: 42.1°-2.34°
 - e. Autofocus.
 - f. P-Iris control
- 7. PTZ
 - a. Digital PTZ functionality
 - b. 255+ manually set preset positions.
 - c. On-screen directional indicator (OSDI) functionality
 - d. Equipment with accurate pan and tilt functionality with a range and speed of:
 - 1) Pan: 360°, endless; 0.05-450/sec.
 - 2) Tilt: 220°; 0.05-450/sec.
 - e. Optical and digital zoom functionality:
 - 1) Optical Zoom: 20X
 - 2) Digital Zoom: 12X.
 - f. Adjustable zoom speed.
 - g. E-flip functionality, which will automatically rotate the image 180° electronically when following a moving object passing under the camera.
 - h. Guard tour functionality which allows the dome to automatically move between selected presets using an individual speed and viewing time for each preset.
- 8. Network Interface
 - a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
- 9. Power
 - a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3af)
 - 1) Power Consumption, max. 51W
 - 2) Power Consumption, typical: 16W
 - b. Camera shall be connected to a separate midspan (60 SFP) and obtain power through network cable. Midspan shall be 100-240 VAC/50-60 Hz and provide the camera with 51W when using a 60W midspan device.

D. Operational Specifications

- 1. Operating System: Embedded Linux
- 2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
- 3. Alarm 2 inputs, 1 output (relay)
- 4. Video
 - a. Configurable Compression Levels.
 - b. Supported Resolution:
 - 1) 3840 x 2160 (UHD)

- 2) 1920 x 1080 (HDTV 1080p)
- 3) 1280 x 720 (HDTV 720p)
- c. Format:
 - 1) Standard (Landscape) Format: 16:9 or 4:3
 - 2) Corridor Format: 3:4 or 9:16
- d. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)

E. User Interface

1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
 - c. The camera shall provide support for both IPv4 and IPv6.

F. Event Functionality

1. The camera shall be equipped with an integrated event functionality:
 - a. Audio
 - 1) Audio detection
 - b. Device Status
 - 1) Operating temperature
 - 2) Fan
 - 3) IP address
 - 4) Network lost
 - 5) Shock detection
 - 6) Storage failure
 - 7) System ready
 - c. Edge Storage
 - 1) Recording ongoing
 - 2) Storage disruption
 - d. I/O
 - 1) Manual trigger
 - 2) Virtual inputs
 - e. PTZ
 - 1) Malfunctioning
 - 2) Movement
 - 3) Preset position reached
 - 4) Ready
 - f. Scheduled and recurring
 - g. Video
 - 1) Average bitrate degradation
 - 2) Live stream open
2. Response to triggers shall include event actions:

- a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. PTZ: PTZ present, start/stop guard tour.
 - e. Overlay text
 - f. Guard tours
 - g. Preset positions.
 - h. Day and night mode
3. The camera shall provide memory for pre- and post-alarm recordings.

G. Storage

1. The camera shall support continuous and event controlled recording to:
 - a. Local memory added to the cameras microSD-card slot
 - b. Network attached storage, located on the local network.
2. The camera shall incorporate encryption functionality for the SD card.
3. The camera shall be able to detect and notify edge storage disruptions.

H. Environmental Specifications

1. Operating Temperature -4°F ~ +122°F, with 30W power supply.
2. Operating Humidity 10%-100% RH, non-condensing
3. Ingress Protection (minimum): IP66
4. Minimum Impact Resistance Rated: IK10.

I. Physical Specifications

1. Materials:
 - a. Body: Aluminum.
 - b. Dome: Polycarbonate.
2. Mounting Hardware:
 - a. Provide recess mounting kit (Axis, Model No. T94A01L) for vandal resistant, ceiling recessed installation.

J. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

K. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

L. Warranty

1. 3 years, parts and labor.

2.8 EXTERIOR, CORNER MOUNTED, 15MP MULTIDIRECTIONAL CAMERA

A. Basis of Design: Axis, Model No. P3719-PLE

B. General Description

1. The IP Panoramic indoor/outdoor multidirectional camera system shall transparently integrate video across all sensors in the camera presenting a seamless fully stitched and blended total resolution of 15 megapixel (MP), 4x (2560 x 1440).

C. Camera

1. The camera shall be designed to provide 4x video streams in HDTV 1440p (2560x1440) at up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264, H265 or Motion JPEG.
2. Imaging Sensor: RGB CMOS
3. Scanning System Progressive
4. Min. Illumination :
 - a. Color: 0.2 lux at 50 IRE, F1.8.
 - b. B/W: 0.04 lux at 50 IRE, F1.8, with IR illumination on.
5. Features:
 - a. Day and Night Color, B/W, Auto switch
 - b. Electronic Shutter Speed
 - c. Automatic and Manual White Balance
 - d. Wide dynamic range functionality, up to 110 dB dynamic range.
6. Lens
 - a. Varifocal, Length: 3-6 mm.
 - b. Aperture ratio: 1.8-2.6
 - c. 4 x 1440p capture mode:
 - 1) Angular Field of View H: 101°-49°
 - 2) Angular Field of View, V: 54°-29°
 - d. Motorized focus.
 - e. Motorized zoom.
7. Pan-Tilt -Rotation Capabilities
 - a. Pan: $\pm 90^\circ$
 - b. Tilt: +25 to +95°
 - c. Rotation: -5 to 95°
 - d. Twist: $\pm 20^\circ$
8. Network Interface
 - a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
9. Power
 - a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3at)
 - 1) Power Consumption, max. 26W
 - 2) Power Consumption, typical: 16W

D. Operational Specifications

1. Operating System: Embedded Linux
2. Network Board Hardware

- a. Ethernet RJ-45 (10/100 Base-T)
- b. Audio Line in / Line out
- c. SD Memory Slot Yes (SD, SDHC)
- d. PoE (IEEE802.3af)
3. Alarm 2 inputs, 1 output (relay)
4. Video
 - a. Configurable Compression Levels.
 - b. Supported Resolution:
 - 1) 2560 x 1440 (Quad HD, 16:9)
 - 2) 1920 x 1080 (HDTV 1080p)
 - 3) 1280 x 720 (HDTV 720p)
 - c. Format:
 - 1) Standard (Landscape) Format: 16:9 or 4:3
 - 2) Corridor Format: 3:4 or 9:16
 - d. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)
5. Audio
 - a. Input/Output: Two-way audio connectivity via optional AXIS T61 Audio and I/O interfaces with portcast technology.

E. User Interface

1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
 - c. The camera shall provide support for both IPv4 and IPv6.

F. Event Functionality

1. The camera shall be equipped with an integrated event functionality:
 - a. Device Status
 - 1) IP address
2. Response to triggers shall include event actions:
 - a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. Overlay text
 - e. Day and night mode
3. The camera shall provide memory for pre- and post-alarm recordings.

G. Storage

1. The camera shall support continuous and event controlled recording to:

- a. Local memory added to the cameras microSD-card slot
- b. Network attached storage, located on the local network.
2. The camera shall incorporate encryption functionality for the SD card.
3. The camera shall be able to detect and notify edge storage disruptions.

H. Environmental Specifications

1. Operating Temperature -22°F ~ +122°F.
2. Operating Humidity 10%-100% RH, non-condensing
3. Ingress Protection (minimum): IP66
4. Minimum Impact Resistance Rated: IK9.

I. Physical Specifications

1. Materials:
 - a. Body: Die-cast Aluminum.
 - b. Dome: Polycarbonate.
2. Mounting Hardware:
 - a. Each camera shall be provided with the following mounting hardware for installation as shown on Drawings:
 - 1) Exterior Corner Bracket: Axis, Model No. T91A64
 - 2) Pendant Mounting Kit: Axis, Model No. T94N01D.
 - 3) Wall Mount: Axis, Model No. T91D61.

J. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

K. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

L. Warranty

1. 3 years, parts and labor.

2.9 EXTERIOR, BUILDING MOUNTED, 5MP FIXED DOME CAMERA

A. Basis of Design: Axis, Model No. P3267-LVE

B. Camera

1. The camera shall be designed to provide video streams in 5 MP (2592 x 1944) at up to 30 frames per second (60Hz mode) or 25 frames per second (50Hz mode) using H.264, H265 or Motion JPEG.
2. Imaging Sensor: RGB CMOS

3. Scanning System Progressive
4. Min. Illumination :
 - a. Color: 0.13 lux at 50 IRE, F1.3.
 - b. B/W: 0 lux at 50 IRE, F1.3.
5. Features:
 - a. Two individually cropped out view areas
 - b. Day and Night Color, B/W, Auto switch
 - c. Electronic Shutter Speed
 - d. Automatic and Manual White Balance
 - e. Wide dynamic range functionality, up to 110 dB dynamic range.
 - f. Automatic defog functionality.
6. Lens
 - a. Varifocal, Length: 3-8 mm.
 - b. Aperture ratio: 1.3
 - c. Angular Field of View H: 104°-40°
 - d. Angular Field of View, V: 74°-29°
 - e. IR corrected.
 - f. Remote zoom.
 - g. Remote focus.
7. PTZ
 - a. Digital PTZ functionality
 - b. Preset position functionality
 - c. Guard tour functionality which allows the dome to automatically move between selected presets using an individual speed and viewing time for each preset.
8. Network Interface
 - a. Shielded 10BASE-T/100BASE-TX Ethernet-port using RJ45 connector
 - b. Supports automatic negotiation of network speed and transfer mode (full and half duplex).
9. Power
 - a. Input Voltage: 24V AC, 12V DC, PoE (IEEE802.3af)
 - 1) Power Consumption, max. 12W
 - 2) Power Consumption, typical: 6W

C. Operational Specifications

1. Operating System: Embedded Linux
2. Network Board Hardware
 - a. Ethernet RJ-45 (10/100 Base-T)
 - b. Audio Line in / Line out
 - c. SD Memory Slot Yes (SD, SDHC)
 - d. PoE (IEEE802.3af)
3. Alarm 2 inputs, 1 output (relay)
4. Video
 - a. Configurable Compression Levels.
 - b. Supported Resolution:
 - 1) 2592 x 1944 (5MP, 4:3)
 - 2) 1920 x 1080 (HDTV 1080p)
 - 3) 1280 x 720 (HDTV 720p)
 - c. Format:
 - 1) Standard (Landscape) Format: 16:9 or 4:3
 - 2) Corridor Format: 3:4 or 9:16

- d. Streaming Independently configured H.264, MPEG-4 and MJPEG multiple streaming (Individual streaming simultaneously)
- 5. Audio
 - a. Input/Output: (1) 3.5mm jack for line/mic input and (1) 3.5 mm jack for line output.

D. User Interface

- 1. Web Server: The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
- 2. Language Specification: The camera shall provide a function for altering the language of the user interface, and shall include support for at least 10 different languages.
- 3. IP Addresses:
 - a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - b. The camera shall allow for automatic detection of the camera based on UPnP and Bonjour when using a computer with an operating system supporting this feature.
 - c. The camera shall provide support for both IPv4 and IPv6.

E. Event Functionality

- 1. The camera shall be equipped with an integrated event functionality:
 - a. Analytics
 - 1) External input
 - 2) Supervised external input
 - 3) Virtual inputs through API
 - b. Audio
 - 1) Audio Detection
 - c. Call
 - 1) State
 - 2) State change
 - d. Device Status
 - 1) Operating temperature failure
 - 2) IP address
 - 3) Network lost
 - 4) System ready
 - 5) Ring power overcurrent protection
 - 6) Live steam active
 - 7) Casing open
 - e. Digital audio
 - 1) Digital signal
 - f. Edge Storage
 - 1) Recording ongoing
 - 2) Storage disruption
 - 3) Storage health
 - g. I/O
 - 1) Digital input
 - 2) Manual trigger
 - 3) Virtual inputs
 - h. MQTT

- 1) Subscribe
 - i. Scheduled and recurring
 - j. Video
 - 1) Average bitrate degradation
 - 2) Day-night mode
 - 3) Live stream open
 - 4) Tampering
2. Response to triggers shall include event actions:
 - a. Record video: SD card and network share.
 - b. Upload of images and video clips: FTP, SFTP, HTTP, HTTPS, email or network share.
 - c. Send notification: email, HTTP, HTTPS, TCP and SNMP trap.
 - d. Pre- and post-alarm video or image buffering for recording or upload.
 - e. I/O: toggle I/O once, toggle I/O while the rule is active.
 - f. MQTT: publish.
 - g. Overlay text
 - h. External output activation
 - i. Zoom preset
 - j. Day and night mode
 - k. Flash status LED
 - l. Use lights
 - m. Set defog mode
 - n. Set WDR mode
3. The camera shall provide memory for pre- and post-alarm recordings.

F. Storage

1. The camera shall support continuous and event controlled recording to:
 - a. Local memory added to the cameras microSD-card slot
 - b. Network attached storage, located on the local network.
2. The camera shall incorporate encryption functionality for the SD card.
3. The camera shall be able to detect and notify edge storage disruptions.

G. Environmental Specifications

1. Operating Temperature -40°F ~ +122°F.
2. Operating Humidity 10%-100% RH, non-condensing
3. Ingress Protection (minimum): IP66
4. Minimum Impact Resistance Rated: IK10.

H. Physical Specifications

1. Materials:
 - a. Body: Polycarbonate.
 - b. Dome: Polycarbonate.
 - c. Accessories:
 - 1) Adjustable weather shield

I. Certifications

1. UL Listed
2. CE mark
3. FCC mark
4. Onvif Profile S

J. Approved Alternate Manufacturers:

1. Bosch
2. Hanwha

K. Warranty

1. 3 years, parts and labor.

2.10 NETWORK SWITCHES

A. Basis of Design: Aruba, Model No. 6200M PoE Network Switches

1. 24-Port Switch: Aruba, Part No. R8Q68A
2. 48-Port Switch: Aruba, Part No. R8Q70A

B. Characteristics:

1. Stackable
2. Built-in 1G/10G uplinks
3. Up to 30W PoE (Class 4) per port

C. Power Supplies: Provide (2) power supplies per switch for redundancy.

D. Quantity: Provide network switches such that each camera indicated on Drawings is provided with dedicated port, plus 10 percent spare port capacity.

1. Switches within each telecommunication closet shall be stacked and configured so that each network stack is managed as a single unit.

2.11 VIDEO SERVERS

A. 6-Bay Server

1. Basis of Design: Genetec, Streamvault 2000E Series (SV-2020E-R6S-D480-236)
2. Description: All-in-One security appliance with Genetec Security Center application pre-installed.
3. Minimum Features and Characteristics:
 - a. Processor: Intel® Xeon® E-2236 3.40GHz
 - b. Operating System: Windows Server IoT 2019
 - c. Memory: 16 GB DDR4 RAM
 - d. Physical:
 - 1) 6-Bay
 - 2) Rack Mount, 1U.

- e. Power Supply: (2) 350W.
 - f. (2) 1GbE RJ45 Ethernet Ports
 - g. Storage:
 - 1) (2) 480GB SSD (RAID 1)
 - h. Warranty & Service:
 - 1) 5-year hardware warranty with Genetec Assurance
 - a) Next Business Day Service
 - b) "Keep Your Hard Drive"
4. Quantity: 2

B. 14-Bay Server

- 1. Basis of Design: Genetec, Streamvault 2000E Series (SV-2020E-R14-192T-16-210)
 - 2. Description: All-in-One security appliance with Genetec Security Center application pre-installed.
 - 3. Minimum Features and Characteristics:
 - a. Processor: (1) Intel® Xeon® Silver 4210 2.20GHz
 - b. Operating System: Windows Server IoT 2019
 - c. Memory: 16 GB DDR4 RAM
 - d. Physical:
 - 1) 14-Bay
 - 2) Rack Mount, 2U.
 - e. Power Supply: (2) 1100W.
 - f. (4) 1GbE RJ45 Ethernet Ports
 - g. Storage:
 - 1) (2) 240GB SSD (RAID 1)
 - 2) 192 TB Raw RAID 6
 - 3) (12) 16 TB NLSAS
 - h. Warranty & Service:
 - 1) 5-year hardware warranty with Genetec Assurance
 - a) Next Business Day Service
 - b) "Keep Your Hard Drive"
4. Quantity: 3

2.12 WORKSTATIONS

- A. Basis of Design: Genetec, Streamvault 305E Series (SVW-305E-SF1-S2000-I7)
- B. Description: All-in-One security appliance with Genetec Security Center application pre-installed.
- C. Minimum Features and Characteristics:
 - 1. Processor: Intel® Xeon® E-2226G 3.40GHz
 - 2. Operating System: Windows 10 IoT Enterprise LTSC
 - 3. Memory: 16 GB DDR4 RAM
 - 4. Video: NVIDIA Quadro 2000 Series
 - 5. Physical:
 - a. 1-Bay
 - b. Freestanding

6. Power Supply: 365W.
7. 2X 1GbE RJ45 Ethernet Ports
8. Storage:
 - a. (1) 1 TB SATA drive
 - b. (1) 512GB M.2 SSD
9. Warranty & Service:
 - a. 5-year hardware warranty with Genetec Assurance
 - 1) Next Business Day Service
 - 2) "Keep Your Hard Drive"

D. Quantity: 7

2.13 VIDEO MONITORS

A. Multiple view monitors 55 inch shall have the following characteristics:

1. Basis of Design: Viewsonic, Cat. No. CDE5520
2. Display Type LED
3. Screen Size 55"
4. Max. Resolution 3,840 x 2,160 (4K)
5. Brightness 500cd/m
6. Contrast Ratio 4,700 : 1
7. Aspect Ratio 16 : 9
8. Viewing Angle (H/V) 178° / 178°
9. Display Color 16.7million
10. Response Time 8ms
11. Operation Hour 24 / 7
12. Panel Life 50,000 hours
13. Speaker Type Built-in speaker (10W + 10W)
14. Anti-Glare Panel Surface
15. VESA Mounts Interface
16. IP5X rated for dust protection
17. Wall Mount

B. Workstation monitors shall have the following characteristics:

1. Basis of Design: Viewsonic, Cat. No VA2447-MH
2. 24"-27" diagonal
3. Space-Saving, Flat Panel Design
4. Picture-Frame-Style Desktop Stand
5. RGB and DVI Input
6. Minimum native resolution of 1280 x 1024 SXGA Resolution
7. Maximum Brightness of 450 cd/m²
8. Maximum Contrast Ratio of 1000:1
9. Response Time of 5 ms
10. Low Power Consumption (<50 W)
11. Rack, Wall, and Ceiling Mount

2.14 SOFTWARE LICENSING

- A. Basis of Design: Genetec Security Center, Version 5.11
- B. Provide all licensing associated with video surveillance management software as required for hardware described in this section.
- C. Provide all licensing required for connection of cameras as detailed in this section and on the Drawings.

2.15 CABINETS AND ENCLOSURES

- A. Basis of Design: Eaton/Tripplite, Model No. SR42UB
- B. Description: Heavy duty, locking, 42U Rack Enclosure Cabinet that accommodates all standard 19-inch rackmount equipment. Metal cabinets, racks, and consoles, with welded frames, complying with UL 1610.

1. Cabinets:

- a. Cold rolled steel units, 12 Ga angles, 14 Ga posts, 16 Ga molding and braces.
- b. 16 Ga flush mount doors; flush or louvered with flush pulls
- c. 16 Ga flush mount; flush or louvered, easy removal.
- d. Floor Mounted Units:
 - 1) Video Equipment Cabinets: Nominal size as required EIA rack mounting frames
 - 2) Provide door with key lock on all cabinets.
 - 3) Provide louvers as required for cooling equipment.
 - 4) Provide ventilation fans to maintain manufacturer recommended temperatures for equipment.
 - 5) Provide electrical outlet and power strip for power supplies. Install wire ties around plugs to prevent the plug from being removed accidentally.
 - 6) Provide blank plates on all unused areas of the cabinet.

2. Enclosures

- a. Provide hinged door with keyed lock.
- b. Provide ventilation fans to maintain manufacturer recommended temperatures for equipment.

C. FREE-STANDING EQUIPMENT CABINETS

- 1. Each cabinet enclosure shall have a rectangular frame and removable top panel, side panels and doors. Installed cabinets shall include thermal, power, and cable management accessories that control airflow through the cabinet and keep network and power cables separate and organized.
- 2. The cabinet frame shall be manufactured from steel and aluminum with welded and bolted frame construction. The front and rear of the cabinet shall be welded rectangular frames. The sides of the cabinet shall have four slides, two at the top and two at the bottom. The slides shall be extruded aluminum supports formed with integral T-slots to create front-to-rear tracks that accept drop-in hardware and allow quick attachment and easy depth adjustment of equipment mounting rails and thermal, cable and power management accessories. Each slide shall have three T-slots (one top, two on the side) to

- provide attachment points on the top and inside of the slides. The T-slots on the top surfaces of the extruded aluminum slides at the top of the frame shall be accessible from the top exterior of the cabinet and provide a structural mounting surface for roof mounted accessories. The T-slots shall provide a fully bonded connection between internal and external mounted accessories without the need of surface preparation. The four slides shall be bolted to the front and rear frames. The cabinet frame shall include leveling feet and casters and label seals to cover any openings in the frame.
3. Each cabinet shall include two pairs of equipment mounting rails. Mounting rails shall bolt to the side supports (slides) located near the top and bottom of the frame and shall be fully adjustable in depth to provide front and rear support for equipment. Equipment Mounting Rails shall be spaced horizontally to support 19" (482.6 mm) wide EIA/ECA-310-E compliant rack-mount equipment and shall provide up to 45.1" (1145 mm) of rail-to-rail depth for equipment. Mounting rails shall be square-punched according to the EIA/ECA-310-E Universal hole pattern with equipment mounting holes on alternating 5/8" – 5/8" – 1/2" (15.9 mm – 15.9 mm – 12.7 mm) vertical hole centers. Square-punched holes shall accept cage nut hardware with various threads. Rack mount spaces or units (U) shall be 1-3/4" (44.45 mm) high and shall be marked and numbered on the mounting rails. Numbering shall start at the bottom of the rail. Mounting rails shall provide 42U for equipment. The mounting rails shall be fully bonded to the frame without wiring. Wide surface mounting rails will support 19" (482.6 mm) wide EIA/ECA-310-E compliant rack-mount equipment without the need for panel adapters or spacers. Wide surface mounting rails will each provide four 5.5"H x 2.0" W (140 mm x 51 mm) clearance holes for front to rear cabling. Front to rear pass through will accept optional cable grommets that facilitate a front to rear pathway, protect cabling from cuts or abrasion, and maintain airflow
 4. The cabinet shall include two solid side panels. Each side panel will be formed as a half-height panel. The top panel will rest on top of the bottom panel so that the panels stack to form a single panel when installed. Each side panel shall have a single keyed latch located at the top center of the top half-height panel for easy installation and removal. Side panel latches shall not occlude the mounting surface of accessories.
 5. The doors shall be removable and reversible to open from the right or left. The doors shall have a swing handle with a single-point cam latch and a keyed lock. All doors shall be keyed alike.
 6. Cabinet frames shall support 2500 lb (1134 kg) of equipment when supported on leveling feet and secured to the structural floor.
- D. Provide din rail and mounting equipment for all applications. All equipment shall be accessible from each side of the cabinet as needed. Do not block access to required equipment to be maintained.
- E. Seismic Hardening: Increase rigidity of frames with additional welding and grinding of seams and addition of gussets at corners. Reinforce mounting and attachment provisions to resist seismic forces.
- F. Mounting and Anchoring Provisions: Accessible only when doors or covers are open.
- G. Approved Alternate Manufacturers:
1. APC.
 2. Chatsworth.

2.16 DEDICATED UPS

A. Workstation UPS

1. Freestanding Uninterruptable Power Supply
 - a. Basis of Design: Eaton, Model No. 5S1500LCD
 - b. Comply with UL 1778.
 - c. Topology: Line-interactive.
 - d. Maximum Configurable Power: 900 Watts/1500 Volt-Amps.
 - e. Transfer Time: 5ms typical; 8ms maximum.
 - f. Integral LCD screen.
 - g. Housing: Metal.
 - h. Nominal Input Voltage: 120Vac, 60Hz.
 - i. Input Connection: NEMA Configuration 5-15P plug and 6-foot cord.
 - j. Nominal Output Voltage: 120Vac.
 - k. Output Connection: (10), 15-A, 120-V ac, NEMA WD 6, Configuration 5-15R receptacles.
 - l. Quantity: Provide (1) UPS unit per workstation.
 - m. Warranty: 3 years, including batteries.

B. Server UPS

1. Rack Mounted Uninterruptable Power Supply
 - a. Basis of Design: Eaton, Model No. 5PX2000RTNG2
 - b. Comply with UL 1778.
 - c. Topology: Line-interactive.
 - d. Maximum Configurable Power: 1950 Watts/1950 Volt-Amps.
 - e. Transfer Time: 5ms typical; 8ms maximum.
 - f. Integral LCD screen.
 - g. Housing: Metal.
 - h. Nominal Input Voltage: 120Vac, 60Hz.
 - i. Input Connection: NEMA Configuration 5-20P plug and 10-foot cord.
 - j. Nominal Output Voltage: 120Vac.
 - k. Output Connection: (6), 20-A, 120-V ac, NEMA WD 6, Configuration 5-20R receptacles & (1), 20-A, 120-V ac, locking configuration L5-20R receptacle.
 - l. Warranty: 3 years, including batteries.
 - m. Ensure all necessary mounting equipment is provided to secure UPS unit within rack.
 - n. Accessories:
 - 1) Environmental Monitoring Devices
 - a) Basis of Design: Eaton, Model No. EMPDT1H1C2
 - b) Quantity: Provide (1) per UPS unit.
 - o. Quantity: Provide (2) UPS units.

C. Approved Alternate Manufacturers:

1. APC.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and areas are ready to receive work.
- B. Verify field measurements are as shown on Drawings and as instructed by manufacturer.
- C. Verify that required utilities are available, in proper location, and ready for use.

3.2 INSTALLATION

- A. All system equipment to be contained within equipment racks, cabinets, or closets. If more or larger equipment racks or cabinets are required than exist or are indicated on the drawings, allow for such additional equipment racks and cabinets in contract price.
- B. Install video switches in the data rack provided in the data room. Connect to the provided fiber patch panel for network connection to the security electronics room.
- C. All system equipment equipped with plug in power connectors to be connected to a dedicated receptacle. Do not use tap connectors for plugging in multiple plugs into a single receptacle.
- D. All cable within equipment racks, cupboards, and cabinets, or on backboards, to be neatly bundled and secured. Wires shall not be nicked, have strands removed, or have frayed strands when removing insulation or terminating.
- E. Factory manufactured interface cables to be provided for each field interface board. Terminal blocks to be provided in cabinet or on backboard for factory cable interface to field wiring.
- F. Wiring shall be executed in strict adherence to standard broadcast practices.
- G. Identify wiring by continuous insulation color. Where multi-conductor cables are used, use the same color-coding system for identification of wiring throughout. (yellow is recommended).
- H. Name identification of wiring:
- I. Identify wiring at all equipment locations, pull boxes, junction boxes and outlet boxes.
- J. Develop a uniform identification scheme for use throughout the system.
- K. Record wire name identification on all applicable drawings and provide wiring tables within the operating and installation manuals.
- L. Use one of the following marking materials:
 - 1. Heat shrink sleeves.
 - 2. Clear plastic tape wrap-on strips with designated labeling section.
 - 3. Slip-on identification bead markers or sleeves.
- M. Replace equipment, components, and wiring as required to achieve a fully functional system.

3.3 ADJUSTING

- A. When requested by the Architect or owner within one year after the date of Substantial Completion, provide on-site assistance in adjusting levels, resetting matching transformer taps, and adjusting controls to suit actual occupied conditions.
- B. When requested by the Architect or owner within one year after the date of Substantial Completion, provide on-site assistance in programming and adjusting presets and analytic conditions and alarms.

3.4 WARRANTY

- A. All labor and material for this section shall be warranted for 3 year from the date of substantial completion of the overall construction project.

END OF SECTION 282300