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## Addendum #001

## DHHS-Perimeter Security Upgrades
SCO ID #: #22-25799-02A

**Date: June 11, 2026**

**General:**

This document is an addendum, which modifies the requirements of the bid documents for the items indicated. Bidders shall review the addendum and incorporate the modified requirements into their proposals.

Information in this addendum supersedes information previously provided in the bidding requirements with respect to the items indicated. Bidders shall coordinate addendum items with related work to ensure that the addendum results in a complete project, with the modified requirements completely and fully integrated into the project.

**General Information:**

A Pre-Bid conference was held on May 26, 2026. See attached minutes.

**Drawings**

**DW01:** Replace sheet C-200 with the attached revised sheet.

**DW02:** Replace sheet C-201 with the attached revised sheet.

**DW03:** Replace sheet C-210 with the attached revised sheet.

**DW04:** Replace sheet C-211 with the attached revised sheet.

**DW05:** Replace sheet C-230 with the attached revised sheet.

**DW06:** Replace sheet C-300 with the attached revised sheet.

**DW07:** Replace sheet T-600 with the attached revised sheet.

**Specifications:**

**SP01:** Replace Section 00 01 10 with the attached revised section.

**SP02:** Replace Section 00 11 16 with the attached revised section.

**SP04:** Replace Section 27 15 00 with the attached revised section.

**SP05:** Replace Section 28 13 00 with the attached revised section.

**SP06:** Replace Section 28 23 00 with the attached revised section.

**SP07:** Section 32 31 00 added.

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**Pre-Bid Meeting Minutes**

**DHHS-Public Health Lab Perimeter Security Upgrades**
SCO ID #: 22-25799-02A | Code #42240 | Fund #429026

**Date:** **Tuesday, May 26**

**Location:** **Public Health Lab**

**Attendees:** See sign in sheet (attached)

1. **INTRODUCTIONS:**
   - 1.1. Introduce Architect, Engineers and Owners, welcome participants.
   - 1.2. Describe scope of project
     - 1.2.1. This security enhancement project for the North Carolina Department of Health and Human Services Public Health Lab is designed to create a comprehensive and modern perimeter defense system. By combining physical barriers, access control measures, and advanced surveillance systems, the facility will be well-prepared to prevent unauthorized access and respond effectively to potential security threats. The design prioritizes functionality and safety, ensuring the continued operation of the PHL in a secure environment. Project elements include a new perimeter barrier surrounding the facility with associated illumination and security structures (e.g. vehicle bollards) as well as a new site entry configuration which includes an updated traffic flow pattern, guard house, vehicle barriers, and security surveillance systems.
2. **Administrative**
   - 2.1. Bids are due on June 18,2026. Sealed envelopes will be received in this building before 2:00 on that date.
   - 2.2. If there are any changes to the bid documents, all attendees of this meeting will be notified by written addendum. Otherwise, the contract requirements will remain as written.
   - 2.3. A tour of the site is available following this meeting. Otherwise, contractors are asked not to investigate the site without permission from The Public Health Lab
   - 2.4. Questions must be submitted to the architect before 5:00 on June 8, 2026. An addendum will be issued with the minutes of this meeting and responses to any questions 7 days prior to the bid due date.
   - 2.5. Bidders are to review the supplementary conditions for additional requirements of the contract. Notably:
     - 2.5.1. Construction duration 210 calendar days and $1,000 liquidated damages.
   - 2.6. Bidders are reminded that HUB participation is encouraged and that the Minority Participation Documents need to be submitted with pay applications. 10% participation is the goal for this project.
   - 2.7. The bid form was noted, and bidders were reminded to make sure that all appropriate blanks are filled in. Bidders are advised to make note of the list of alternates and price those accordingly.
3. **Discussions**
   - 3.1. Is Allied the required vendor for security. No.
   - 3.2. Are they tying into the existing NVR (Network Video Recorder) for the project.
   - 3.3. Is the Fence Chain Link or Welded Wire?
   - 3.4. How soon after award should project start. Right away.

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**Pre-Bid Meeting Sign In**

**DHHS-Public Health Lab Perimeter Security Upgrades**
SCO ID #: 22-25799-02A | Code #42240 | Fund #429026

**Date: Tuesday, May 26**

**Location: Public Health Lab**

**Attendees:**

| Name | Phone | email address |
|---|---|---|
| ERIC KURASZ | 704-303-1828 | ekuras@ALSCANINC.COM |
| John FOSTER | 984-527-6148 | JFOSTER@ALSCANINC.COM |
| Rob Stone | 919-825-7456 | rob.stone@convergint.com |
| Steven Filorimo | 919-457-2948 | Steve.Filorimo@convergint.com |
| Nathan Stimpson | 336-930-2186 | nathans@fencebuildersinc.com |
| JADE DUBOIS | 919-610-6680 | Jade@TurnerAsphalt.com |
| NEAL ENEVOLDSEN | 919-279-1464 | NEAL.ENEVOLDSEN@DHHS.NC.GOV |
| KEVIN TURNER | 980-288-5847 | INFO@hX.DESIGN |
| KRISTEN GROTTE | 980-392-2558 | INFO@hx.DESIGN |
| Chris Carter | 919-737-0335 | Chris.carter@DHHS.nc.gov |

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**Pre-Bid Meeting Sign In**

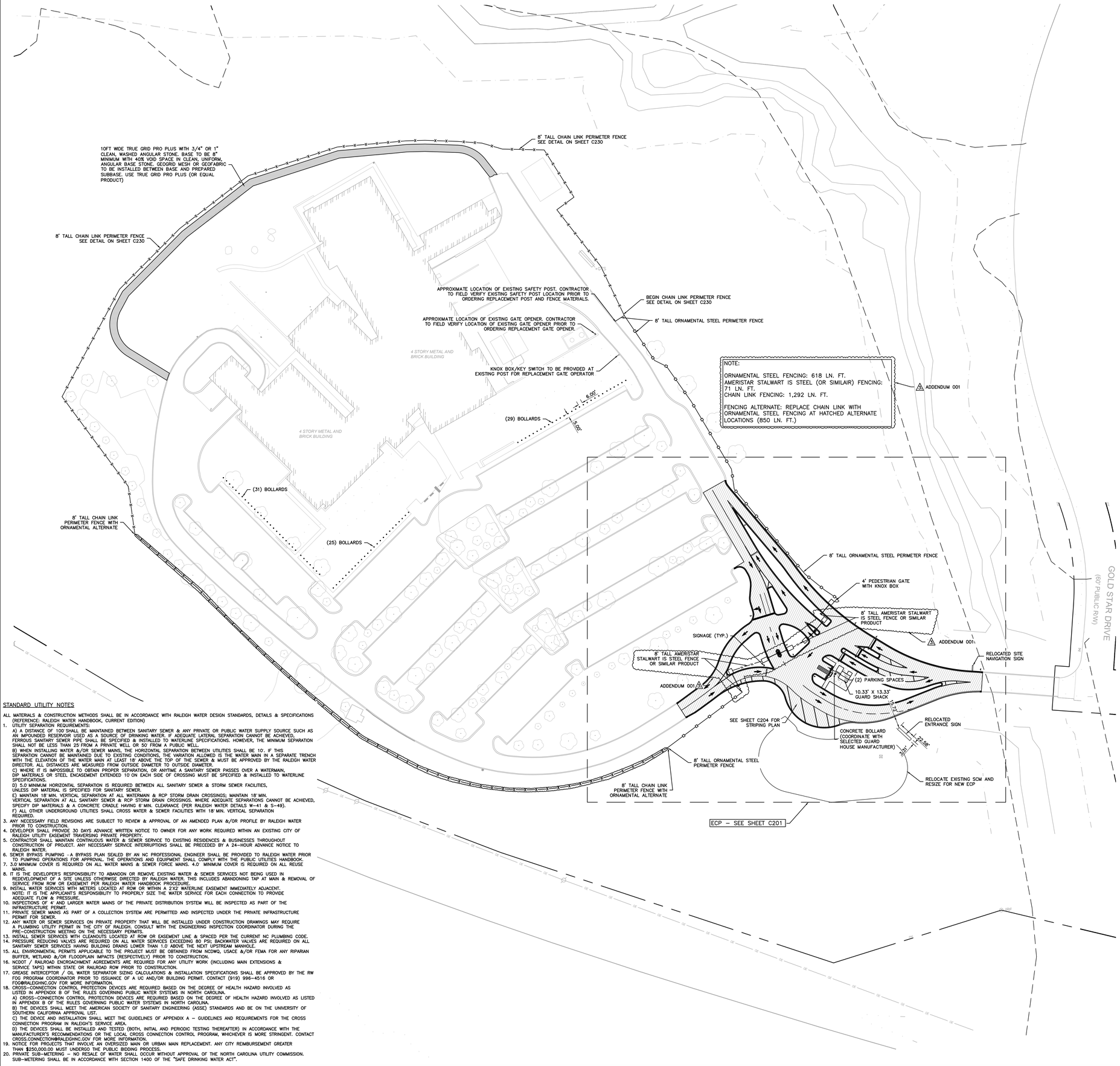
**DHHS-Public Health Lab Perimeter Security Upgrades**
SCO ID #: 22-25799-02A | Code #42240 | Fund #429026

**Date: Tuesday, May 26**

**Location: Public Health Lab**

**Attendees:**

| Name | Phone | email address |
|---|---|---|
| Michael Brewer | 919-792-7160 | Mike@SalisburyMoore.com |
| Terry Woodard | 919-272-8603 | twoodard@BFPE.com |
| Robert Shelton | 336-406-9023 | Rshelton@fencebuildersinc.com |
| Mickey Rhodes | 919-971-2845 | mickey.rhodes@bradyservices.com |
| Logan McClure | 919-369-9275 | logan@mcclurebuilders.com |
| Taylor Henderson | 843-694-1795 | taylor@mcclurebuilders.com |




## LEGEND

- BOUNDARY
- RIGHT OF WAY
- EASEMENT
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER
- PROPOSED PAVEMENT
- PROPOSED CENTERLINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED DRAINAGE AREA
- PROPOSED DISTURBED AREA
- ORNAMENTAL STEEL FENCE
- CHAIN LINK PERIMETER FENCE
- CHAIN LINK PERIMETER FENCE WITH ORNAMENTAL ALTERNATE
- AMERISTAR STALWART IS STEEL FENCE OR SIMILAR PRODUCT
- TEMPORARY DIVERSION DITCH
- PROPOSED STORM LINE
- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PAVEMENT
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- EXISTING GAS LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING UNDERGROUND POWER LINE
- EXISTING TREE LINE
- PROPOSED CATCH BASIN
- PROPOSED DROP INLET
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED AREA DRAIN
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- SIGN
- TRUNCATED DOME
- M30 SF BARRIER (OR SIMILAR PRODUCT)
- BL-229 GATES (OR SIMILAR PRODUCT)
- ASPHALT PAVEMENT
- TRUE GRID HATCHING
- CONCRETE/SIDEWALK

NOTE: FIRE ACCESS TO BE AT LEAST 14' WIDE CLEAR PATH. PATH TO BE ABLE TO SUPPORT 98,000 LBS FOR FIRE APPARATUS

GUARD POST ADDRESS: 4310 DISTRICT DRIVE

NOTE: SIGN PERMITS WILL BE SUBMITTED SEPARATELY, PURSUANT TO UDO SECTION 7.3.

## STANDARD UTILITY NOTES

ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION)

1. UTILITY SEPARATION REQUIREMENTS:
   A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25 FROM A PRIVATE WELL OR 50 FROM A PUBLIC WELL.
   B) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE RALEIGH WATER DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
   C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10'ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   D) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
   E) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER RALEIGH WATER DETAILS W-41 & S-49).
   F) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION.
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24-HOUR ADVANCE NOTICE TO RALEIGH WATER.
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE PUBLIC UTILITIES HANDBOOK.
7. 3.0 MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY RALEIGH WATER. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER RALEIGH WATER HANDBOOK PROCEDURE.
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT.
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER.
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH. CONSULT WITH THE ENGINEERING INSPECTION COORDINATOR DURING THE PRE-CONSTRUCTION MEETING ON THE NECESSARY PERMITS.
13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE.
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0 ABOVE THE NEXT UPSTREAM MANHOLE.
15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC AND/OR BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA.
   A) CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA.
   B) THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
   C) THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A – GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
   D) THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS.
20. PRIVATE SUB-METERING – NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT".



DAYLIGHT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 061126 ENGINEER GARRETT A. KRAUS

06/11/2026

CLIENT NAME
**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES**

PROJECT NAME
# DHHS - PUBLIC HEALTH LAB - PERIMETER SECURITY UPGRADES

PROJECT ADDRESS
**4312 DISTRICT DRIVE, RALEIGH, NC 27607**

| SCO PROJECT # | CODE # |
|---|---|
| 22-25799-02A | 42240 |
| FUND # | NX PROJECT # |
| 429026 | 2023-A002.01 |

| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1. | 02/05/2026 | SCO RESUBMITTAL |
| 2. | 05/12/2026 | BID SET |
| 3. | 06/11/2026 | ADDENDUM 001 |

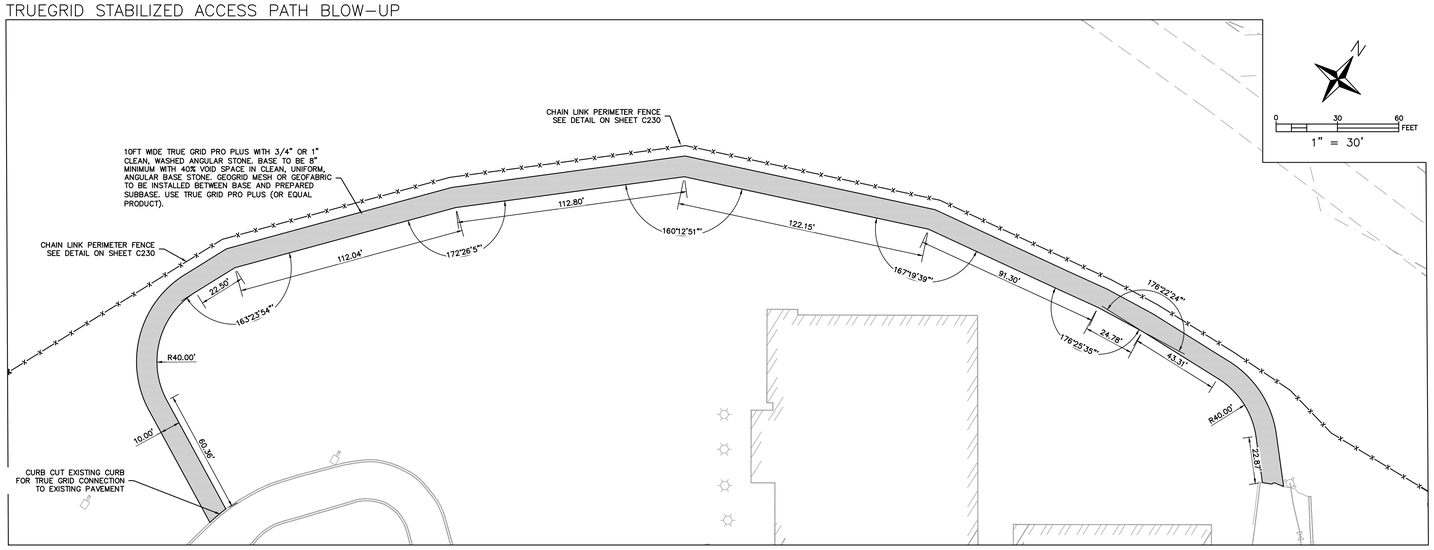
ISSUE NAME
**BID SET**

ISSUE DATE
**2026-05-12**

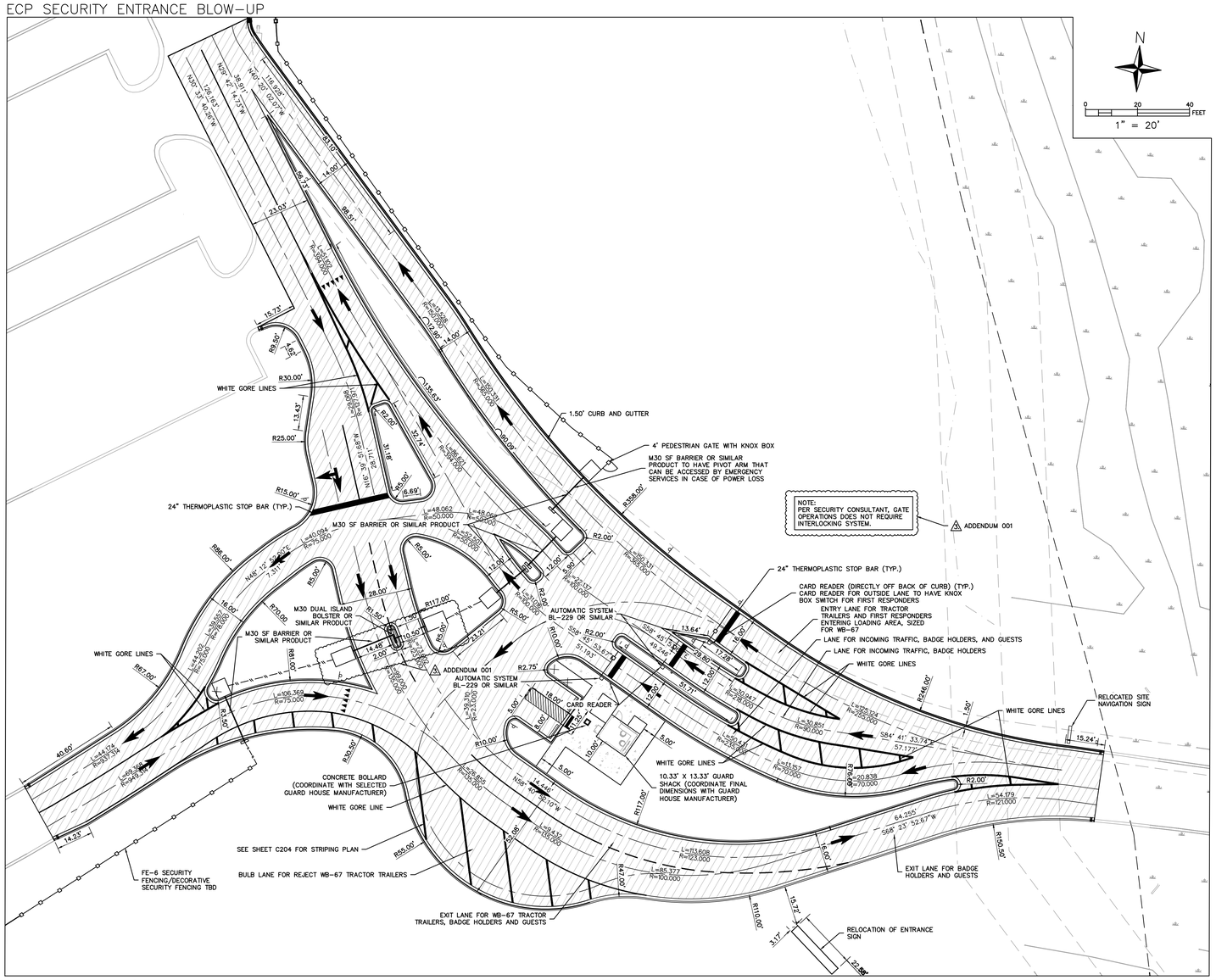
SHEET TITLE
# OVERALL DEVELOPMENT PLAN

SHEET NUMBER
# C200

## TRUEGRID STABILIZED ACCESS PATH BLOW–UP




## ECP SECURITY ENTRANCE BLOW–UP




## LEGEND

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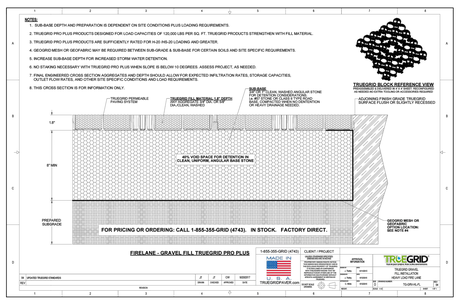
- BL–229 GATES (OR SIMILAR PRODUCT)
- ASPHALT PAVEMENT
- TRUE GRID HATCHING
- CONCRETE/SIDEWALK

| SITE DATA TABLE | |
|---|---|
| PARCEL NUMBER: | 0785–12–1112 |
| TOTAL SITE AREA: | 999.59 AC |
| TOTAL DISTURBED AREA: | 2.234 AC |
| EXISTING ZONING: | RA |
| PROPOSED USE: | EXISTING NCDHHS LAB WITH NEW PERIMETER SECURITY ENTRANCE AND GRAVEL ACCESS. |

| IMPERVIOUS AREA SUMMARY | |
|---|---|
| TYPE | AREA (SF) |
| EXISTING IMPERVIOUS AREA | 131,547 |
| EXISTING IMPERVIOUS AREA TO REMAIN | 104,972 |
| EXISTING IMPERVIOUS AREA TO BE REMOVED | 26,575 |
| PROPOSED IMPERVIOUS AREA | 36,973 |
| TOTAL POST DEVELOPMENT IMPERVIOUS AREA | 141,945 |

| PROPOSED IMPERVIOUS AREA SUMMARY | |
|---|---|
| TYPE | AREA (SF) |
| ASPHALT | 32,861 |
| CURB AND GUTTER | 3,309 |
| CONCRETE | 665 |
| BUILDING | 138 |
| TOTAL PROPOSED IMPERVIOUS | 36,973 |




## TYP. PAVEMENT SCHEDULE

| | |
|---|---|
| Surface Course (S9.5C) @ 112 lbs/sy/in 2 - 1.5" LIFTS | 3" |
| Intermediate Course (I19.0C) @ 114 lbs/sy/in | 4" |
| Base Course (B25.0C) @ 114 lbs/sy/in | 5.5" |

N.T.S



DAYLIGHT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 061126 ENGINEER GARRETT A. KRAUS

06/11/2026

CLIENT NAME
**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES**

PROJECT NAME
# DHHS - PUBLIC HEALTH LAB - PERIMETER SECURITY UPGRADES

PROJECT ADDRESS
**4312 DISTRICT DRIVE, RALEIGH, NC 27607**

SCO PROJECT # **22-25799-02A**
CODE # **42240**
FUND # **429026**
NX PROJECT # **2023-A002.01**

| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1. | 02/05/2026 | SCO RESUBMITTAL |
| 2. | 05/12/2026 | BID SET |
| 3. | 06/11/2026 | ADDENDUM 001 |

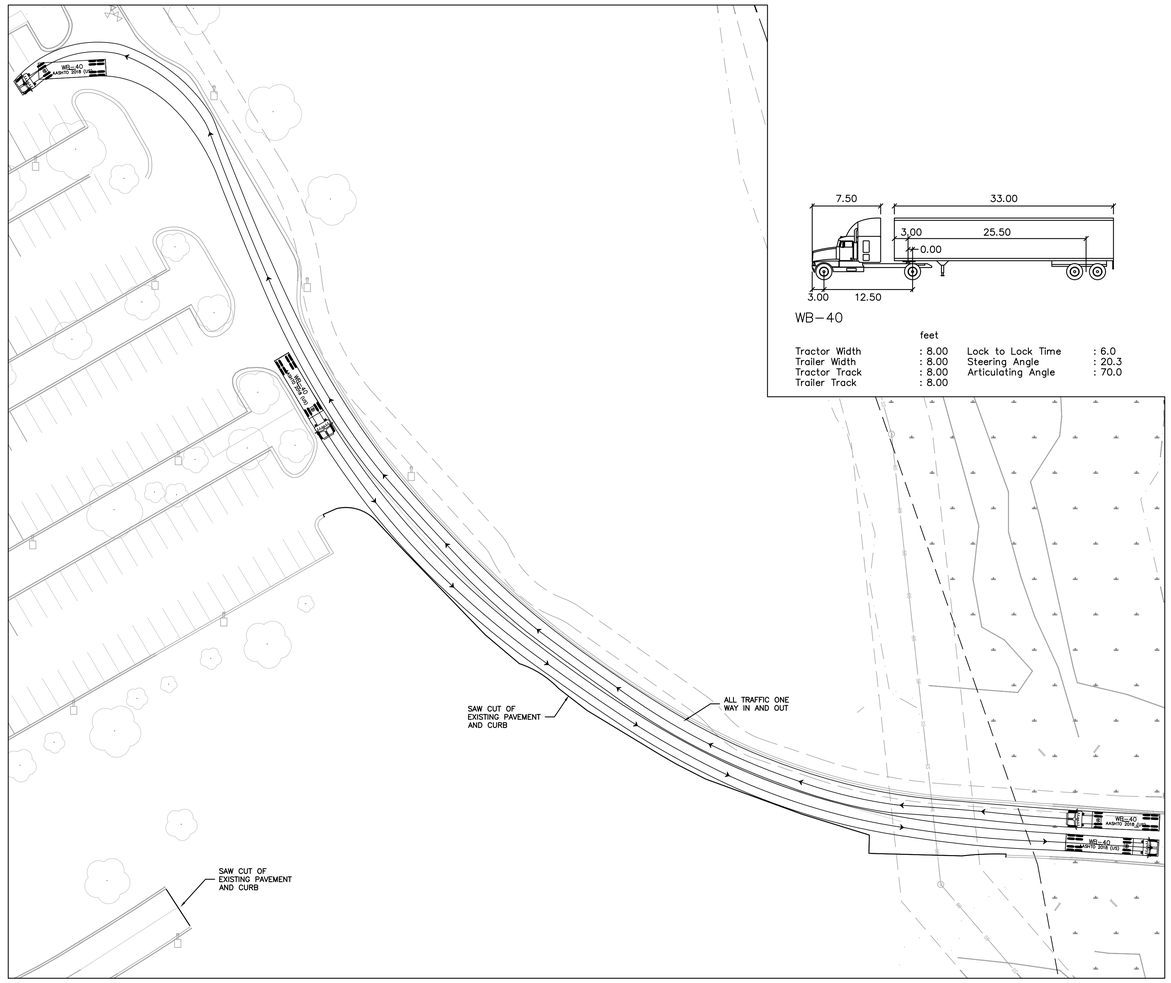
ISSUE NAME
**BID SET**

ISSUE DATE
**2026-05-12**

SHEET TITLE
**ECP AND GRAVEL ACCESS BLOW-UP**

SHEET NUMBER
**C201**

## PHASE I AUTOTURN



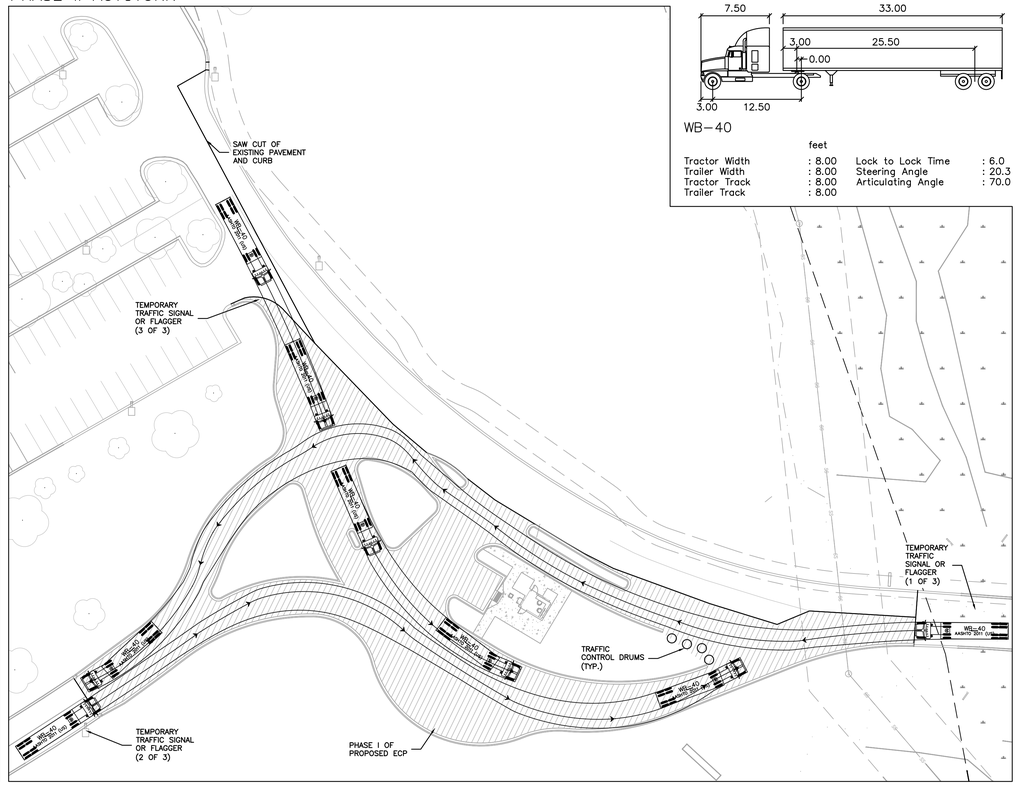




WB–40

| feet | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.00 | Steering Angle | : 20.3 |
| Tractor Track | : 8.00 | Articulating Angle | : 70.0 |
| Trailer Track | : 8.00 | | |

## PHASE II AUTOTURN



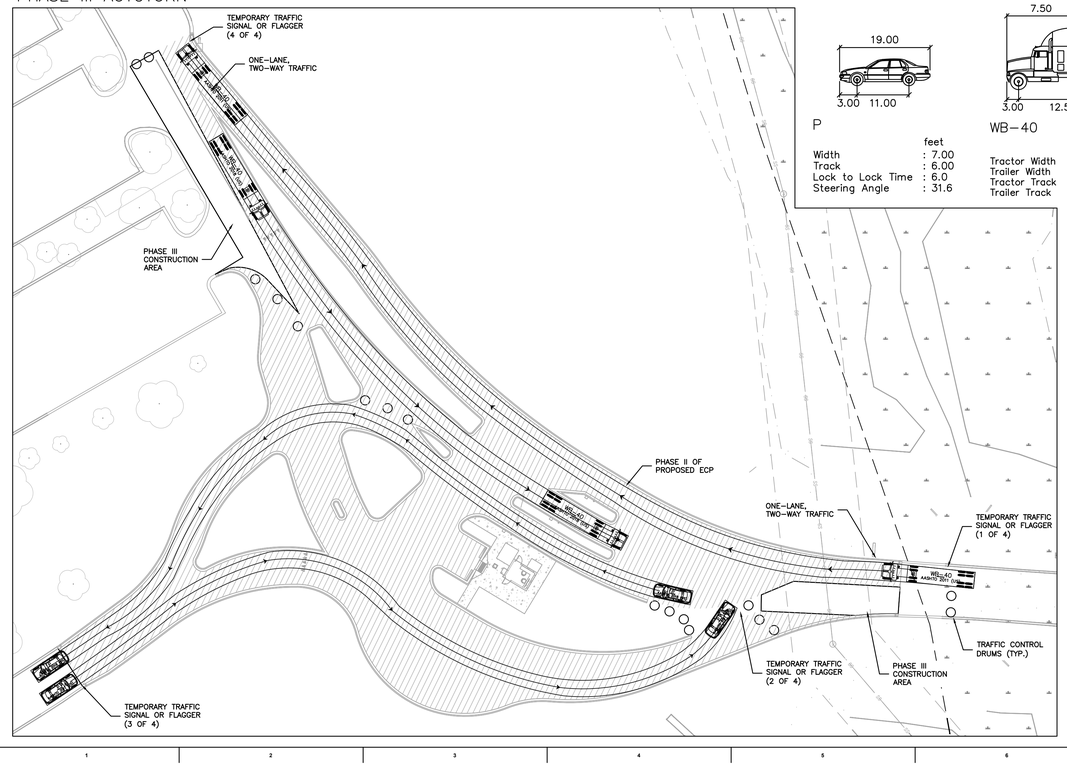




WB–40

| feet | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.00 | Steering Angle | : 20.3 |
| Tractor Track | : 8.00 | Articulating Angle | : 70.0 |
| Trailer Track | : 8.00 | | |

## PHASE III AUTOTURN

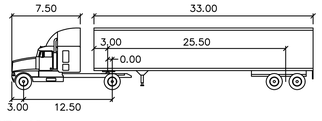






P

| feet | |
|---|---|
| Width | : 7.00 |
| Track | : 6.00 |
| Lock to Lock Time | : 6.0 |
| Steering Angle | : 31.6 |




WB–40

| feet | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.00 | Steering Angle | : 20.3 |
| Tractor Track | : 8.00 | Articulating Angle | : 70.0 |
| Trailer Track | : 8.00 | | |

N

0 30 60 FEET

1" = 30'



DAYLIGHT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 061126 ENGINEER GARRETT A. KRAUS

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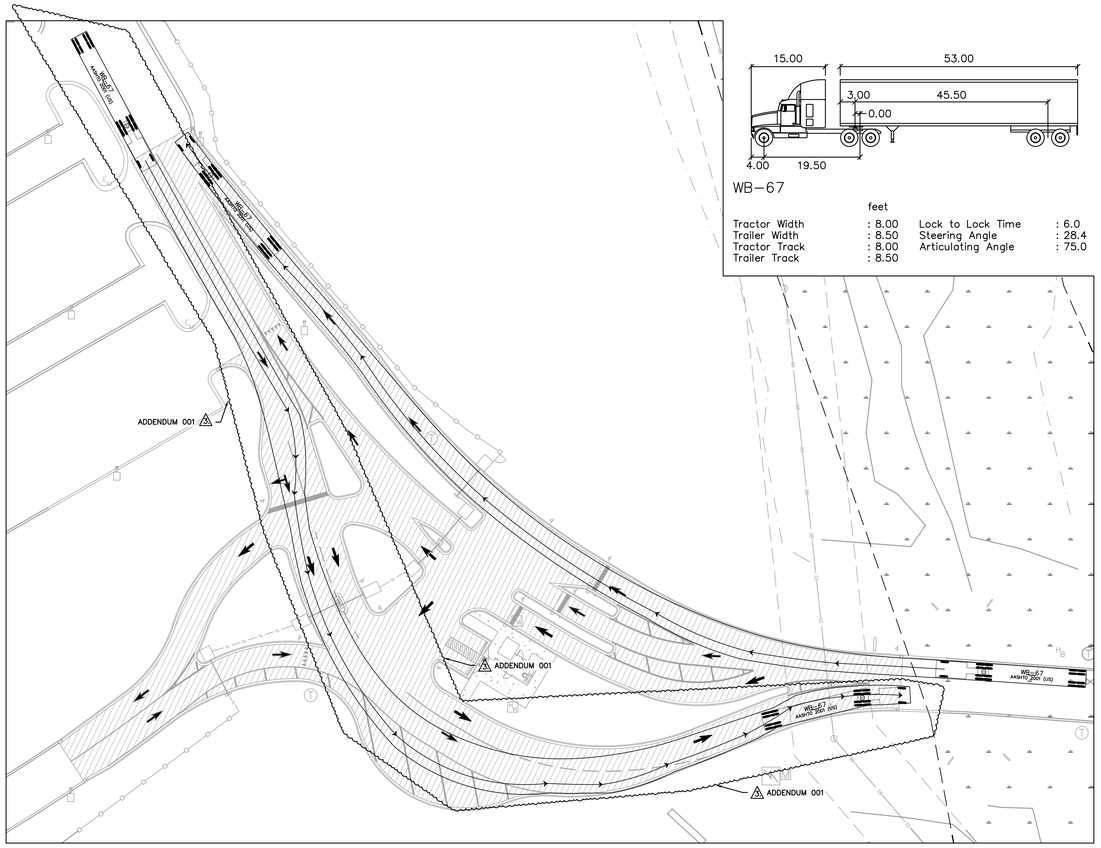
| 3. | 06/11/2026 | ADDENDUM 001 |

ISSUE NAME
**BID SET**

ISSUE DATE
**2026-05-12**

SHEET TITLE
**CONSTRUCTION PHASE AUTOTURN EXHIBITS**

SHEET NUMBER
**C210**



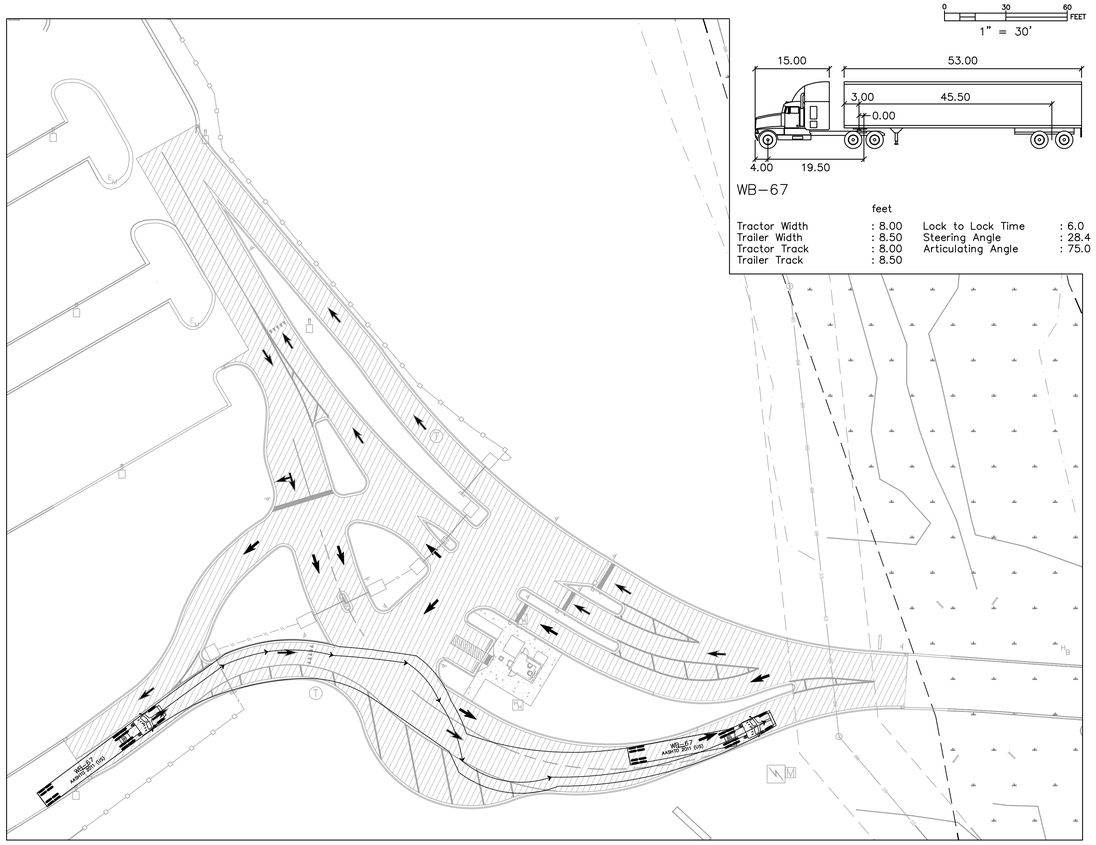




WB-67

feet

| | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.50 | Steering Angle | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 | | |



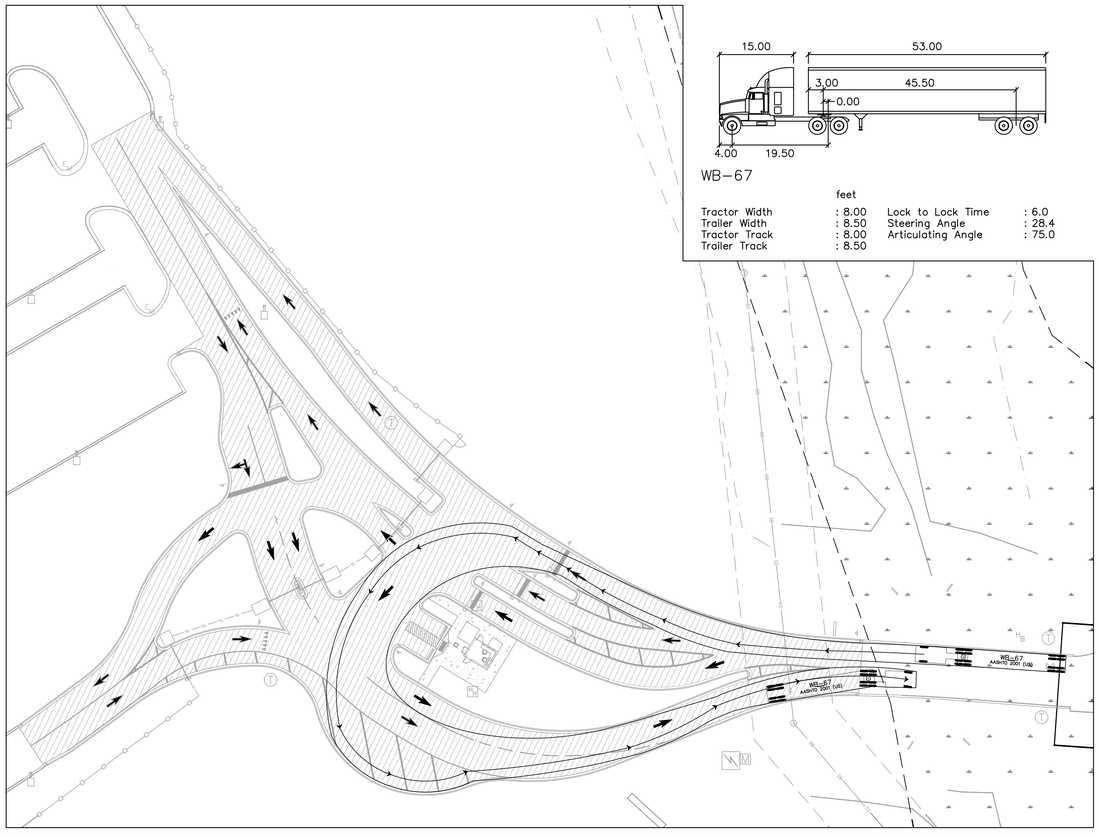




WB-67

feet

| | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.50 | Steering Angle | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 | | |







WB-67

feet

| | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.50 | Steering Angle | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 | | |



DAYLIGHT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 051126 ENGINEER GARRETT A. KRAUS

06/11/2026

CLIENT NAME
**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES**

PROJECT NAME
# DHHS - PUBLIC HEALTH LAB - PERIMETER SECURITY UPGRADES

PROJECT ADDRESS
**4312 DISTRICT DRIVE, RALEIGH, NC 27607**

| SCO PROJECT # | CODE # |
|---|---|
| 22-25799-02A | 42240 |
| FUND # | hX PROJECT # |
| 429026 | 2023-A002.01 |

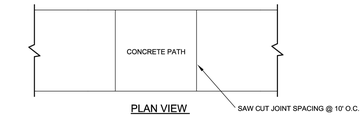
| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1. | 02/05/2026 | SCO RESUBMITTAL |
| 2. | 05/12/2026 | BID SET |
| 3. | 06/11/2026 | ADDENDUM 001 |

ISSUE NAME
**BID SET**

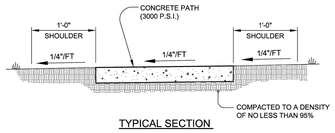
ISSUE DATE
**2026-05-12**

SHEET TITLE
## AUTOTURN - FINISHED DEVELOPMENT

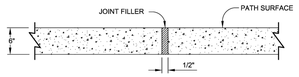
SHEET NUMBER
# C211




PLAN VIEW




TYPICAL SECTION



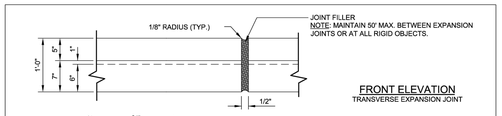

TRANSVERSE EXPANSION JOINT

NOTES:
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET APART.
2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
3. A 6 INCH DEPTH IS REQUIRED.
4. SAW CUT JOINTS EVERY 10 FEET OR SAME AS WIDTH, WHICHEVER IS LESS.
5. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN PATH AND SHALL BE MINIMUM 1 FOOT FROM THE EDGE OF PATH.
6. ALL PATHS SHALL BE LOCATED MINIMUM 6 FEET FROM THE BACK OF CURB.
7. MULTI-USE PATH WIDTH TO BE DETERMINED BY CITY OF RALEIGH BASED ON ROADWAY TYPE, LOCATION AND PEDESTRIAN VOLUMES.

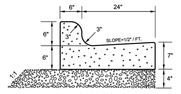
*SHEET 2 OF 2*

**CITY OF RALEIGH**
**STANDARD DETAIL**

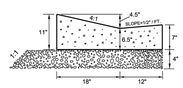
| REVISIONS | DATE: 8/2020 | NOT TO SCALE |
|---|---|---|
| DATE: 12/2022 | CONCRETE MULTI-PURPOSE PATH | |
| | **T-30.02.2** | |



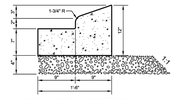

FRONT ELEVATION
TRANSVERSE EXPANSION JOINT



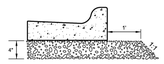

1. 30" CURB & GUTTER




2. 30" VALLEY TYPE GUTTER

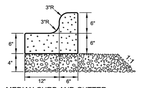



MEDIAN CURB AND GUTTER
SIDE ELEVATION

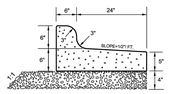



4" COMPACTED A.B.C. UNDER STANDARD CURB & GUTTER (MIN)

NO VALLEY CURB SHALL BE USED AT INTERSECTIONS, HYDRANTS, ETC.




MEDIAN CURB AND GUTTER
(NON-MOUNTABLE)



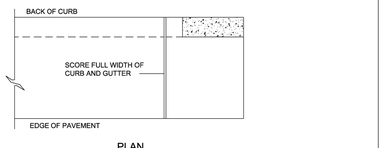

SPILL CURB DETAIL

NOTES:
1. 10' MAXIMUM BETWEEN DUMMY JOINTS.
   15' MAXIMUM BETWEEN DUMMY JOINTS ON MACHINE POURS.
2. 1/2" EXPANSION JOINT EVERY 50'.
3. 3000 PSI CONCRETE MINIMUM, 4" SLUMP MAXIMUM.
4. LIQUID MEMBRANE CURING COMPOUND SHALL MEET THE REQUIREMENTS OF SECTION 1026-2 OF NCDOT STANDARDS & SPECIFICATIONS FOR ROADS AND STRUCTURES.
5. ALL CONSTRUCTION JOINTS SHALL BE FILLED WITH JOINT FILLER AND SEALER IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DETAIL 846.01 THE JOINT MATERIAL SHALL CONFORM TO SECTION 1028-2 OF NCDOT STANDARD & SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. REFER TO NCDOT DETAIL 846.01 FOR CURB AND GUTTER SUPERELEVATION RATES.

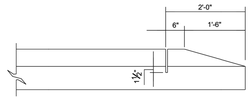
*SHEET 1 OF 2*

**CITY OF RALEIGH**
**STANDARD DETAIL**

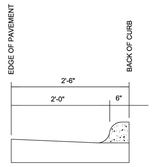
| REVISIONS | DATE: 8/2020 | NOT TO SCALE |
|---|---|---|
| | CURB AND GUTTER | |
| | **T-10.26.1** | |




PLAN




FRONT



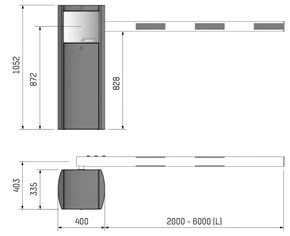

END

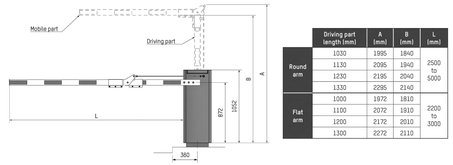
**CITY OF RALEIGH**
**STANDARD DETAIL**

| REVISIONS | DATE: 8/2020 | NOT TO SCALE |
|---|---|---|
| | STANDARD METHOD OF ENDING CURB AND GUTTER | |
| | **T-10.25** | |

BL 229
Technical datasheet
Rev.22
Update 09/2025

STANDARD DIMENSIONS (MM)



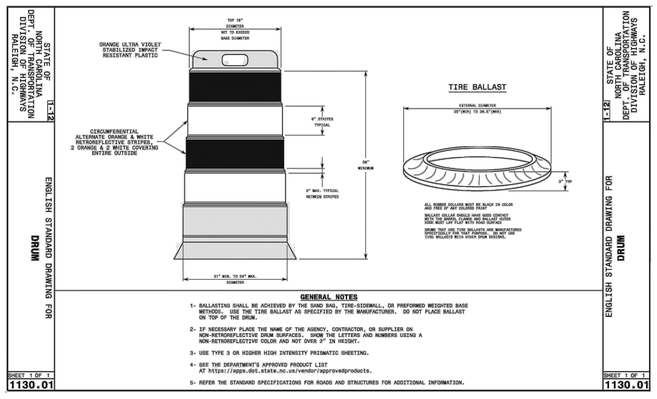

| | Driving part length (mm) | A (mm) | B (mm) | L (mm) |
|---|---|---|---|---|
| Round arm | 1030 | 1995 | 1840 | 2500 to 5000 |
| | 1130 | 2095 | 1940 | |
| | 1230 | 2195 | 2040 | |
| | 1330 | 2295 | 2140 | |
| Flat arm | 1000 | 1972 | 1810 | 2200 to 3000 |
| | 1100 | 2072 | 1910 | |
| | 1200 | 2172 | 2010 | |
| | 1300 | 2272 | 2110 | |

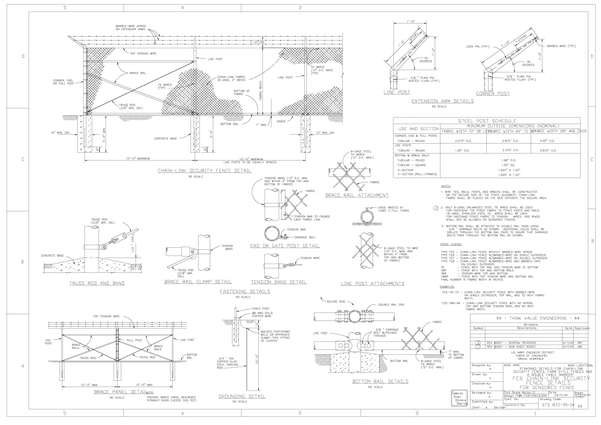
(a) Folding arm (option)

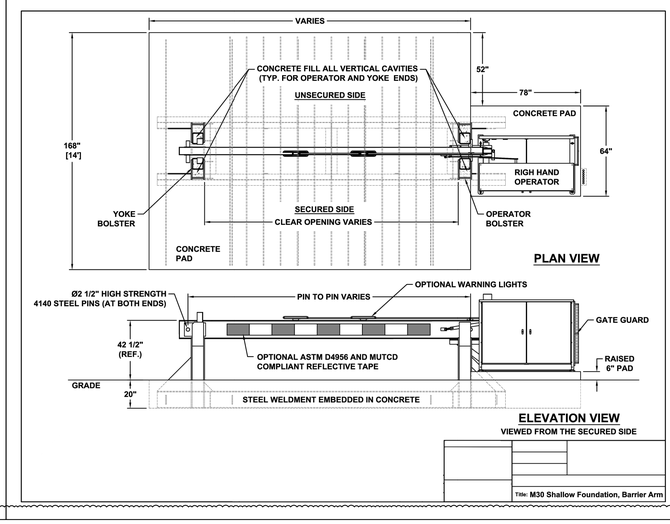
Headquarters
Avenue Mercator, 5
1300 Wavre - Belgium
sales.aegroup@automatic-systems.com
+32.(0)10.23.02.11
www.automatic-systems.com

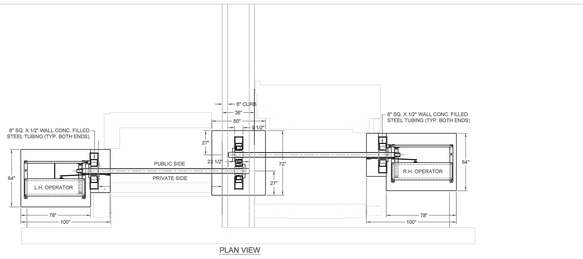
BL229-FT-EN-22



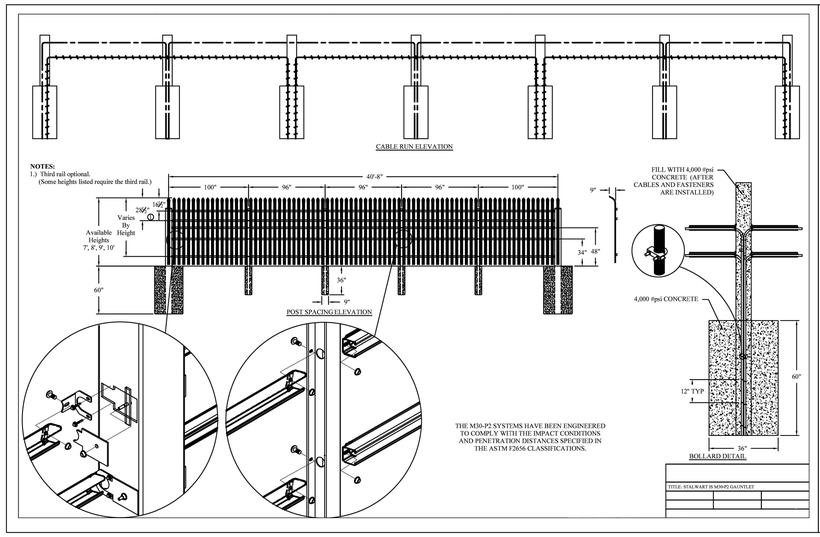


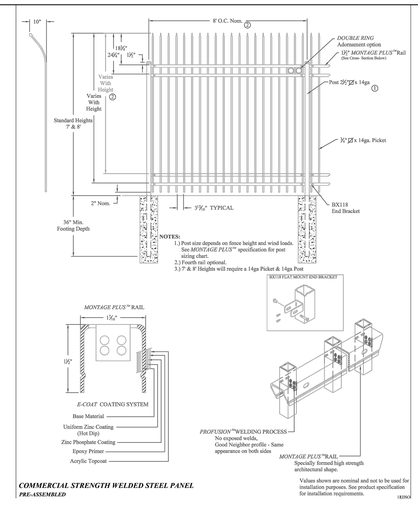




Dwg.:
Title: M30 Dual Island Bolster




human eXperience
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DAYLIGHT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 061126 ENGINEER GARRETT A. KRAUS

06/11/2026

CLIENT NAME
**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES**

PROJECT NAME
# DHHS - PUBLIC HEALTH LAB - PERIMETER SECURITY UPGRADES

PROJECT ADDRESS
**4312 DISTRICT DRIVE, RALEIGH, NC 27607**

| SCO PROJECT # | CODE # |
|---|---|
| 22-25799-02A | 42240 |
| FUND # | hX PROJECT # |
| 429026 | 2023-A002.01 |

| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1. | 02/05/2026 | SCO RESUBMITTAL |
| 2. | 05/12/2026 | BID SET |
| 3. | 06/11/2026 | ADDENDUM 001 |

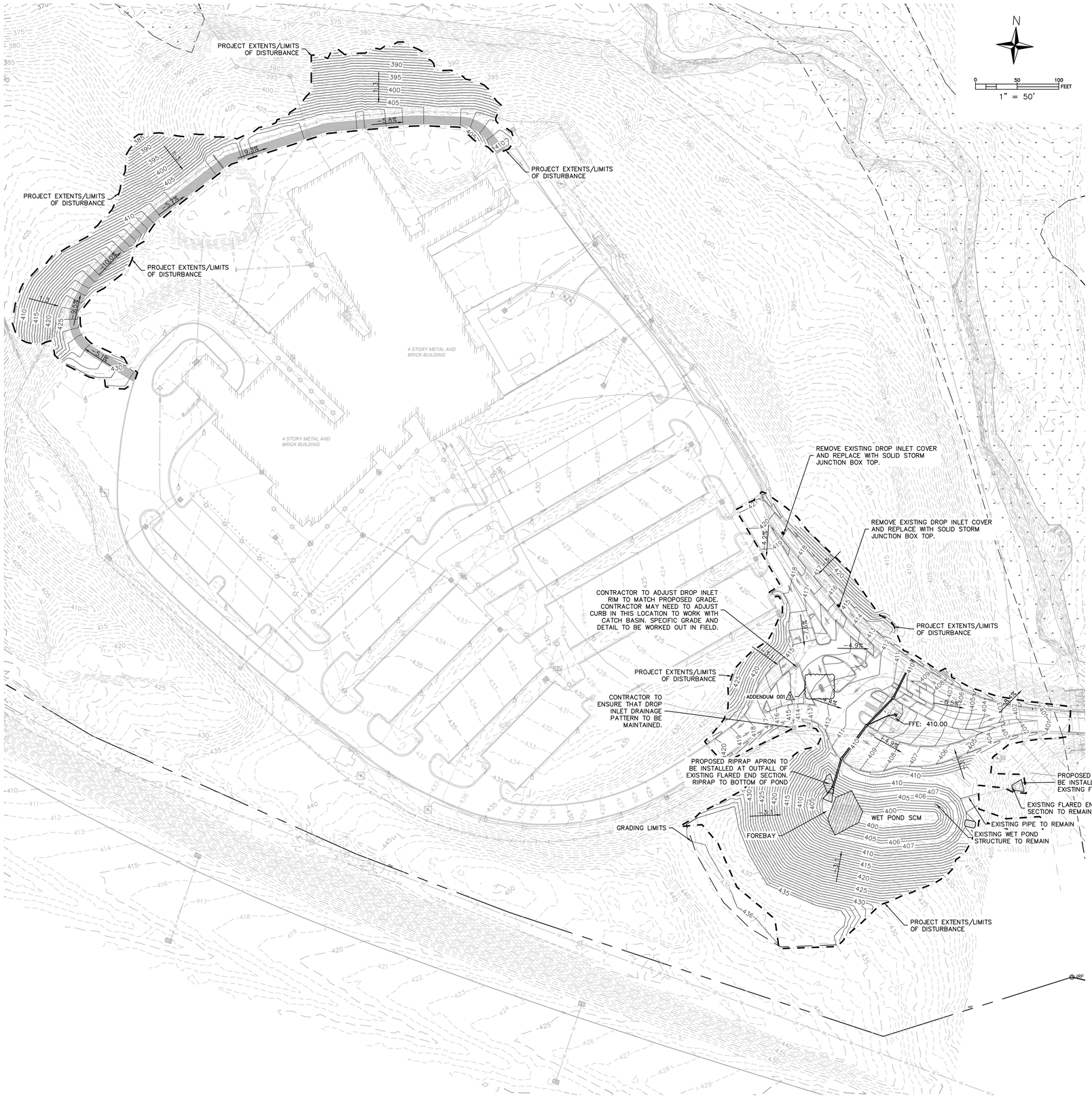
ISSUE NAME
**BID SET**

ISSUE DATE
**2026-05-12**

SHEET TITLE
## SITE DETAILS

SHEET NUMBER
# C230

ADDENDUM 001




## LEGEND

- BOUNDARY
- RIGHT OF WAY
- EASEMENT
- PROPOSED CONCRETE
- PROPOSED CURB AND GUTTER
- PROPOSED PAVEMENT
- PROPOSED CENTERLINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED DRAINAGE AREA
- PROPOSED DISTURBED AREA / PROJECT EXTENTS
- SILT FENCE
- TEMPORARY DIVERSION DITCH
- PROPOSED STORM LINE
- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PAVEMENT
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING GAS LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING UNDERGROUND POWER LINE
- EXISTING TREE LINE
- PROPOSED CATCH BASIN
- PROPOSED DROP INLET
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED AREA DRAIN
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- SIGN
- TRUNCATED DOME

- Cut Fill Adjustments*

| | Area (ft2) | Cut (yd3) | Fill (yd3) | Net Cut (cu. yd.) |
|---|---|---|---|---|
| Unadjusted Numbers | 159,789 | 7,371 | 6,711 | 660 Cut |
| Fill Compaction (15%) | | | 1,007 | (1,007) Fill |
| | | | | |
| Topsoil (6") | 159,789 | 2,959 | | |
| Topsoil to be Hauled off | - | - | | - |
| | | | | |
| Paved Areas (8" Depth) | 38,927 | 961 | | 961 Cut |
| Building (12" Foundation) | 138 | 5 | | 5 Cut |
| | | | Net: | 620 Cut |

* Note - Provided for information purposes only. Estimate only, actual field conditions may vary. All quantities to be reviewed by grading contractor.

human eXperience



DAYLIGHT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 061126 ENGINEER GARRETT A. KRAUS

06/11/2026

CLIENT NAME
**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES**

PROJECT NAME
# DHHS - PUBLIC HEALTH LAB - PERIMETER SECURITY UPGRADES

PROJECT ADDRESS
**4312 DISTRICT DRIVE, RALEIGH, NC 27607**

SCO PROJECT # **22-25799-02A**
CODE # **42240**
FUND # **429026**
NR PROJECT # **2023-A002.01**

| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1. | 02/05/2026 | SCO RESUBMITTAL |
| 2. | 05/12/2026 | BID SET |
| 3. | 06/11/2026 | ADDENDUM 001 |

ISSUE NAME
**BID SET**

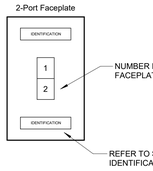
ISSUE DATE
**2026-05-12**

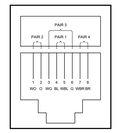
SHEET TITLE
## OVERALL GRADING PLAN

SHEET NUMBER
# C300

## INFORMATION OUTLET SCHEDULE

**SINGLE GANG WALLPLATES**




ANSI/TIA/EIA T568B
PIN/PAIR ASSIGNMENT

NOTES:
1. PROVIDE REMOVABLE BLANK INSERT(S) FOR ALL UNUSED PORTS.
2. REFER TO SPECIFICAITONS SECTION 27 05 53 FOR ADDITIONAL INFORMATION ON LABELING REQUIREMENTS.

SCHEDULE NOTES:
1. LOCATION OF FUTURE OR OWNER PROVIDED WIRELESS ACCESS POINT. PROVIDE A 20' SLACK COIL AT THE NEAREST CABLE SUPPORT FOR POSSIBLE RELOCATION AFTER WIRELESS SURVEY.

**LEGEND**

| | |
|---|---|
| DATA | CAT 6 RJ-45 |
| VOICE | CAT 6 RJ-45 |
| BLANK | BLANK FILLER MODULE |
| TV | F-CONNECTOR |
| VGA | HD-15 CONNECTOR |
| HDMI | HDMI CONNECTOR |

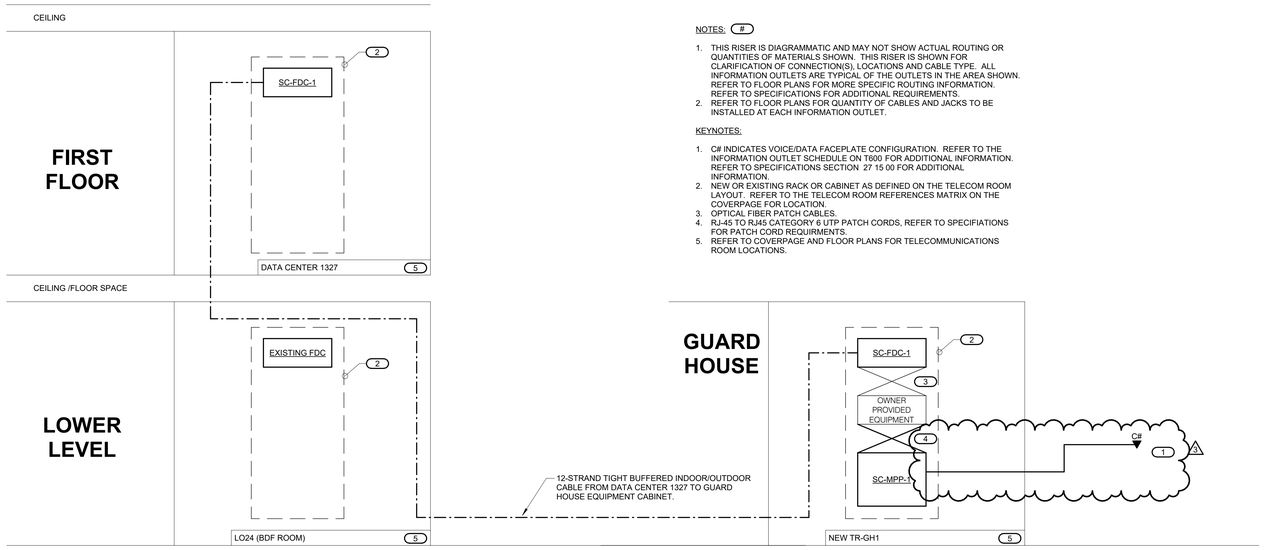
| CONFIGURATION | FACEPLATE PORTS | FACEPLATE PORT IDENTIFICATION | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | | POSITION 1 JACK TYPE | POSITION 2 JACK TYPE | POSITION 3 JACK TYPE | POSITION 4 JACK TYPE | POSITION 5 JACK TYPE | POSITION 6 JACK TYPE | |
| C2 | 2 | DATA | DATA | | | | | . |

## TECHNOLOGY EQUIPMENT SCHEDULE

THE EQUIPMENT LIST ABBREVIATIONS AND THE TECHNOLOGY EQUIPMENT SCHEDULE ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

CATALOG NUMBERS ARE NOT TO BE CONSIDERED COMPLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATES FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

| EQUIPMENT LIST ABBREVIATION | EQUIPMENT LIST DESCRIPTION | MANUFACTURER AND MODEL |
|---|---|---|
| DT-IM-S | TBD | TBD |
| SC-ER-11-W | VERTICAL 4RU WALL MOUNTED NETWORK RACK. 29"H x 26"W x 8"D. VENTILATED ENCLOSURE WITH LOCKABLE DOOR. | TRIPP LITE SRWF4U EQUALS BY HUBBELL OR MIDDLE ATLANTIC |
| SC-FDC-1 | OPTICAL FIBER DISTRIBUTION CABINET, WALL MOUNT. 48 FIBER MAXIMUM CAPACITY. DROP DOWN FRONT DOOR, TRANSPARENT JUMPER SIDE DOOR, STRAIN RELIEF BRACKETS, AND JUMPER ROUTING GUIDES.<br><br>PROVIDE WITH CLAMP AND GROUNDING KIT, COUPLING PANEL(S), AND JUMPERS. REFER TO SPECIFICATIONS SECTION 27 13 00 FOR ADDITIONAL INFORMATION. | CORNING<br>WCH-02P<br><br>HUBBELL |
| SC-GND-1 | GROUNDING BUSBAR, WALL MOUNT. 2" H X 12" L X 1/4" D COPPER, ELECTRICALLY ISOLATED BY INSULATORS INTEGRAL TO MOUNTING BRACKETS. COPPER GROUND BAR IS 1/4" THICK AND STAND OFF 2.75" FROM WALL. THE 12" BUSBAR PROVIDES CONNECTION FOR NINE (9) 2-HOLE COMPRESSION LUGS RESPECTIVELY WITH 5/8" OR 1" CENTERS. ANSI/TIA-607 AND BICSI COMPLIANT. UL LISTED.<br><br>REFER TO GROUND BAR DETAIL ON 2/T400 AND SPECIFICATION SECTION 27 11 00 FOR ADDITIONAL INFORMATION. | CHATSWORTH<br>13622-012<br><br>PANDUIT<br>ERICO<br>HARGER |
| SC-GND-2 | 19" RACK-MOUNT HORIZONTAL GROUND BAR. (3/16" x 3/4" X 19") PROVIES EIGHT #6-32 TAPPED LUG MOUNTING HOLES ON 1" (25.4 mm) CENTERS AND TWO PAIRS OF 5/16" (7.938 mm) DIAMETER HOLES SPACED 3/4" (19.1 mm) APART FOR ATTACHING GROUND JUMPERS. ANSI/TIA-607 AND BICSI COMPLIANT. UL LISTED.<br><br>REFER TO SPECIFICATION SECTION 27 11 00 FOR ADDITIONAL INFORMATION. | CHATSWORTH<br>10610-019<br><br>NEWTON<br>PANDUIT<br>ERICO |
| SC-IO-W | INFORMATION OUTLET, WALL MOUNT, (2)-PORT COVERPLATE AS INDICATED ON DRAWINGS AND INFORMATION OUTLET SCHEDULE. REFER TO INFORMATION OUTLET SCHEDULE FOR PIN CONFIGURATION.<br><br>" # "INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION AS INDICATED ON THE DRAWINGS.<br><br>" W " INDICATES WALL PHONE. PROVIDE (1) RJ-45 JACK FOR VOICE AT +48" AFF FOR WALL HUNG PHONE. PROVIDE WITH STAINLESS STEEL FACEPLATE, MATING LUGS.<br><br>INSTALL INFORMATION OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE GANG PLASTER RING. INSTALL A 1" EMT CONDUIT TO NEAREST ACCESSIBLE CEILING OR UNLESS OTHERWISE NOTED. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS. REFER TO SPECIFICATION SECTION 27 15 00 FOR ADDITIONAL INFORMATION. | HUBBELL<br>COVER PLATE:<br>IFP12 SERIES<br>IFP14 SERIES<br>IFP16 SERIES<br><br>JACK:<br>(CAT6)<br>HXJ6 SERIES<br><br>COMMSCOPE UNIPRISE<br>PANDUIT<br>BELDEN<br>ORTRONICS<br>LEVITON |
| SC-MPP-1 | MODULAR PATCH PANEL. 24 MODULAR RJ-45 TERMINATIONS, MOUNTS DIRECTLY TO EIA/TIA STANDARD 19" RELAY RACK, PORT IDENTIFICATION NUMBERS, PROVIDED WITH COLOR CODING AND LABEL HOLDER KITS, U.L. LISTED. REQUIRES (1) 1.75" MOUNTING SPACES. | HUBBELL<br>CAT 6: HP624<br><br>COMMSCOPE UNIPRISE<br>PANDUIT<br>BELDEN<br>ORTRONICS<br>LEVITON |
| SC-TTB | TELECOMMUNICATIONS TERMINAL BOARD, 4 'X8'X3/4" A-C GRADE FIRE-RATED PLYWOOD. EXPOSED SIDE SHALL BE SMOOTH. MOUNT VERTICALLY WITH TOP OF PLYWOOD AT 8'-6" AFF. IN THE EVENT THE MANUFACTURER S RATING STAMP IS NOT VISIBLE ON THE SMOOTH SIDE, THE CONTRACTOR SHALL PROVIDE A LAMINATED LETTER FROM THE MANUFACTURER OR SUPPLIER CERTIFYING THAT THE PLYWOOD IS FIRE-RATED AND ATTACH THE LETTER WITH A PICTURE OF THE RATING STAMP, TO THE PLYWOOD. FIRE RATED PLYWOOD SHALL NOT BE PAINTED OR TREATED WITH ANY TYPE OF SEALANT THAT WOULD LESSEN THE INTEGRITY OF THE FIRE RATING. | |




NOTES: (#)

1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION(S), LOCATIONS AND CABLE TYPE. ALL INFORMATION OUTLETS ARE TYPICAL OF THE OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET.

KEYNOTES:

1. C# INDICATES VOICE/DATA FACEPLATE CONFIGURATION. REFER TO THE INFORMATION OUTLET SCHEDULE ON T600 FOR ADDITIONAL INFORMATION. REFER TO SPECIFICATIONS SECTION 27 15 00 FOR ADDITIONAL INFORMATION.
2. NEW OR EXISTING RACK OR CABINET AS DEFINED ON THE TELECOM ROOM LAYOUT. REFER TO THE TELECOM ROOM REFERENCES MATRIX ON THE COVERPAGE FOR LOCATION.
3. OPTICAL FIBER PATCH CABLES.
4. RJ-45 TO RJ45 CATEGORY 6 UTP PATCH CORDS, REFER TO SPECIFIATIONS FOR PATCH CORD REQUIRMENTS.
5. REFER TO COVERPAGE AND FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.

## 3 FIBER OPTIC RISER DIAGRAM

NO SCALE

6/10/2026 2:51:13 PM


human eXperience
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North Carolina Design Registration #F-1507

REF. SCALE IN INCHES 0 1 2 3

PROJECT #24003196.00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17382 RYAN J. WHITNEY IMEG CORPORATION No. F-1507

06/11/2026

CLIENT NAME
**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES**

PROJECT NAME
# DHHS - PUBLIC HEALTH LAB - PERIMETER SECURITY UPGRADES

PROJECT ADDRESS
**4312 DISTRICT DRIVE, RALEIGH, NC 27607**

SCO PROJECT # **22-25799-02A**
CODE # **42240**
FUND # **429026**
NX PROJECT # **2023-A002.01**

| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1 | 2026-02-05 | SCO Resubmittal |
| 2 | 2026-05-12 - Bid Set | Revision #2 |
| 3 | 2026-06-11 | Addendum 001 |

ISSUE NAME
**BID SET**

ISSUE DATE
**2026-05-12**

SHEET TITLE
**TECHNOLOGY SCHEDULES**

SHEET NUMBER
# T600

**DOCUMENT 00 01 10**
**TABLE OF CONTENTS**

**END OF DOCUMENT**

# NOTICE TO BIDDERS

Sealed proposals will be received by the DHHS Division of Property and Construction in Raleigh, NC, in the North Carolina State Laboratory of Public Health Room 1501 up to 2:00 pm June 18, 2026 and immediately thereafter publicly opened and read for the furnishing of labor, material and equipment entering into the construction of:

**DHHS – Public Health Lab Perimeter Security Upgrades**
**SCO #22-25799-02A**

This security enhancement project for the North Carolina Department of Health and Human Services Public Health Lab is designed to create a comprehensive and modern perimeter defense system. By combining physical barriers, access control measures, and advanced surveillance systems, the facility will be well-prepared to prevent unauthorized access and respond effectively to potential security threats. The design prioritizes functionality and safety, ensuring the continued operation of the PHL in a secure environment. Project elements include a new perimeter barrier surrounding the facility with associated illumination and security structures (e.g. vehicle bollards) as well as a new site entry configuration which includes an updated traffic flow pattern, guard house, vehicle barriers, and security surveillance systems.

Bids will be received for a Single Prime Contract. All proposals shall be lump sum.

## Pre-Bid Meeting

An open pre-bid meeting was held for all interested bidders on May 26th at 2:00PM in the North Carolina State Laboratory of Public Health Room 1501. The meeting addressed project specific questions, issues, bidding procedures and bid forms.

Complete plans, specifications and contract documents may be obtained by those qualified as prime bidders electronically by contacting info@hX.design. A printed copy of the bid documents can be provided, upon deposit of One Thousand, Five Hundered dollars ($1,500) in cash or certified check. The full plan deposit will be returned to those bidders provided all documents are returned in good, usable condition within ten (10) days after the bid date.

**NOTE**: The bidder shall include with the bid proposal the form *Identification of Minority Business Participation* identifying the minority business participation it will use on the project and shall include either *Affidavit **A*** or *Affidavit **B*** as applicable. Forms and instructions are included within the Proposal Form in the bid documents. Failure to complete these forms is grounds for rejection of the bid. (GS143-128.2c Effective 1/1/2002.)

All contractors are hereby notified that they must have proper license as required under the state laws governing their respective trades.

General contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina, will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for Buildings.

NOTE--SINGLE PRIME CONTRACTS: Under GS 87-1, a contractor that superintends or manages construction of any building, highway, public utility, grading, structure or improvement shall be deemed a "general contractor" and shall be so licensed. Therefore a single prime project that involves other trades will require the single prime contractor to hold a proper General Contractors license. **EXCEPT**: On public buildings being bid single prime, where the total value of the general construction does not exceed 25% of the total construction value, contractors under GS87- Arts 2 and 4 (Plumbing, Mechanical & Electrical) may bid and contract directly with the Owner as the SINGLE PRIME CONTRACTOR and may subcontract to other properly licensed trades. GS87-1.1- Rules .0210

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company, insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof a bidder may offer a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the contract in accordance with the bid bond. Said deposit shall be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten days after the award or to give satisfactory surety as required by law.

A performance bond and a payment bond will be required for one hundred percent (100%) of the contract price.

Payment will be made based on ninety-five percent (95%) of monthly estimates and final payment made upon completion and acceptance of work.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of 60 days.

The owner reserves the right to reject any or all bids and to waive informalities.

Designer:

Kevin Turner, AIA, human eXperience

401 Hawthorne Ln. Suite 110-124, Charlotte, NC 28204

980-288-5847

Owner:

Luke Hoff, DHHS Property and Construction

1910 Human Services Ln., Raleigh, NC 27607

May 12, 2026
(Revised June 11, 2026)

Issue: Bid Set

**SECTION 271500**
**HORIZONTAL CABLING REQUIREMENTS**

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This section describes the products and execution requirements relating to furnishing and installing horizontal communications cabling and termination components and related subsystems as part of a cabling plant. The cabling plant consists of copper cabling.

1.2 RELATED WORK

A. Section 270500 - Basic Communications Systems Requirements

B. Section 271720 - Structured Cabling System Warranty

1.3 QUALITY ASSURANCE

A. Refer to Section 270500 for relevant standards and plenum or non-plenum cable requirements.

B. The channel shall be required to meet the performance requirements indicated herein. The manufacturer shall warranty the performance of their system to the required performance (and not just to the Standard, should the required performance exceed the Standard).

C. Specific components of the channel shall be required, at a minimum, to meet the Standard component requirements for that particular component.

D. The installing contractor must be certified by the manufacturer of the structured cabling system.

1.4 SUBMITTALS

A. Under the provisions of Section 270500 and Division 1, prior to the start of work the Contractor shall submit:

1. Manufacturer's data covering all products proposed, including construction, materials, ratings and all other parameters identified in Part 2 - Products, below.
2. Manufacturer's installation instructions.

PART 2 - PRODUCTS

2.1 HORIZONTAL CABLE

A. CAT 6 Cable:

1. The horizontal cable requirements must be met, as well as the following channel requirements.
2. CAT 6 cable shall terminate on rack-mounted modular patch panels in their respective communication equipment room as indicated on the drawings.

3. Performance tests shall be conducted using swept frequency testing through 250 MHz for the channel. All numbers given are for a 4-connection channel. Discrete frequency testing results at 250 MHz is not acceptable.
4. Performance data shall be characterized as "Guaranteed Headroom" and shall be guaranteed by the manufacturer to perform at guaranteed margins over ANSI/TIA/EIA-568-C.2. Performance data that is not warranted by the manufacturer will not be considered.
5. The structured cabling and connectivity must be provided by the same company. For the purpose of this specification that shall mean that the cabling and connectivity must be marketed, branded, supported, warranted, and distributed by the same company. Specifically, ally or partnerships between cabling manufacturers and connectivity manufacturers do not meet this requirement unless otherwise listed below. Specifically, products made by others through an OEM relationship are acceptable if the products are marketed, branded, supported, warranted, and distributed by the same company.
6. The 4-connector channel performance margins listed in the below criteria shall be guaranteed minimum margins above ANSI/TIA/EIA-568-C.2 with electrical parameters between 1-250 MHz.

    a. Insertion Loss: 5%
    b. NEXT: 3.0 dB
    c. PS NEXT: 5.0 dB
    d. ACR-F (ELFEXT): 4.0 dB
    e. PS ACR-F (PS ELFEXT): 5.0 dB
    f. Return Loss: 2 dB

7. The jacket color for CAT 6 cable shall be white for voice applications and blue for data applications.
8. Basis of Design:

    a. Hubbell C6RP Series
    b. Additional acceptable manufacturers:

        1) Belden
        2) Berk-Tek
        3) Commscope/Uniprise
        4) Panduit
        5) Siemon
        6) Superior Essex

2.2 CONNECTORS/COUPLERS/ADAPTERS

A. Refer to Section 271100 for requirements and 27 13 00 for requirements.

2.3 FACEPLATES/JACKS

A. CAT 6 Jacks:

1. CAT 6 horizontal cable shall each be terminated at their designated work area location on RJ-45 modular jacks. These modular jack assemblies shall snap into a modular mounting frame. The combined modular jack assembly is referred to as an information outlet.
2. The same orientation and positioning of modular jacks shall be utilized throughout the installation. Prior to installation, the Contractor shall submit the proposed configuration for each information outlet type for review by the Architect/Engineer.

3. Information outlet faceplates shall incorporate recessed designation strips at the top and bottom of the frame for identifying labels. Designation strips shall be fitted with clear plastic covers.
4. Where standalone CAT 6 only modular jacks are identified, the information outlet faceplate shall be configured as to allow for the addition of one (1) additional modular jack (CAT 3, CAT 5E, or CAT 6) to be installed to supplement each such modular jack as defined by this project. The installation of these supplemental modular jacks is NOT part of this project.
5. Any unused modular jack positions on an information outlet faceplate shall be fitted with a removable blank inserted into the opening.
6. The information outlet faceplate shall be constructed of high impact plastic (except where noted otherwise). The information outlet faceplate color shall:

    a. Match the receptacle color used for other utilities in the building, or

7. All information outlets and the associated modular jacks shall be of the same manufacturer throughout the project.
8. The CAT 6 modular jacks shall be non-keyed 8-pin modular jacks.
9. The interface between the modular jack and the horizontal cable shall be a 110-type termination block or insulation displacement type contact. Termination components shall be designed to maintain the horizontal cable's pair twists as closely as possible to the point of mechanical termination.
10. CAT 6 modular jacks shall be pinned per TIA-568B.
11. CAT 6 termination hardware shall, as a minimum, meet all the mechanical and electrical performance requirements of the following standards:

    a. ANSI/TIA/EIA-568-A-5
    b. ANSI/TIA/EIA-568A
    c. ISO/IEC 11801
    d. IEC 603-7
    e. FCC PART 68 SUBPART F

12. The color for CAT 6 jacks shall be white for voice applications and blue for data applications. Alternately, a color-coded bezel or icon may be used to identify the CAT 6 modular jack.

## PART 3 - EXECUTION

### 3.1 CABLE INSTALLATION REQUIREMENTS

A. Horizontal Cabling:

1. The maximum horizontal cable drop length for Data UTP shall not exceed 295 feet in order to meet data communications performance specifications. This length is measured from the termination panel in the wiring closet to the outlet and must include any slack required for the installation and termination. The Contractor is responsible for installing horizontal cabling in a fashion so as to avoid unnecessarily long runs. Any area that cannot be reached within the above constraints should be identified and reported to the Architect/Engineer prior to installation. Changes to the contract documents shall be approved by the Architect/Engineer.
2. All cable shall be free of tension at both ends. In cases where the cable must bear some stress, Kellum grips may be used to spread the strain over a longer length of cable.
3. Manufacturer's minimum bend radius specifications shall be observed in all instances.

4. Horizontal cabling installed as open cabling shall be supported at a maximum of 5' between supports. Refer to the specifications for required cable supports.
5. Horizontal cabling installed as open cable or in cable tray shall be bundled at not less than 10' intervals with hook-and-loop tie wraps. The use of plastic cable ties is strictly prohibited.
6. The maximum conduit fill for horizontal cabling shall not exceed 40% regardless of conduit length.
7. Cable sheaths shall be protected from damage from sharp edges. Where a cable passes over a sharp edge, a bushing or grommet shall be used to protect the cable.

B. A coil of 3 feet in each cable shall be placed in the ceiling at the last support (e.g., J-hook, bridle ring, etc.) before the cables enter a fishable wall, conduit, surface raceway or box. At any location where cables are installed into movable partition walls or modular furniture via a service pole, approximately 15-feet of slack shall be left in each horizontal cable under 250 feet in length to allow for change in the office layout without re-cabling. These "service loops" shall be secured at the last cable support before the cable leaves the ceiling and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.

1. To reduce or eliminate EMI, the following minimum separation distances from 480V power lines shall be adhered to:

    a. Twelve (12) inches from power lines of less than 5-kVa.
    b. Eighteen (18) inches from high-voltage lighting (including fluorescent).
    c. Thirty-nine (39) inches from power lines of 5-kVa or greater.
    d. Thirty-nine (39) inches from transformers and motors.

## 3.2 CABLE TERMINATION REQUIREMENTS

A. Cable Terminations - Data UTP:

1. Modular patch panels shall be designed and installed in a fashion as to allow future horizontal cabling to be terminated on the panel without disruption to existing connections.
2. At information outlets and modular patch panels, the Contractor shall ensure that the twists in each cable pair are preserved to within 0.5-inch of the termination for data cables. The cable jacket shall be removed only to the extent required to make the termination.

END OF SECTION

**SECTION 281300**
**ELECTRONIC ACCESS CONTROL**

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Field Control Hardware

B. Portal Devices

1.2 RELATED WORK

A. Section 087100 - Door Hardware

B. Section 260513 - Wire and Cable

C. Section 260533 - Conduits and Boxes

D. Section 270526 - Communications Bonding

E. Section 270543 - Exterior Communication Pathways

F. Section 270553 - Identification and Administration

G. Section 271500 - Horizontal Cabling Requirements

H. Section 280500 - Basic Electronic Safety and Security System Requirements.

I. Section 280503 - Through Penetration Fire stopping.

J. Section 282300 - Video Surveillance

1.3 QUALITY ASSURANCE

A. Manufacturer: The manufacturer shall have a minimum of ten (10) years documented experience in the development and manufacture of access control software and hardware. The software developer shall be, at a minimum, a Microsoft Silver Certified Integrator and Partner for those systems that reside in a Microsoft environment.

B. Contractor:

1. Shall be a factory-authorized installation, service and support company specializing in the selected manufacturer's product, with demonstrated prior experience of a minimum of three (3) years installing, programming and supporting the selected manufacturer's system.
2. Shall have been in business for a minimum of three (3) years and shall have installed a minimum of three (3) similar or larger sized systems. Contractor shall have a minimum of two (2) service technicians who are certified in the proposed manufacturer's system.

3. Shall have as a regular, full time employee a minimum of one employee with the following certification(s) or education:

    a. Lenel Installation and service Training Certification that is no older than 2 years.

C. Material:

1. All material which is Contractor furnished shall be new, unused and free from defects.
2. Where more than one of any specified item of equipment or material is used, all such items shall be the same product from the same manufacturer.

1.4 REFERENCES

A. International Building Code

B. NFPA 70 - National Electrical Code.

C. The BOCA National Building Code

D. UL 294 - Standard for Access Control Systems.

E. UL 365 - Standard for Police Station Connected Burglar Alarm Units and Systems.

F. UL 464 - Standard for Audible Signal Appliances.

G. UL 603 - Standard for Power Supplies for Use with Burglar Alarm Systems.

H. UL 609 - Standard for Local Burglar Alarm Units and Systems

I. UL 634 - Standard for Connectors and Switches for Use with Burglar Alarm Systems.

J. UL 827 - Standard for Central Station Alarm Services.

K. UL 1076 - Standard for Proprietary Burglar Alarm Units and Systems.

L. UL 1449 - Standard for Surge Protective Devices.

M. UL 1635 - Standard for Digital Alarm Communicator Systems.

N. UL 1638 - Standard for Visual Signaling Appliances – Private Mode Emergency and General Utility Signaling.

O. UL 1778 - Uninterruptible Power Systems.

1.5 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 280500.

B. Product Data Submittal: Provide manufacturer's technical product specification sheet for each individual component type. Submitted data shall show the following:

1. Compliance with each requirement of these documents. The submittal shall acknowledge each requirement of this section, item-by-item.
2. All component options and accessories specific to this project.
3. Electrical power consumption rating and voltage.
4. Heat generation for all power consuming devices.
5. Wiring requirements.
6. Server processor(s), workstation configurations, total and available disk space, and memory size.
7. All network bandwidth, latency and reliability requirements.
8. Backup/archive system size and configuration.
9. Submit two of each type of credential to be used (access card, key fob, etc.).

C. System Drawings: Project-specific system CAD drawings shall be provided as follows:

1. Provide a system block diagram noting system components and interconnection between components. The interconnection of components shall clearly indicate all wiring required in the system. When multiple pieces of equipment are required in the exact same configuration (e.g., multiple identical controllers), the diagram may show one device and refer to the others as "typical" of the device shown. The diagram shall list room numbers where each controller will be located. This block diagram shall be provided in Adobe PDF.
2. Provide a schedule of all controllers and the doors/points each controller controls. This schedule shall be provided in Adobe PDF.
3. Provide schedules describing each system input location by an architecturally familiar reference, e.g., Door 312A. The architectural door schedule shall be used as the basis. These schedules shall be provided in Adobe PDF

D. Submit sample format of site specific programming guides to be used for system planning/programming conference with Owner. These guides shall be provided in Adobe PDF.

E. So that required Owner personnel are present at the planning/programming conference required in Part 3 of this section, submit meeting agenda for the conference a minimum of two weeks prior to the conference.

F. Submit detailed description of Owner training to be conducted at project end, including specific training times. Refer to Part 3 of this section for details.

G. IP Addresses: Contractor shall provide to Owner, in a documented transmittal and in Microsoft Excel format, the names and locations of devices which require an IP address. An authorized representative of the Owner shall furnish the addresses for the associated devices in Microsoft Excel format in a documented transmittal. Should Owner change the IP address structure after approval of the list, Owner may be responsible for additional fees involved with reprogramming.

H. Quality Assurance:

1. Provide materials documenting experience requirements of the manufacturer and Installing Contractor. Provide documentation of the training and other applicable certifications of the Contractor.
2. Provide system checkout test procedure to be performed at acceptance. Test procedures shall include all external alarm events.

1.6 SYSTEM DESCRIPTION

A. This section describes the expansion of an existing Lenel system and includes furnishing, installation, programming and commissioning of all items added to the existing system in this project including integration with the owners existing Milestone CCTV system.

B. The company, manufacturer, and product names used in this section are for identification purposes only. All trademarks and registered trademarks are the property of their respective owners.

C. Performance Statement: This section and the accompanying access control-specific design documents are performance based, describing the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment constraints described and the performance required of the system, as presented in these documents, the vendor and the Contractor are solely responsible for determining all wiring, programming, and miscellaneous equipment required. The Contractor shall be responsible for determining quantities of materials required for a complete and operational system. Floor plan drawings and schedules have been developed to aid the Contractor in determining device quantities and installation locations, but, where discrepancies between floor plans and schedules arise, the greater number shall govern.

D. Basic System Description:

1. The access control system shall provide the following functionality:

    a. Electronic control access to designated areas.
    b. Validation of cardholder credentials by use of personnel database, card formats. The system shall compare the time, location, and unique credentials of an attempted entry with information stored in the database.
    c. Access to designated areas will be validated only when a user's credential has a valid number for its facility and the number is valid for the current time and for the reader where it is used.
    d. The system software shall access the hardware that validates the person and monitors the security of a building by use of intelligent system controllers, reader interfaces, locks, readers, inputs and outputs. When access has been validated, a signal to the portal locking device shall be activated to enable alarm free access at that location.
    e. The system shall be configured by use of application software.
    f. The system shall monitor activities using operator monitoring software which includes graphical maps which display alarms, status and activity.
    g. The system shall differentiate and restrict administrative and operational access through use of password authentication.
    h. The system shall report on various aspects of the system by use of reports, both default and customizable. Reports shall be able to be printed.
    i. The system shall have the capability to report alarms both audibly and visually.
    j. The system shall control hardware from the monitoring station by use of manual actions and events.
    k. The system shall provide record and data management by use of journals. There shall be a full audit trail.

l. The system shall allow for data to be imported from other products by use of database migration tools. These products may include Human Resources databases for name and/or time and attendance information, information from previous access control systems consisting of badge numbers from credentials that will be re-used, Microsoft Excel spreadsheets, or other systems as defined herein.
m. The system shall allow access using a web interface or a mobile application for use on the iOS and Android operating systems.

E. Integrations, Software Development Kit (SDK) and Application Programming Interface (API):

1. The manufacturers of the systems that are integrated shall make an SDK available to other manufacturers.
2. Prior to the release of this section, the manufacturers of the systems that are to be integrated shall have made available to each other all APIs to perform the specific integrated functions required in this section.
3. The integrations shall be completed and tested, and shall have been implemented on at least one system of similar size prior to the release of this section. The integrations shall not be accomplished for the first time for this project unless written pre-approval has been granted by Owner to Contractor prior to bid deadline.
4. During the warranty period, should a new API or version of software be released by the SMS manufacturer or any of the manufacturers of systems or devices that are integrated, that API or version of software shall be installed in the appropriate system or device defined in this section at no charge to Owner. Should any loss of functionality in the integration be exposed through this installation, as compared to the accepted system, Contractor shall correct the functionality at no charge to Owner.
5. Any and all development costs for specified functionality or inter-system integrations shall be included in the Contractor's bid. No additional costs or fees for the integrations shall be charged to Owner from the time of notice to proceed through system acceptance.

1.7 OWNER FURNISHED MATERIAL

A. Data circuit / internet service

B. Active telephone service equipment, such as key system, PBX or VOIP switch equipment

C. Active computer network equipment:

1. Routers
2. Switches
3. Hubs
4. Wireless access points
5. Uninterruptible power supplies for Owner furnished products

D. Active computer equipment:

1. SMS server - refer to Part 2 for details
2. SMS workstation(s) - refer to Part 2 for details
3. SMS badging station(s) - refer to Part 2 for details
4. Uninterruptible power supplies for Owner furnished products

E. Credentials:

1. Badges

2. Key fobs
3. Adhesive tags
4. Active transmitters

1.8 LICENSING REQUIREMENTS

A. All user licenses required for system operation shall be included in the Contractor's bid. User licenses shall include server and workstation software, network controllers, card readers, printers, badging stations, and any other licensing that is required by the manufacturer for operation of any system component.

1. Licenses shall be provided on a one-to-one basis. One license shall be provided for each device requiring a license. In the event the manufacturer requires the purchase of a block of licenses, license blocks provided shall be no greater than what is required for the number of devices in this project. Contractor shall document the number of remaining licenses in the project record documents and Operations and Maintenance data.
2. The system described herein is an extension of an existing Lenel system. All licensing shall be new for each installed device. The Contractor shall not use any of the Owner's existing (spare) licenses for any new components.
3. All Contractor-furnished software shall contain a perpetual, permanent license in which no other fees beyond the single payment for the work of this section are required in order to use the proposed software indefinitely. Owner understands that, after the initial warranty period has expired, maintenance and technical support fees may be required annually, quarterly, or monthly in order to receive software updates and technical support. However, it remains the option of Owner to purchase or decline this service. If Owner chooses to discontinue or never purchase this service, the software shall continue to be legally licensed for use. All software shall be the latest version released, and all Contractor-furnished servers and workstations shall be current on all patches and updates for all software on the machines at the time of acceptance of the associated systems.
4. The SMS shall require only a single license key present on the server for the SMS to operate. The key shall be a physical device or a software key. License keys shall not be required at the client workstations.

1.9 PROJECT RECORD DOCUMENTS

A. Submit documents under the provisions of Section 280500.

B. Provide final system block diagram showing any deviations from shop drawing submittal.

C. Provide statement that system checkout test, as outlined in the shop drawing submittal, is complete and satisfactory.

D. Provide schedules documenting:

1. Controller installation locations including specific door numbers being controlled.
2. All terminal block wiring, including cable numbers.

E. Warranty: Submit written warranty and complete all Owner registration forms.

F. Complete all operation and maintenance data manuals as described below.

1.10 OPERATION AND MAINTENANCE DATA

A. Submit documents under the provisions of Section 280500.

B. Manuals: Final copies of the manuals shall be delivered after completing the installation test. Each manual's contents shall be identified on the cover. The manual shall include names, addresses, and telephone numbers of the contractor responsible for the installation and maintenance of the system, and the factory representatives for each item of equipment for each system. The manuals shall have a table of contents and labeled sections. The final copies delivered after completion of the installation test shall include all modifications made during installation, checkout, and acceptance testing. Manuals shall be submitted in electronic format only, Adobe PDF. The manuals shall consist of the following:

1. Hardware Manual: The manual shall describe all equipment furnished including:

    a. General description and specifications.
    b. Installation and check out procedures.
    c. System and equipment layout and electrical schematics to the control board and field device level. For multiple devices wired identically, only one wiring diagram is required per door configuration, to be labeled "TYPICAL".
    d. Alignment and calibration procedures.
    e. Manufacturers repair parts list indicating sources of supply.

2. Software Manual: The software manual shall describe the functions of all software and shall include all other information necessary to enable proper loading, testing, and operation. The manual shall include:

    a. Definition of terms and functions.
    b. System use and application software.
    c. Initializations, startup, and shutdown procedures.
    d. Reports generation.
    e. Details on forms customization and field parameters.

3. Operator's Manual: The operator's manual shall fully explain all procedures and instructions for the operation of the system including:

    a. Computers and peripherals.
    b. Log in/Log out procedures.
    c. Use of system, command, and applications software.
    d. Recovery and restart procedures.
    e. Graphic alarm presentation.
    f. Use of report generator and generation of reports.
    g. Data entry.
    h. Operator commands.
    i. Alarm messages.
    j. System permissions functions and requirements.

4. Maintenance Manual: The maintenance manual shall include descriptions of maintenance for all equipment including inspection, cleaning, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

1.11 WARRANTY

A. Unless otherwise noted, provide warranty for one (1) year after date of final acceptance by the owner and SCO as identified in 280500.

B. Onsite Work During Warranty Period: This work shall be included in the Contractor's bid and performed during regular working hours, Monday through Friday.

1. Inspections: The Contractor shall perform two minor inspections at six-month intervals (or more often if required by the manufacturer), and two major inspections offset equally between the minor inspections to effect quarterly inspection of alternating magnitude.
2. Minor Inspections: These inspections shall include:

a. Visual checks and operational tests of all equipment, field hardware, and electrical and mechanical controls.
b. Mechanical adjustments if required on any mechanical or electromechanical devices.

3. Major Inspections: These inspections shall include all work described under paragraph Minor Inspections and the following work:

a. Clean all equipment, including exterior surfaces and accessible and serviceable interior surfaces.
b. Perform diagnostics on all equipment.
c. Check, test, and calibrate (if required) all sensors.
d. Run all system software diagnostics and correct all diagnosed problems.

C. Operation: Upon the completion of any scheduled adjustments or repairs, Contractor shall verify operation of the SMS.

D. Service: The Owner will initiate service calls when the SMS is not functioning properly. If requested by the Owner, the Contractor shall respond or remain at the site after normal business hours, and the Owner shall reimburse the Contractor for the incremental cost difference between premium labor rates and standard labor rates. This reimbursement applies to premium labor rates that do not exceed time-and-one-half rates after normal business hours and double-time rates for Sundays and holidays. The Owner shall be furnished with telephone number(s) where service personnel can be reached 24/7/365.Records, Logs and Work Requests: Contractor shall keep records and logs of each task completed under and outside of warranty. These logs shall be maintained in Microsoft Word or Excel. The log shall include the model and serial number identifying the component involved, its location, date and time the call was received, specific nature of trouble, names of service personnel assigned to the task, description of work performed, the amount and nature of the material used, and the time and date of commencement and completion of the work. Complete logs shall be kept and shall be available for review on site, demonstrating that planned and systematic adjustments and repairs have been accomplished for the SMS. The Contractor shall deliver a record of the work performed within three (3) business days after work is completed. Defective items that have been replaced shall be given to the Owner. Should the replacement item be a temporary replacement until the removed item is repaired, Contractor shall retain possession of the defective item for repair and subsequent re-installation.

E. System Modifications: Modifications by the Contractor are allowed after system acceptance. Contractor shall make recommendations for system modification in writing to the Owner. No system modifications shall be made without prior, written approval of the Owner. Any modifications made to the system shall be incorporated into the Operations and Maintenance Manuals, and other documentation affected. The Owner shall be provided with electronic restorable versions of all configurations prior to the modifications being made.

F. Software: At no charge, the Contractor shall provide to Owner all updates released by the manufacturer during the period of the warranty and verify operation of the system upon installation. These updates include system software updates, patches, bug fixes and revisions, as well as firmware updates. These updates shall be accomplished in a timely manner, fully coordinated with SMS administrators and operators, shall include training for the new changes/features, and shall be incorporated into the Operations and Maintenance Manuals and software documentation.

G. Refer to the individual product sections for further warranty requirements of individual system components.

1.12 ANNUAL SERVICE CONTRACT

A. Provide annual cost for extended service and maintenance agreement after the first year for the access control system according to the following terms:

1. The term of the warranty shall begin on the system acceptance date and shall continue for one (1) year. The extended service and maintenance warranty shall begin following this first year if accepted by the Owner. The term shall be automatically renewed for successive one-year periods unless canceled in writing by the Owner with Contractor confirmed receipt, up to the date of expiration. The service and maintenance agreement shall include the following basic services to the Owner, including all necessary parts, labor and service equipment:

    a. Repair or replace any security equipment item that fails to perform as initially installed, as specified, or as determined per the manufacturer's performance criteria.
    b. Perform preventive maintenance on the security equipment during the 6$^{th}$ month and 12$^{th}$ month of the service contract. This preventive maintenance shall include cleaning, realignment, inspection, and testing of security devices. The Owner shall receive a written report of these inspections that identifies the security system's status and, if required, a list of all necessary repairs or replacements.
    c. Provide maintenance on the SMS system software. At no charge, the Contractor shall provide to Owner all updates released by the manufacturer during the period of the service contract and verify operation of the system upon installation. These updates include system software updates, patches, bug fixes and revisions, as well as firmware updates. These updates shall be accomplished in a timely manner, fully coordinated with SMS administrators and operators, shall include training for the new changes/features, and shall be incorporated into the Operations and Maintenance Manuals and software documentation. Contractor shall not be responsible for maintenance of Owner data.

2. The Contractor shall be compensated for any repairs or maintenance provided as a result of Owner abuse, misuse, intentional damage, accidental damage, or power fluctuations exceeding specified equipment tolerances.

3. Service: The Owner will initiate service calls when the SMS is not functioning properly. If requested by the Owner, the Contractor shall respond or remain at the site after normal business hours, and the Owner shall reimburse the Contractor for the incremental cost difference between premium labor rates and standard labor rates. This reimbursement applies to premium labor rates that do not exceed time-and-one-half rates after normal business hours and double-time rates for Sundays and holidays. The Owner shall be furnished with telephone number(s) where service personnel can be reached 24/7/365. Qualified service personnel shall be at the site within <**Insert**> hours after receiving a request for service.

B. Provide complete terms and conditions of warranty and service.

C. The Owner will enter into a contract directly with the vendor. This specification section is not a contract between the Owner and the vendor to perform these services.

## PART 2 - PRODUCTS

### 2.1 ELECTRONIC ACCESS CONTROL SYSTEM MANUFACTURERS

A. LenelS2 OnGuard

B. Should the access control manufacturer offer, as an option, the use of hardware by Mercury Security, the Contractor proposed solution shall utilize this hardware. Contractor shall state whether or not the software is compatible with the SCP, AP and EP families of Mercury Security hardware. For future additions or defective hardware replacements, the system shall not be "locked" to require Mercury Security hardware be purchased only from the access control software manufacturer or from the original Installing Contractor.

C. Approval of Alternate Manufacturers:

1. Contractors seeking approval for alternate manufacturers for any devices or software in this section shall submit requests for approved equals as defined by Division 1 in addition to submitting:

   a. Bill of materials for each piece of hardware and software proposed.
   b. Manufacturer's data sheet for each piece of equipment proposed.
   c. Line-by-line typewritten statement of compliance or non-compliance comparing Part 2 of this section with the published specifications of the proposed alternate products. This compliance statement shall be signed by an officer of the local contractor branch office that proposes to install the alternate product and either an officer of the manufacturer or an officer of the manufacturer's representative.

2. Refer to the project drawings for manufacturer and model numbers for the Basis of Design products.

### 2.2 FIELD CONTROL HARDWARE

A. Interior Control Panels:

1. Control boards, power distribution and terminals shall be enclosed in a rated enclosure that is key lockable. Contractor shall not furnish padlock. All enclosures that are part of this project shall be keyed alike. Contractor shall furnish and install a mechanically fastened tamper switch on the interior of the enclosure.

2. Control boards are allowed to be in an enclosure separate from the power supplies/power distribution. Should they be in separate enclosures, the interface wiring shall be in rigid metallic conduit, RMC, with Myers hubs at both ends of the conduit.
3. Control panels shall be rack mountable in an enclosure specifically for rack mounting. Control boards and power supplies shall be located in the enclosure. The enclosure shall have screw or compression terminals on the rear panel for connection of field devices.
4. Intra-enclosure wiring shall be dressed using tie wraps and/or covered plastic wire way. Hook-up wires for identical purposes shall have the same color insulation. For example, if one input pair utilizes green and white insulated conductors, all similar inputs shall use green and white insulated conductors. The same color scheme shall be followed for all access control panels that are part of this project.
5. Cabling from field devices such as readers, door position switches, request-to-exit devices and locking devices shall not be directly terminated to the control boards and power supplies. The field devices shall be terminated to terminals located on the left side, right side or both sides of the enclosure back panel. Intra-enclosure wiring shall be routed from the terminals to the control boards and power distribution. Quantity and functional sequence of the terminals shall be identical portal to portal.
6. All devices inside the enclosure, less cabling and batteries, shall be mechanically fastened to a removable solid or perforated metal back panel with either:

    a. Metal or plastic standoffs
    b. DIN rail

7. Hook and loop fasteners, double sided tape or adhesives are not allowed to attach devices to the back panel. Mounting devices to the interior of the door shall only be allowed when the following two (2) conditions are met:

    a. The access control hardware manufacturer offers prefabricated enclosures with devices mounted to the interior of the door.
    b. Only the same devices that the access control manufacturer mounts to the interior of the door are allowed to be mounted in a different enclosure, and those devices shall be mounted in an identical manner.

8. 120V 20A input power shall be hard wired to a circuit breaker disconnect and to one duplex receptacle on the interior of the enclosure. Should devices in the enclosures require plug-in transformers/power supplies, the receptacle shall be utilized. One (1) power strip with integrated circuit breaker shall be located in the bottom of the enclosure as needed.
9. Power to the locking devices shall be provided by a power distribution board with no fewer than four (4) outputs. Each lock shall be individually protected. The power distribution board shall:

    a. Provide protection with fuses or positive temperature coefficient (PTC) devices.
    b. Provide control so that each output is individually selectable as latching or non-latching with fire alarm activation.
    c. Provide control so that each output shall have Fail Safe and Fail Secure terminals.
    d. Provide a fire alarm input with associated trigger LED.
    e. Provide an individual LED per output to indicate when an input has been triggered and the associated output has been activated.
    f. Accept a dry, closed contact input to activate the individual lock outputs.
    g. Provide a dry, Form C relay that energizes on activation of the fire alarm input. This output may then be used as a fire alarm input to other power distribution boards in the same or a different enclosure, or may provide input to another device such as a multi-pole relay.

10. A minimum of four (4) 12V 7 AH rechargeable, sealed, lead acid batteries shall be located in the bottom of the enclosure. Two of the batteries shall be connected in series for 24V devices, and two batteries shall be connected in parallel for 12V devices. Contractor shall provide additional batteries as needed to power all devices for a minimum of 4 hours. Connections to the batteries shall be made with appropriate terminals crimped on the connecting conductors. Batteries shall be clearly labeled in a permanent manner with the date of installation.
11. Power to control boards, readers and auxiliary devices such as request-to-exit motion detectors shall be provided by a power distribution board with no fewer than four (4) outputs. All devices powered by the same voltage at an individual portal shall be protected by the same fuse or PTC unless current requirements dictate otherwise. Individual fuses or PTCs may protect more than one control board.
12. All access control panels, when populated with control boards and power supplies, shall have the following capacities:

    a. Control of a minimum of two (2) portals.
    b. Spare capacity of a minimum of one (1) access control portal, two (2) auxiliary inputs and two (2) auxiliary outputs greater than the requirements of the project at the time of system specification.
    c. Five (5) spare fuses of each type used, to be in their original packaging, to be located in each power supply enclosure.
    d. 50% spare current capacity on all power supplies located in unconditioned spaces and 40% spare capacity for those in conditioned spaces. Lower spare capacities are allowable based on prior approval of Contractor-provided power calculations.

13. Locations where enclosures may be mounted are shown on the plans. Final location, with approval of Owner's representative, shall be selected by Contractor based on distribution of controlled portals and devices.
14. At time of Substantial Completion, Contractor shall furnish a schematic diagram of intra-enclosure wiring and a complete bill of materials for the enclosures and the devices located within. This documentation shall include a schedule of fuses and the device(s) that each fuse protects. This documentation shall be placed by Contractor in a Contractor-furnished print pocket located on the inside of the enclosure door.

B. Intelligent System Controllers (ISC):

1. The controller shall communicate with the host via an on board 10/100/1000 Base T Ethernet port.
2. The controllers shall be a distributed architecture with full peer-to-peer networking capability. Parent/Child controller configurations are not acceptable. All controllers in the system shall be capable of operating in a standalone mode if communication is lost with the server or main controller. In no case shall a controller depend on communication with an upstream controller for proper standalone operation.
3. The communications bus shall be supervised for wiring integrity. If a communication failure is detected, the system shall report the loss. All controllers unable to receive communication shall operate as standalone devices including grant/deny decisions, complete with event buffers. All events shall be uploaded to the server upon restoration of communications.
4. The controllers shall utilize flash memory or similar technology, allowing program updates to be downloaded from the server. Program storage shall be in ROM.
5. The controllers shall have the capacity for 15,000 cardholders and 45,000 transactions. All access decisions involving these cardholders shall be made at the lowest controller level without communication to the server.
6. Handle all non-host related access control monitoring and decision making.

7. LED indicators for power, fault and communications.
8. Provide for local and global input/output linking:

    a. The SMS shall support a global linkage feature whereby any input/output/event shall be linked to any other input/output/event in the SMS. Input/output linkages shall be able to span across intelligent system controllers.
    b. System administrators shall be able to create global input/output function lists, each consisting of a sequence of actions to be performed, such as changing card reader modes, activating outputs, and opening or closing anti-pass back areas. Each function list may include up to six actions.

9. Reporting of transactions and status information to the server.
10. Interface with standard reader technologies without special interface hardware, additional logic panels or other integrators. Supported technologies shall include:

    a. 13.56 MHz Contactless Smart with or without biometrics or keypad
    b. 13.56 MHz Multi-technology Smart
    c. Proximity, with or without keypad
    d. Magnetic stripe, with or without keypad
    e. Wiegand
    f. Bar code
    g. Keypad
    h. Biometric, with Wiegand output

C. Reader Interface Module (RIM):

1. Reader interface modules are not shown on the plans. Refer to the installation section of this specification for allowable equipment mounting locations. It is the responsibility of the Contractor to determine the number and configuration of reader interface modules required based on the inherent characteristics of each product line and the requirements and restrictions described in this document.
2. RIM shall interface with and accept data from TTL, Wiegand and RS-485 type readers and door hardware.
3. RIM shall provide a minimum of three (3) inputs per portal for portal position, request to exit and auxiliary input.
4. RIM shall provide a minimum of two (2) outputs per portal for locking device and auxiliary output. Each output shall be Form C and shall be rated at 3A at 28VDC.
5. RIM shall communicate to controller by RS-485.

D. Input Control Module (ICM):

1. The input control module shall provide supervised and non-supervised alarm input zones and monitor/report line fault conditions, alarm conditions, power faults and tampers.
2. Input control modules are not shown on the plans. Refer to the installation section of this specification for allowable equipment mounting locations. It is the responsibility of the Contractor to determine the number and configuration of input control modules required, based on the inherent characteristics of each product line and the requirements and restrictions described in this document.
3. UL 294 and 1076 listed.
4. Each input configurable for normally open or normally closed.
5. Each input configurable for timing.
6. Each input configurable for end of line resistance.
7. Status LEDs for communication to the host, heartbeat and input status.
8. Communications line supervision.

9. AES 128 bit encryption.
10. 2-wire RS485 communications.
11. No fewer than eight (8) inputs per board/control module.
12. Alarm Masking: The ability to mask the alarm input on a time zone basis.
13. Activate Output: The ability for any input to activate any output.
14. Configuration of Debounce Time: The ability to control the amount of time that an input state change must remain consistent in order for it to be considered a real change of state.
15. Elevator control support for number of floors shown on the drawings.
16. Global Linkage: The ability to link outputs with inputs that are attached to any ICM/output control module (OCM).
17. Checkpoint: The ability to configure an input as a designated stop on one or more guard tours.
18. Entry/Exit Delay: The ability to set up entry/exit delays for inputs that are attached to any ICM. This shall include:

    a. Non-Latched Entry: When an input activates, the alarm will not be reported until the entry delay expires. If the input is still active when the entry delay expires, the alarm will be reported. If the input is not active when the entry delay expires, then the alarm will not report.
    b. Latched Entry: When an input activates, the alarm will not be reported until the entry delay expires. If the input is still active when the entry delay expires and the alarm has not been masked, the alarm will be reported. If the input has been masked when the entry delay expires, then the alarm will not report.
    c. Exit Delay: When an input activates, the alarm will not be reported (operates as if masked) until the exit delay expires. If the input is still active when the exit delay expires, the alarm will be reported. If the input is not active when the exit delay expires, the alarm will not be reported.

E. Output Control Module (OCM) and Functionality:

1. Output control modules are not shown on the plans. Refer to the installation section of this specification for allowable equipment mounting locations. It is the responsibility of the Contractor to determine the number and configuration of output control modules required, based on the inherent characteristics of each product line and the requirements and restrictions described in this document.
2. The output control module(s) shall provide Form C relay contacts for load switching, rated at 3A at 28VDC.
3. Each relay shall support "On" "Off" and "Pulse."
4. Outputs can be pulsed from 0.1 seconds to 24 hours.
5. Status LEDs for communication to the host, heartbeat and relay status.
6. 2-wire RS485 communications.
7. No fewer than eight (8) outputs per board/control module.
8. Communications line supervision.

## 2.3 PORTAL DEVICES

A. Credential Readers:

1. Manufacturers:

    a. HID Prox

2. Multi-Technology:

    a. Compatible with 125 kHz proximity, 13.56 MHz Contactless Smart card, MIFARE, DESFire EV1.
    b. Backwards compatibility with legacy 13.56 MHz Contactless Smart cards and 125 kHz proximity access control formats, including 26, 32, 35, 37 bit as well as HID Corporate 1000 format.

3. Card readers manufactured specifically for non-access control applications shall not be acceptable.
4. FIPS 201 compliant.
5. Provide compatibility with most access control systems by providing card data outputs in Wiegand and Clock/Data.
6. Allow the firmware to be updated in the field without the need to remove the reader from the wall.
7. Secure mounting methods using tamper resistant screws.
8. An audio beeper that provides various tones to signify access granted, access denied, power up and diagnostics.
9. Tri-color LED or three (3) LEDs for visual notification of various conditions.
10. ISO1443A, 1443B and 15693 compliant.
11. The ability to transmit an alarm from an integrated tamper switch.
12. Support dual authentication of identity through the combined use of access badge and personal identification number (PIN) on an integrated 12 key keypad.
13. PBT polymer or UL94 polycarbonate.
14. Read Range:

    a. Using 125 kHz cards or 13.56 MHz Contactless Smart cards, minimum operational read range shall not be less than one (1) inch after the readers have been installed in their permanent locations.

15. Operational voltage of 5-16 VDC, with operating temperature range of -31° F to 150° F, and rated for outdoor use with a minimum rating of IP55.
16. Readers and credentials shall be compatible with each other and shall be from the same manufacturer.
17. Available in sizes to be mounted to a standard single gang box or to a mullion. Maximum sizes:

    a. Single gang box mount, with or without keypad: 5.1" x 3.1" x 1.1"
    b. Mullion mount: 6.0" x 1.9" x 0.9"

18. Lifetime warranty against defects in material and workmanship.

B. Cable:

1. Composite cable is not allowed. Utilize cables rated for wet environments for all cables that are routed underground.

    a. Reader: 18 AWG, 3 pair, stranded, overall shield. Shield shall be grounded at control panel end only.
    b. Door Position Switch: 22 AWG, 2 conductor, stranded.
    c. Request to Exit Button: 22 AWG, 4 conductor, stranded.

d. Lock: Minimum 18 AWG, 4 conductor, stranded.

1) Lock may require heavier gauge cable depending on door hardware solution power requirements. Contractor shall coordinate with door hardware provider for higher current devices and shall adjust the gauge of the lock cable accordingly.

e. Auxiliary Devices: Refer to plans for requirements.

C. Intercom: Utilize a desk mounted 2N Indoor View series master station in the Guard Shack and surface mounted 2N IP Solo video door stations at each location of each gate where video intercoms are indicated. Configure video intercoms so that gate release is included and can be performed from a master station to the applicable gate from which a call is placed.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

A. Comply with the manufacturer's instructions and recommendations for installation of all products.

B. Provide all system wiring between all components as shown on the project drawings or as directed by the manufacturer, whichever is the more stringent requirement.

C. Network controllers shall be installed where shown in the Guard Shack drawings. . Mount controllers in a location coordinated with other utilities. Provide dedicated +120 VAC emergency power circuit to the controllers using #12 AWG wiring from the nearest emergency electrical power distribution panel board.

D. Provide wiring and connection to all electrified locking hardware devices. Complete programming and testing of all electrified locking hardware devices.

E. Install all credential readers in accordance with manufacturer's instructions where shown on floor plans, in accordance with the Americans with Disabilities Act (ADA) requirements. Provide wiring and connection to all credential readers. Complete programming, adjustment, and testing of all credential readers.

F. Provide wiring and connection to all hardware request-to-exit devices that are integral to electrified door hardware. Provide wiring and connection to all request-to-exit motion detectors. Complete programming and testing of all integrated request-to-exit devices. Where possible, avoid false activation by persons passing by but not exiting.

G. Install all request-to-exit motion detectors in accordance with manufacturer's instructions directly above the door frame, centered on the door opening. Adjust sensitivity to permit operation on motion of persons within 2'-0" of door. Avoid false activation by persons passing by where possible.

H. Install all request-to-exit pushbuttons in accordance with manufacturer's instructions where shown on floor plans, in accordance with the Americans with Disabilities Act (ADA) requirements. Provide wiring and connection to all request-to-exit pushbuttons. Complete programming, adjustment and testing of all request-to-exit pushbuttons.

I. Install all door alarm contacts in accordance with manufacturer's instructions either recessed in the door header or surface mounted as required. Provide wiring and connection to door alarm contact devices. Complete programming, adjustment and testing of all door alarm contacts.

J. Install all duress switches in accordance with manufacturer's instructions, surface mounted under counter in locations shown on plans. Verify exact mounting location with Owner prior to cable rough-in or installation. For hard wired devices, provide wiring and connection to duress switch devices. For wireless duress switch devices, mount receivers in accessible locations. Complete programming, adjustment and testing of all duress switch devices. Wireless testing shall include signal reception when transmitter is in all sections of the area in which it will be used in normal operations.

K. Install, wire, configure, adjust, program and test all access control system servers, workstations, badging workstations and other user interfaces.

L. Install, wire, configure, adjust, program, and test all specified interfaces and integrations between access control and other systems. Contractor shall provide all cabling, wiring, terminations, components, devices, accessories, hardware, software and other material and accessories necessary to complete all specified interfaces and integrations and make them fully operational.

M. All low voltage access control cabling shall be routed as shown on the drawings.

N. Electronic access control system cabling shall not be spliced.

O. Flexible conduit is not allowed except with prior approval. Refer to Section 260533 for conduit requirements. Refer to Section 270528 for cable hanger and support requirements.

P. Each cable shall be appropriately identified, as defined on the record documents, at each end's termination point using pressure sensitive label strips.

Q. The conductor color code used in terminating system cabling at system devices shall remain consistent from device to device for each unique device type throughout the project.

R. Install and tighten all connectors in accordance with manufacturer's instructions using the appropriately designed tools recommended by the manufacturer for that purpose. Do not strip or damage connectors, terminals, or equipment by over tightening termination fasteners.

S. Grounding and Bonding Requirements:

1. Provide a minimum of 6AWG bonding conductor from each electronic access control system control panel, power supply and surge suppression device to the nearest telecommunications grounding busbar. Actual bonding conductor size is determined by its length; refer to Section 270526 for grounding and bonding conductor sizing criteria.
2. Cables containing shields shall not have the shields grounded at conduits, boxes, racks, etc. Ground the shield only at the control panel end.

T. Coordinate installation of all devices with other trades and utilities in the vicinity.

U. Cabling shall be plenum rated when installed outside conduit in plenum ceilings.

3.2 FIELD QUALITY CONTROL

A. Where these specifications require a product or assembly without the use of a brand or trade name, provide a product that meets the requirements of the specifications as supplied and warranted by the system manufacturer. If the product or assembly is not available from the system vendor, provide product or assembly as recommended by the system manufacturer.

B. Periodic observations will be performed during construction to verify compliance with the requirements of the specifications. These services do not relieve the Contractor of responsibility for compliance with the contract documents.

C. Furnish products listed and classified by Underwriters Laboratories, Inc. (UL) as suitable for purpose specified and indicated.

3.3 MANUFACTURER AND INTEGRATOR COMBINED FIELD SERVICES

A. Installation shall be performed by a factory-trained and certified Contractor.

B. The Contractor shall provide a comprehensive, site-specific customer planning guide for the system. The Contractor shall conduct conference(s) with the Owner prior to any installation to discuss the programming and configuration options of the system and the planning guide.

C. The Contractor shall include labor for all planning and all programming activities required to implement the Owner's access policies for each system point and each operator and administrator. Any software programmable access policy, within the bounds of the hardware specified, shall be included.

D. It shall be the responsibility of the Contractor to provide a complete, functional system as described by the design documents. These responsibilities include:

1. Complete hardware setup, installation, wiring and software configuration of the system server, all workstations and all peripheral hardware.
2. Complete programming of all operator software in accordance with the Owner's access policies determined by the planning guide conference(s).
3. Manual data entry of all cardholders based on a printed roster provided by the Owner.
4. Configuration of the network software for operation of the system. Templates shall be established representative of all user access right levels.
5. Programming of all cardholder database screens including cardholder information screens, report templates, queries, etc. Encoding of all credentials shall be included.
6. Programming of all custom graphic GUI screens including devices.
7. Complete system diagnostic verification.

E. The SMS Installation Contractor shall be present at meetings to coordinate all door hardware requirements with the door hardware vendor.

3.4 SYSTEM DOCUMENTATION

A. Complete documentation shall be provided for the system. The documentation shall describe:

1. All operational parameters of the system
2. Complete documentation of programming and access policies
3. Complete operating instructions for all hardware and software

B. The following sections shall be provided in the system documentation:

1. System Administrator Manual: Provides an overview and a step-by-step guide and instructions detailing all system administrator responsibilities and functions.
2. User Manual: A step-by-step guide and instructions detailing all system user functions.
3. Alarm Monitoring Manual: A step-by-step guide and instructions detailing all alarm monitoring system functions and responsibilities.
4. Technical Maintenance Manual: A comprehensive document providing all maintenance actions, system testing schedules, troubleshooting flowcharts, functional system layout, wiring diagrams, block diagrams and schematic diagrams.
5. Refer to Part 1 for details.

3.5 SYSTEM TRAINING

A. All labor and materials required for on-site system training by a certified representative of the system manufacturer shall be provided. Training shall be conducted at the project site using the project equipment.

B. Coordinate training days and times with Owner.

C. Provide a training outline agenda describing the subject matter and the recommended audience for each topic.

D. At a minimum, the following training shall be conducted:

1. System Administrators: A course detailing the system functions, configurations and operations. Provide training on all aspects of the system including data import/export, report, cardholder management, system workstation and server configuration and maintenance, software and hardware configuration and peripheral hardware operation.
2. Operators: A course detailing the operational features of all aspects of the user interface. Topics shall include alarm monitoring functions, reports, error handling, alarm handling, output relay control, operation of integrated systems interface, and general overview of the report hardware.
3. GUI Editing: Conduct detailed training on using the GUI editing software. Topics shall include the editing of existing graphical maps and the creation of new graphical maps.

E. Minimum on-site training times shall be:

1. System Administrators: Eight (8) hours.
2. Operators: Eight (8) hours.
3. GUI Editing: Eight (8) hours.
4. Integrations: Eight (8) hours.
5. Badging System: Eight (8) hours.
6. Four (4) additional hours of training each quarter for the 12-month period of the project warranty shall be provided. A minimum of half of this additional training shall be on site; the remainder may be support by telephone or email. Contractor shall document this training, including dates performed, trainer and Owner representative(s) present. Each phone call or email shall be documented as a minimum of 15 minutes duration.
7. Operators and administrators are present 24 hours a day, 7 days a week. Contractor shall coordinate with Owner to provide training for all appropriate personnel, which may require Contractor to be present on site during non-business hours. Therefore, the hours in any or all categories defined above may be divided among the various shifts.

3.6 SYSTEM ACCEPTANCE

A. The SMS vendor shall submit for review a formal acceptance and system checkout program. The system checkout procedures shall include all system components, software and functionality. The Contractor shall perform the tests and document all results under the supervision of the manufacturer's systems engineer.

B. All operational scenarios, as defined by the customer planning guide, shall be tested to simulate the actual use of the system in the normal operating environment. The successful completion of these operational scenarios shall be documented.

C. The system shall not be accepted until all requirements of system documentation and training have been completed.

END OF SECTION

**SECTION 282300**
**VIDEO SURVEILLANCE**

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Video Printer.

B. Equipment Racks.

1.2 RELATED WORK

A. Section 260533 - Conduit and Boxes

B. Section 260513 - Wire and Cable

C. Section 271500 - Horizontal Cabling Requirements

D. Section 280500 - Basic Electronic Safety and Security System Requirements

E. Section 281300 - Electronic Access Control

1.3 QUALITY ASSURANCE

A. NVMS Software Developer (Manufacturer): The NVMS system shall be a single-source manufacturer such that the single manufacturer develops, supports, and warranties the NVMS software solution. The manufacturer shall have three (3) years documented experience.

1. The software developer shall be an active ONVIF member with current available product recognized by ONVIF as a Conformant Product.

B. Integrator/Installer (Contractor): The Contractor must be a NVMS-certified installation, service, and support company specializing in the selected manufacturer's product, with demonstrated prior experience with the selected manufacturer's system installation and programming.

1. The installer shall have in-house a Manufacturer Certified technician for the purposes of server deployment, software configuration, and system integration.
2. The integrator must have local service representatives within 90 miles of the project site.

1.4 REFERENCES

A. NFPA 70 - National Electrical Code

B. Electronic Industries Association (EIA) Video Surveillance Equipment Standards

C. UL 2044 - Standard for Commercial Closed Circuit Television Equipment

D. UL 3044 - Standard for Safety for Surveillance Closed Circuit Television Equipment

1.5 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 280500.

B. Product Data Submittal: Provide manufacturer's technical product specification sheet for each individual component type. Submitted data shall show the following:

1. Compliance with each requirement of these documents.
2. All component options and accessories specific to this project.
3. Electrical power consumption rating and voltage.
4. Heat generation for all power consuming devices.
5. All required wiring shall be identified.
6. Number of IP addresses that will be required from the Owner's Information Systems Department.
7. Statement of Acceptability of Designed Server:

    a. If the Contractor agrees that the server(s) designed and described herein is acceptable for the chosen manufacturer's solution and meets the demand of the application, this shall be stated in writing and submitted as part of the shop drawing submittal.
    b. If the Contractor does not agree that the server(s) designed and described herein is acceptable for the chosen manufacturer's solution, Contractor shall itemize the quantity, technical specifications, and capacities of the servers required to support the functionality and device quantities required by the project drawings. Indicate the capacity utilization factor for each server.
    c. Contractor's bid shall include any required changes in server(s) capacity.

8. Calculation for storage required using the criteria contained in the project drawings.
9. Provide annual cost and all terms and conditions for the NVMS Software Maintenance Agreement. Include all additional costs and terms and conditions for any Annual Service Contracts provided by the Contractor for all services that are not included in the Software Maintenance Agreement.

C. System Drawings: Project-specific system CAD drawings shall be provided as follows:

1. Provide a system block diagram noting system components and interconnection between components. The interconnection of components shall clearly indicate all wiring required in the system. When multiple pieces of equipment are required in the exact same configuration (e.g., multiple identical cameras), the diagram may show one device and refer to the others as "typical" of the device shown.

D. Sample format of site specific programming guides to be used for system planning/programming conference with Owner.

E. Meeting agenda for planning/programming conference required in Part 3 of this specification.

F. Submit detailed description of Owner training to be conducted at project end, including specific training time.

G. Quality Assurance:

1. Provide materials documenting experience requirements of the manufacturer and installing contractor.

2. Provide system checkout test procedure to be performed at acceptance. Test procedures shall include all external alarm events.

H. Coordination Drawings:

1. Include all ceiling-mounted devices in composite electronic coordination files. Refer to Section 280500 for coordination drawing requirements.

1.6 SYSTEM DESCRIPTION

A. This specification section describes the expansion of an existing Milestone Professional+ system that includes a Lenel OnGuard plug-in. Provide full licensing for each camera that is being added to this existing system and ensure that they will also be configured to be fully on-line with the existing system including with the Lenel On Guard plug-ins.

B. Performance Statement: This specification section and the accompanying project drawings are performance based, describing the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment constraints described and the performance required of the system as presented in these documents, the vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.

C. Refer to the project drawings for model numbers for the Basis of Design for all equipment.

1.7 OWNER-SUPPLIED MATERIALS

A. Existing Milestone system.

1.8 LICENSING REQUIREMENTS

A. All licenses required for system operation shall be included in the Contractor's bid. Licenses shall include, but not be limited to, server and workstation software, cameras, encoders/decoders, and any other licensing that is required by the manufacturer for operation of any system component.

1. Camera licenses shall be provided for all new cameras and items added to the existing system.
2. If the manufacturer requires the purchase of a block of licenses (instead of selling a single license for a single device) the Contractor's bid shall include the appropriate block of licenses that accommodates all device quantities described by the project drawings.

3. The system described herein is an extension of an existing Milestone Professional+ system. All licensing shall be new for each new device installed into the existing system. Without the Owner's written approval the Contractor shall not use any of the Owner's existing (spare) licenses for any new components.

1.9 PROJECT RECORD DOCUMENTS

A. Submit documents under the provisions of Section 280500.

B. Provide final system block diagram showing any deviations from shop drawing submittal.

C. Provide statement that system checkout test, as outlined in shop drawing submittal, is complete and satisfactory.

D. Provide final camera type and camera requirements schedules documenting all changes made during construction.

E. Warranty: Submit written warranty and complete all Owner registration forms.

F. Complete all operation and maintenance manuals as described below.

1.10 OPERATION AND MAINTENANCE DATA

A. Submit documents under the provisions of Section 280500.

B. Manuals: Final copies of the manuals shall be delivered after completing the installation test. Each manual's contents shall be identified on the cover. The manual shall include names, addresses, and telephone numbers of the contractor responsible for the installation and maintenance of the system and the manufacturer for each piece of equipment for each system. The manuals shall have a table of contents and labeled sections. The final copies delivered after completion of the installation test shall include all modifications made during installation, checkout, and acceptance testing. The manuals shall consist of the following:

1. Hardware Manual: The manual shall describe all equipment furnished including:

    a. General description and specifications.
    b. Installation and check out procedures.
    c. System layout drawings and schematics.
    d. Alignment and calibration procedures.

2. Software Manual: The software manual shall describe the functions of all software and shall include all other information necessary to enable proper installation, testing, and operation. The manual shall include:

    a. Definition of terms and functions.
    b. System use and application software.
    c. Graphical user interface use.
    d. Reports generation.

3. Operator's Manual: The operator's manual shall fully explain all procedures and instructions for the operation of the system including:

    a. Computers and peripherals.
    b. System startup and shutdown procedures.
    c. Use of system.
    d. Recovery and restart procedures.
    e. Use of report generator and generation of reports.
    f. Data entry.
    g. Operator commands.
    h. Alarm messages.
    i. System permissions functions and requirements.

4. Maintenance Manual: The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

1.11 WARRANTY

A. Unless otherwise noted, provide warranty for one (1) year after date of final acceptance by the owner and SCO as identified in 280500.

B. Onsite Work During Warranty Period: This work shall be included in the Contractor's bid and performed during regular working hours, Monday through Friday.

1. Inspections: Perform one minor inspection six-months after Substantial Completion and one major inspection prior to the expiration of the warranty.
2. Minor Inspections: Inspections shall include:

    a. Visual checks and operational tests of all equipment, field hardware, and electrical and mechanical controls.
    b. Mechanical adjustments if required on any mechanical or electromechanical devices.
    c. Install all available software updates, patches, or bug fixes available from the NVMS manufacturer.

3. Major Inspections: Inspections shall include all work described under paragraph Minor Inspections and the following work:

    a. Clean all equipment, including interior and exterior surfaces.
    b. Perform diagnostics on all equipment, including all system software diagnostics, and correct all diagnosed problems.
    c. Adjust all camera alignments that have become out of alignment from their documented position at Substantial Completion.
    d. Install all available software updates, patches, or bug fixes available from the NVMS manufacturer.
    e. All warrantable system deficiencies during the Major Inspection shall be remedied under warranty at no cost to the Owner.

C. Operation: Upon the performance of any scheduled adjustments or repairs, verify operation of the NVMS system.

D. Emergency Service: The Owner will initiate service calls when the NVMS system is not functioning properly. Qualified personnel shall be available to provide service within the distance defined above. The Owner shall be furnished with telephone number(s) where service personnel can be reached 24/7/365.

E. Records and Logs: Keep records and logs of each task completed under warranty. The log shall contain all initial settings upon Substantial Completion. Complete logs shall be kept and shall be available for review on site, demonstrating that planned and systematic adjustments and repairs have been accomplished for the NVMS system.

F. Work Requests: Record each service call request on a service request form. The form shall include the model and serial number identifying the component involved, its location, date and time the call was received, specific nature of trouble, names of service personnel assigned to the task, instructions describing what must be done, the amount and nature of the materials used, the time and date work started, and the time and date of completion. Deliver a record of the work performed within five (5) days after work is accomplished.

G. System Modifications: Make any recommendations for system modification in writing to the Owner. No system modifications shall be made without prior approval of the Owner. Any modifications made to the system shall be incorporated into the operations and maintenance manuals, and other documentation affected. To the fullest extent possible, the Owner shall be provided with electronic restorable versions of all configurations prior to the modifications being made.

H. Software: Provide all software updates during the period of the warranty and verify operation in the system. These updates shall be accomplished in a timely manner, fully coordinated with NVMS system operators, shall include training for the new changes/features enabled, and shall be incorporated into the operations and maintenance manuals, and software documentation.

I. Refer to the individual product sections for further warranty requirements of individual system components.

1.12 SOFTWARE MAINTENANCE AGREEMENT/ANNUAL SERVICE CONTRACT

A. Provide annual cost and all terms and conditions for the Software Maintenance Agreement (SMA) provided by the NVMS manufacturer and/or the Contractor.

B. The Owner will enter into a contract directly with the vendor. This specification is not a contract between the Owner and the vendor to perform these services. The cost and terms of the SMA ***may*** be used by the Owner for NVMS solution selection.

PART 2 - PRODUCTS

2.1 NETWORK VIDEO MANAGEMENT SYSTEM - GENERAL REQUIREMENTS

A. Expand the owner's existing Milestone Professional+ system.

B. ONVIF Compliance:

1. The NVMS system shall match the ONVIF profile of the specified cameras.

C. The NVMS system shall consist of the following hardware/software components:

1. Software:

a. Software
b. Recording services, archival services, and storage management
c. Configuration tools

2. System storage (utilize existing).
3. Cameras and related hardware as specified on the project drawings.
4. Hardware: (utilize existing).

5. Network electronics and related hardware and software as specified on the project drawings.

D. Video from any camera on the system (on the LAN, WAN or Internet) shall be capable of being viewed from single or multiple workstations simultaneously at any time, limited only by network bandwidth.

E. The NVMS shall support simultaneous displaying of live (30 fps) video of a minimum of 16 cameras while the video monitoring screen is configured in a 16-camera split configuration. In no case shall the frame rate of the camera be required to be restricted to less than 30 fps to display a 16-camera split view.

F. Simultaneous display and recording of every camera shall be supported with independent user-adjustable frame rates that can be set differently for the display stream and the recording stream. These independent settings shall be unique per camera.

G. The NVMS monitoring software shall support any combination of recorded and live video in any multiple camera split view, including viewing recorded video and live video from the same camera.

H. The NVMS shall support continuous recording and event-based recording simultaneously. This shall be capable of being set on a per camera basis.

I. Viewing of video (live and recorded) shall be possible from client software from any client hardware that is connected to the security LAN/WAN or Internet (through appropriate firewalls). In addition, system administration shall be permitted from remote client hardware.

2.2 NVMS MANUFACTURERS

A. Basis of Design:

1. Expansion of existing Milestone Professional+ with Lenel OnGuard plug-in.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with the manufacturer's instructions and recommendations for installation of all products.

B. Provide all system wiring between all components as shown on the project drawings or as directed by the manufacturer, whichever is the more stringent requirement.

C. Mount all cameras in the approximate locations shown on the drawings. Coordinate installation with other trades and utilities in the vicinity. Cameras containing fixed lenses, moved by more than 1'-0" from their location shown on the drawings, shall have a new lens calculation performed by the Contractor. Provide Architect/Engineer with results of lens calculation before proceeding with installation.

D. Coordinate with Owner's IT Department to acquire network connections as well as any network configuration information, such as IP numbers, that will be required to connect NVMS to Owner network (if applicable).

E. Provide all low voltage and +120 VAC power to all devices as required for proper system operation. Refer to Division 26 specification sections for further requirements.

F. All low voltage security wiring shall be routed with other low voltage cabling and shall use the cable tray to the fullest extent possible.

G. Cabling shall be plenum rated when installed outside of conduit in plenum ceilings.

3.2 FIELD QUALITY CONTROL

A. Where these specifications require a product or assembly without the use of a brand or trade name, provide a product that meets the requirements of the specifications as supplied and warranted by the system vendor. If the product or assembly is not available from the system vendor, provide product or assembly as recommended by the system vendor.

B. Periodic observations will be performed during construction to verify compliance with the requirements of the specifications. These services do not relieve the Contractor of responsibility for compliance with the project drawings.

C. It shall be the Contractor's responsibility to correct all inadequate picture quality issues prior to acceptance of the system.

3.3 MANUFACTURER'S FIELD SERVICES

A. Installation shall be performed by a factory-trained and certified Contractor.

1. Provide a comprehensive, site-specific customer planning guide for the system. Conduct a conference with the Owner prior to any installation to discuss the programming options of the system and the planning guide. The result of this planning guide shall be the determination of the system options for each device and for the software.

B. Include labor for all planning and all programming activities required to implement the Owner's operational preferences for each device and software. Any software programmable option, within the bounds of the capabilities of the hardware specified, shall be included.

C. Provide a complete, functional system as described by the project drawings. These responsibilities include:

1. Complete hardware setup, installation, wiring, and software configuration of the system, including all remote operator locations and all peripheral hardware.
2. Complete programming of all hardware and software options in accordance with the Owner's preferences as determined by the planning guide conference.
3. Programming of all custom graphic GUI screens including devices.
4. Complete system diagnostic verification.

D. Provide an authorized manufacturer representative to commission the system and ensure that facility-wide standards and project setup procedures are adhered to.

3.4 SYSTEM ACCEPTANCE

A. Submit for review a formal acceptance and system checkout program. The system checkout procedures shall include all system components and software. Perform the tests and document all results under the supervision of the manufacturer's system engineer.

B. All operational scenarios, as defined by the customer planning guide, shall be tested to simulate the actual use of the system in the normal operating environment. The successful completion of these operational scenarios shall be documented.

3.5 SYSTEM DOCUMENTATION

A. Complete documentation shall be provided for the system. The documentation shall describe:

1. All operational parameters of the system.
2. Complete documentation of all programming and options.
3. Complete operating instructions for all hardware and software.

B. The following sections shall be provided in the system documentation:

1. System Administrator Manual: Provides an overview and a step-by-step guide and instructions detailing all system administrator responsibilities and functions.
2. User Manual: A step-by-step guide and instructions detailing all system user functions.
3. Technical Maintenance Manual: A comprehensive document providing all maintenance actions, system testing schedules, troubleshooting flowcharts, functional system layout, wiring diagrams, block diagrams, and schematic diagrams.

3.6 SYSTEM TRAINING

A. All labor and materials required for on-site system training by a certified representative of the system manufacturer shall be provided. Training shall be conducted at the project site using the project equipment.

B. Provide two weeks advanced notice of training to the Owner.

C. Provide a training outline agenda describing the subject matter and the recommended audience for each topic.

D. At a minimum, the following training shall be conducted:

1. System Administrators: A course detailing the system functions and operations. Provide configuration training on all aspects of the system.
2. Users: Provide a detailed course outlining the operational features of all aspects of the user interface. Topics shall include alarm monitoring functions, reports, error handling, alarm handling, output relay control, and general overview of the report hardware.
3. GUI Editing: Conduct detailed training on using the GUI editing software. Topics shall include the editing of existing graphical maps and the creation of new graphical maps.

E. Minimum on-site training times shall be:

1. System Administrators: Three (3) days.

2. Users: One (1) day.

END OF SECTION

## PART 1 – GENERAL

### 1.01 WORK INCLUDED

The contractor shall provide all labor, materials and appurtenances necessary for installation of the anti-ram barrier system defined herein at (specify project site).

### 1.02 RELATED WORK

Section 02 20 00 - Earthwork
Section 03 30 00 - Concrete

### 1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total anti-ram cable barrier system similar to the Ameristar® Stalwart IS® Gauntlet M30/P2 design. The system shall include all components (i.e., cables, supports, panels, I-beam posts, bollards and hardware) required.

### 1.04 QUALITY ASSURANCE

The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

### 1.05 REFERENCES

- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
- ASTM A500/A500M – Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
- ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus
- ASTM D523 - Test Method for Specular Gloss
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint
- ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
- ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test
- ASTM F2656 – Standard Test Method for Vehicle Crash Testing of Perimeter Barriers
- Federal Specification RR-W-410E / Wire Rope and Strand
- ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets

### 1.06 SUBMITTAL

The manufacturer’s literature shall be submitted prior to installation.

### 1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

## PART 2 – MATERIALS

### 2.01 MANUFACTURER

**A.** The anti-ram cable barrier system shall conform to the selected manufacturer's testing and design standards. This system shall be tested and certified to meet ASTM F2656, Impact Condition Designation M30, Penetration Rating P1, with capability of stopping a 15,000 lb vehicle traveling at speeds up to 30mph.

**B.** The integrated steel ornamental pale high security fence panel shall conform to the selected manufacturer's testing and design standards.

**C.** The entire anti-ram barrier system, and all associated panels, I-beam posts, bollards, gates, accessories, fittings, and fasteners shall be obtained from a single source.

### 2.02 MATERIAL

**A.** Steel material for cable-supporting framework (i.e., corrugated pales, rails and I-beam posts) shall be galvanized prior to forming and shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft$^2$ (276 g/m$^2$), Coating Designation G-90.

**B.** Steel material for cable-anchoring bollard posts shall conform to the requirements of ASTM A500/A500M, with a minimum yield strength of 46,000 psi (315 MPa).

**C.** Material for corrugated pales shall be a nominal 2.75" x .75" x 14 Ga. The cross-sectional shape of the rails shall conform to the manufacturer's rail design a nominal 2" x 2" x 11 Ga. Pre-drilled holes in the system's rail shall be spaced 6" on center, providing a pale airspace of no greater than 3.25". Tamperproof fasteners shall be used to fasten each pale to panel rail at every intersection (cable rails do not require pale to rail fasteners). Posts shall conform to the manufacturer's design with a nominal 3" x 2.75" x 12 Ga.

**D.** If applicable - Material for privacy screening shall be 18ga. preformed slats, providing complete screening coverage between pales and at pale to post connections. Privacy screening shall provide screening from top rail to bottom rail, and be capable of traversing terrain without impeding the raking capabilities of the fencing panel.

**E.** The cable material shall be 1" diameter structural wire strand conforming to ASTM A586, Grade 2, Class A coating throughout, with a breaking strength of 159 tons. Cables shall be equipped with threaded studs swaged to a holding strength equivalent to cable breaking strength.

### 2.03 FABRICATION

**A.** Pales, rails, I-beam posts and bollards shall be pre-cut to specified lengths. Rails shall be pre-punched to accept tamperproof security fasteners. I-beam post flange shall be pre-punched to accept rail to post attachment. I-beam post web shall be punched providing a clear opening for interior of rails to align throughout the entire system for affixing conduit, video cabling, IDS wiring, and other components for a complete systems integration. Rails shall be attached to post flange providing a bracket-less design at each intermediate post.

**B.** The manufactured framework, I-beam posts and bollards shall be subjected to the thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash, an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be

black. The stratification-coated framework and I-beam posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

| Table 1 – Coating Performance Requirements | | |
|---|---|---|
| Quality Characteristics | ASTM Test Method | Performance Requirements |
| Adhesion | D3359 – Method B | Adhesion (Retention of Coating) over 90% of test area (Tape and knife test). |
| Corrosion Resistance | B117, D714 & D1654 | Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters). |
| Impact Resistance | D2794 | Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball). |
| Weathering Resistance | D822 D2244, D523 (60˚ Method) | Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units). |

## PART 3 - EXECUTION

### 3.01 PREPARATION

**A.** The purchaser shall indicate the location of barrier line with suitable stakes. Stake intervals shall not exceed 500 ft or line of sight.

**B.** The purchaser shall indicate all underground utility locations, USC&G benchmarks, property monuments, and other underground structures.

**C.** Before installing the anti-ram cable system, all necessary site clearing and grading shall be performed by the purchaser. An adequate clearance on both sides of the cable barrier line is required.

### 3.02 INSTALLATION

The barrier shall be installed per the selected manufacturer's instructions. Fence panels, brackets, cabling, and fasteners shall be installed according to installation instructions and drawings. I-beam posts and bollards shall be installed per product drawings and installation instructions. The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer unless otherwise specified by the product drawings or installation instructions.

### 3.03 FENCE INSTALLATION MAINTENANCE

When cutting/drilling fence system components adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Spray cans or paint pens shall be used to prime and finish exposed surfaces as approved by the selected manufacturer; it is recommended that paint pens be used to prevent overspray. Use of non-manufacturer approved parts or components will negate the manufactures' warranty.

### 3.04 CLEANING

The contractor shall clean the jobsite thoroughly to ensure it is left neat and free of any debris caused by the installation of the cable system.