BID ADDENDUM NO. 3

CONSTRUCTION
NEW GEORGE WYTHE HIGH SCHOOL
(RHSA)
(a.k.a. RICHMOND HIGH SCHOOL FOR THE ARTS)
RICHMOND PUBLIC SCHOOLS

IFB # 23 – 7061 – 11
RRMM Project # 21310 – 00

January 4, 2024
Architect of Record:
RRMM, Architects, PC
1317 Executive Boulevard
Suite 200
Chesapeake, VA 23320
Phone: 757-213-6350

This Addendum forms a part of the Construction Documents and modifies the Project Manual dated November 14, 2023, and Construction Drawings dated November 14, 2023.

The information in this Addendum supersedes any contradictory information or omission set forth in the Contract Documents.

Where any component of the Contract Documents is modified or deleted by this Addendum, the unaltered components of that Section, Article, or Drawing shall remain in effect.

Acknowledge receipt of this Addendum by inserting its number and date in the Proposal Form. Failure to do so may subject Bidder to disqualification.

Bid Addendum No. 3 consists of a one (1) page cover sheet, ten (10) pages of fifty-five pre-bid question responses, five (5) pages of Addendum No. 3 narrative, fifty (50) pages of five revised or added specification sections, nine (9) revised sheets, and three (3) pages of the Plan holders list for a total of **seventy-eight (78) pages.**

New George Wythe HS (RHSA) Bidder Questions

1. **The Building Automation System manufacturers are listed as Siemens Industry, Inc or the local Honeywell Building Solutions Factory Office. After discussing with local affiliates of both Siemens and Honeywell, these offices often do not provide pricing. Can certified installers of these systems be used to provide the Building Automation System for this project? Or, can sales contacts be provided that the County/School System use to purchase new systems to ensure all HVAC subs are able to obtain competitive pricing?**
   RESPONSE: Contractor to provide controls based on acceptable manufacturers listed in specification 230900. The point of contact for each of the authorized controls contractors is as follows:

   Siemens:
   Tammy R. Shifflett
   Account Executive
   Building Automation & Control
   SIEMENS Industry, Inc.
   Smart Infrastructure Division
   Tel: 804-621-3047

   Honeywell Factory Office:
   Joyce A. Coleburn
   Honeywell
   Sr Account Manager
   3951 Westerre Parkway, Suite 350
   Richmond, VA 23233
   434-298-7443
2. **Spec 123623.13 - Are 1-1/4" thick laminate countertops acceptable? This is the same total thickness of the solid surface tops.**
   RESPONSE: No, provide counter tops as specified and detailed on Drawings.
3. **Spec 123623.13 - Are indigenous materials actually required?**
   RESPONSE: Yes, provide materials as specified to satisfy LEED requirements.
4. **Spec 123623.13 - Please confirm MDF core is required.**
   RESPONSE: Yes, as indicated in specification.
5. **Spec 064116 - Calls for regional materials manufactured/harvested within 100 miles of project site. Is this actually required?**
   RESPONSE: Yes, provide materials as specified to satisfy LEED requirements.
6. **Spec 064116 - Please confirm that the costs associated with FSC wood are required for this project.**
   RESPONSE: Provide FSC wood as specified to satisfy LEED requirements.
7. **Spec 064116 - Calls for Vertical Surfaces to be HGS (horizontal grade). Can the vertical surfaces be VGS (vertical grade)?**
   RESPONSE: No, provide materials as specified.
8. **Spec 064116 - Spec calls for dead bolt locks. Are standard disc locks acceptable?**
   RESPONSE: No, provide locks as specified.
9. **Spec 064116 - Spec calls for surface mounted shelf standards. Would industry standard line boring be acceptable? The lab casework has line boring.**
   RESPONSE: No, provide shelf standards as specified.
10. **Spec 064116 - Please confirm MDF core is required.**
    RESPONSE: Yes, provide materials as specified.

11. **Spec 064013 - This specification notes Thermally Modified Ash for the site bench wood slats. We are being told that Ash is not available as the timber base has been almost wiped out due to infestation of the Emerald Ash Borer. Is there an alternate species that can be used?**
    RESPONSE: Please use black locust (Robinia pseudoacacia) as an alternate to Ash.
12. **E-501 through E-601; E-702; E-704 - Upon review of the electrical documents, it appears the panel schedule for panel HAF noted on sheet E-702 for Athletic Field Lighting scope is not provided on any of the panel schedules nor on the riser diagram sheet E-601. Feeder sizing, breaker sizing, nor pathway sizing is provided on the documents for this scope. Please provide updated documents to incorporate.**
    RESPONSE: The electrical circuitry to all site light fixtures is shown on E-701. The circuitry to all athletic field lighting and press box is shown on E-702. The circuitry to the field houses is shown on sheets E-119, E-211, E-310, E-411. The panelboards for the field houses are shown on sheets E-503 and E-507. The feeders to the field house panels are shown on sheet E-601. Panel schedule HAF and the associated feeder will be added to the drawings as part of this Addendum.
13. **To get a better response and give more of our Steel/Metal Subcontractors a chance to bid this project, can you please waive/remove the Sophisticated Paint Endorsement requirement in the specs?**
    RESPONSE: Spec section 051213 subparagraph 1.7.C and section 051200 subparagraph 1.7.C do not state the explicit use of Sophisticated Paint Endorsement. Either Sophisticated Paint Endorsement or SSPC-QP 3 can be used on this project.
14. **Can you please provide a column schedule for this project?**
    RESPONSE: A column schedule will not be provided. All relevant information pertaining to columns is located on the plans and typical details.
15. **May we exclude composite cleaning? We will include both daily and final cleaning for a small window treatment crew.**
    RESPONSE: Provide cleaning as specified and per manufacturer's recommendation.
16. **Specification 122413**
    - **1.1.B.1. specifies, "Rough Carpentry." Will Division 06 provide wood/blocking for all installed roller shades?**
      RESPONSE: Yes, coordinate with "Rough Carpentry" specification for roller shade wood/blocking requirements.
17. **May we exclude installation of roller shades into (concrete, masonry, steel) substrates?**
    RESPONSE: No, provide roller shades in locations as indicated on Drawings.
18. **Per the site walk thru yesterday, can we receive a copy of the as-built drawings for the existing school? After walking the boiler room space and mechanical tunnels, it's very difficult to price the amount of concrete to be removed from these areas. I have included pictures of these locations but the extent of the tunnels may be more than what we can see (because of tight congested spaces). Also, it is difficult to tell which sections of the building have cast-in-place concrete roof and/or floor caps and which are steel frame.**

The pricing to remove a concrete frame structure is much different than steel frame. The as-builts would help clear this up.

RESPONSE: As-Built reference drawings can be downloaded from the RRMM Info Exchange at the following link: https://infoexchange.rrmm.com/UserWeb/Login/Login.aspx?v=0 . This work is NOT part of this proposal, it is provided for information only. **The Architect makes no certification to the accuracy or completeness of the drawings included in the following files:**

- IFB-23-7061-11_GEORGE WYTHE HS-EXISTING BUILDING AND SITE DRAWINGS_1 of 4
- IFB-23-7061-11_GEORGE WYTHE HS-EXISTING BUILDING AND SITE DRAWINGS_2 of 4
- IFB-23-7061-11_GEORGE WYTHE HS-EXISTING BUILDING AND SITE DRAWINGS_3 of 4
- IFB-23-7061-11_GEORGE WYTHE HS-EXISTING BUILDING AND SITE DRAWINGS_4 of 4

19. **Primarily from the specifications in Divisions 27 and 28. Let us know at your convenience if you could consider these in the RPS response to the RFIs.**
    - **Section 275119 Specialty Sound System:**
        - **Virtually all of the equipment noted under sections 2.2 ("Gym and Aux. Gym") and 2.3 ("Auditorium") are discontinued and/or out of date. Will more current versions from same or comparable manufacturers be acceptable for recommendation?**
          RESPONSE: A revised sound system specification was included in Addendum #2.
        - **Some equipment noted in these sections such as cassette players, AM/FM tuners, multi-disc CD players may no longer be available for use unless purchased as "used" equipment. Were items like these intended to be sound system sources for these specialty sound systems? It seems as if the equipment specifications in these sections are from much older projects that were simply "copy & pasted" into these specifications. We would recommend strategically located "ingest" points where current technology (PCs, laptops, mobile devices) could be "plugged" into the system for use. Also, if there are current multi-media subscriptions in use by RPS at other schools within the district, perhaps consideration for any existing subscriber-based content could be another source option for these systems.**
          RESPONSE: A revised sound system specification was included in Addendum #2.
    - **Section 281300 Access Control System:**
        - **Is RS2 Enterprise access control software and Best WI-Q still currently the standard for RPS? The section notes "no substitutes" but in light of the issues found in Section 275119, we thought we would ask to confirm.**
          RESPONSE: RS2 is the preferred system by RPS.
    - **The Intercom System:**
        - **While we found no specifications for an intercom system for this project in either Divisions 27 or 28, we did find some notes on drawing E001 concerning some equipment call-outs for equipment from "Rauland". In light of the lack**

information in the specifications, and the limited information on the drawing, our questions are:

1. **Is it the expectation that the winning bidder is to provide an intercom system? Or will this system be provided by the client?**
   RESPONSE: An intercom system specification is included in this Addendum.
2. **Is there an opportunity to provide a comparable and alternative solution?**
   RESPONSE: RS2 is the preferred system by RPS.
3. **In light of the fact that there is only one authorized provider for the Rauland intercom systems solution, is it the expectation of RPS that the authorized provider would also be awarded the other sections noted in Division 27 and 28? (Specialty Sound System-275119, Bi-Directional Amplifier System- 275125, Elevator Emergency 2-Way Communication System- 275316, Access Control System-281300, Intrusion Detection System-281600, CCTV Surveillance System-282300, Fire Detection & Alarm System-283111)**
   RESPONSE: Other vendors can bid on the remaining systems as long as the products and qualifications meet the requirements of the specifications.

20. **Section 051213 Architecturally Exposed Structural Steel Framing, paragraph 2.5 notes AESS categories, 1, 2, 3, 4; however, we have not found which ones are designated at any locations on the plans. Please advise which category applies to the AESS steel on this project.**
    RESPONSE: AESS category 3 is to be utilized on the project. Locations include columns and stair stringers as indicated in the contract documents. In addition to these locations, AESS is to be used at the additional following locations: HSS12x3x1/4 (LSV) at stair wells in sections 14 and 15 on sheet S-312, exposed joists in the cafeteria monitor (total of 11 joists), exposed joists in the library monitor (total of 3 joists) and exposed joists in the vestibule (total of 8 joists).
21. **Thank you for hosting a site walk yesterday for the New George Wythe HS. Would it be possible for RPS to provide a list of plan holders for this project so my company can provide pricing for our construction package?**
    RESPONSE: A list of plan holders is included at the end of this Addendum. It's important to note however, that there was a glitch in Newforma's software that created several blank spaces when the plans were downloaded during the first two weeks that prevented us from identifying all plan holder that downloaded the Bid Documents during that time. That information is not recoverable, so this is not a complete list of plan holders.
22. **Football field details – Spec Section 321813 calls for a product by Synthetic Turf International. Per Drawings C7.02 and C10.17, I do not see any details for the underdrainage, stone base, dimensions for the actual turf field (assume all surfaces inside track?), perimeter edge drain, etc.**
    RESPONSE: Football field will be seeded lawn.
23. **Tennis Courts – I do not see a specification for the tennis court surface, netting, post, etc. Please provide additional information for pricing.**
    RESPONSE: Specification section 321800 – Athletic Surfacing is included in this addendum for the tennis courts.

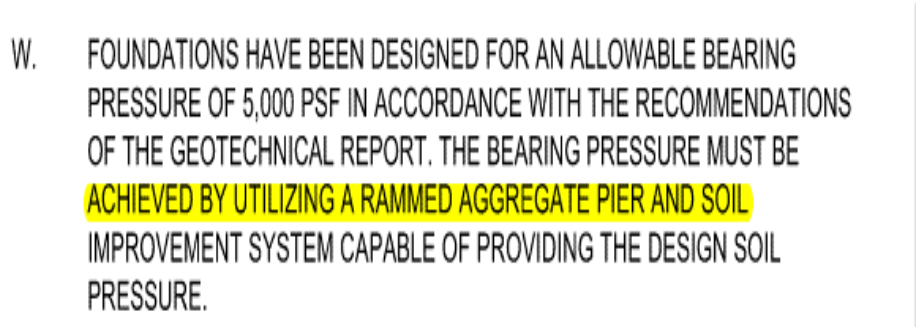
24. **Electrical drawing E702 – We picked up the sports lighting but do not see any power indicated to the sports fields and team buildings. Please provide additional information for what is required.**
    RESPONSE: The electrical circuitry to all site light fixtures is shown on E-701. The circuitry to all athletic field lighting and press box is shown on E-702. The circuitry to the field houses is shown on sheets E-119, E-211, E-310, E-411. The panelboards for the field houses are shown on sheets E-503 and E-507. The feeders to the field house panels are shown on sheet E-601. Panel schedule HAF and the associated feeder will be added to the drawings as part of this Addendum.
25. **Drawing A4/A419 Partition Type S6R is called out (between JROTC ARMORY and JROTC OFF); this partition tag is not shown/included on the partition schedule on A002. Please advise and provide information for partition type S6R.**
    RESPONSE: Partition Type S6R is a 1-hour rated version of partition type S6 with Type 'X' gyp board on either side and has been added to the partition types legend and testing lab chart on A-002 in this addendum.
26. **The entire electrical design for the athletic complex is not shown on the drawings. No conduit or wire sizes for feeders or branch circuits are shown on the electrical, civil, or site plans. This is a large amount of electrical work that will obviously be required. Will the electrical design be issued, or will an allowance for this be provided?**
    RESPONSE: The electrical circuitry to all site light fixtures is shown on E-701. The circuitry to all athletic field lighting and press box is shown on E-702. The circuitry to the field houses is shown on sheets E-119, E-211, E-310, E-411. The panelboards for the field houses are shown on sheets E-503 and E-507. The feeders to the field house panels are shown on sheet E-601. Panel schedule HAF and the associated feeder will be added to the drawings as part of this Addendum.
27. **On A-603, General Finish Notes P. and Q., call for [RS1] at exterior windows and [RS2] at interior windows. This is consistent for RRMM Architects: the 3% shades at the exterior and the 1% shades at the interior. However, A-605, A-610, A-611, A-613 appear to indicate the reverse of this in many locations.**
    RESPONSE: Sheet A-605 all instances with RS1 shall be changed to RS2. Sheet A-610 all instances with RS2 shall be changed to RS1. Sheet A-611 all instances with RS2 shall be changed to RS1. Sheet A-613 all instances with RS1 shall be changed to RS2.
28. **Please confirm exterior windows are [RS1] 3% shades, and interior windows are [RS2] 1% shades.**
    RESPONSE: All exterior windows shall receive RS1 (3%) and interior windows shall receive RS2 (1%).

29. **Are substitutions allowed for specifications that only list one manufacturer? (for example, specification 133416.13 and 133416.63)**

RESPONSE: Refer to AIA document A701-2018 – Instructions To Bidders Page 4, paragraph 3.3.2 and the clarification statement in Addendum No. 2. Products not specifically listed in the specifications are allowed, provided they fully meet the specification requirements. If determined during the submittal phase that the product does not comply with the specification, it is the responsibility of the manufacturer or general contractor to provide a compliant product at no additional cost to the owner.

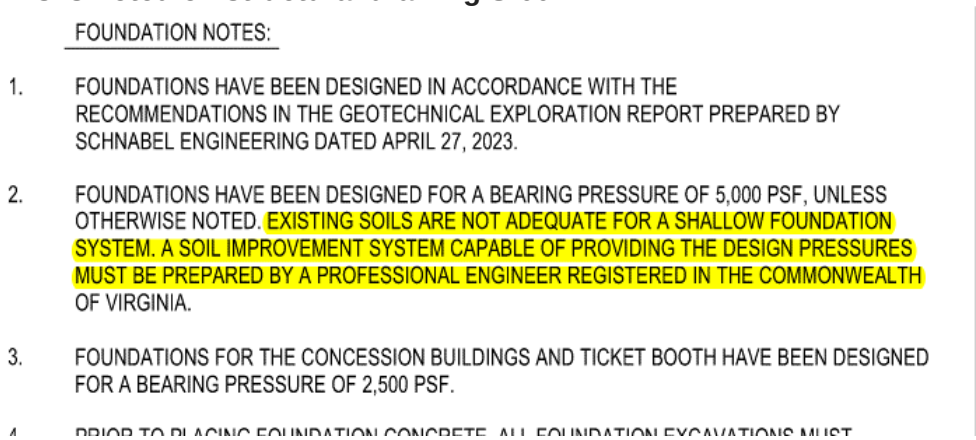
30. **We have discovered the following notes on the structural drawing:**

    1. **This is noted on structural drawing S-100:**



W. FOUNDATIONS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 5,000 PSF IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT. THE BEARING PRESSURE MUST BE ACHIEVED BY UTILIZING A RAMMED AGGREGATE PIER AND SOIL IMPROVEMENT SYSTEM CAPABLE OF PROVIDING THE DESIGN SOIL PRESSURE.

    2. **This is noted on structural drawing S-001:**



FOUNDATION NOTES:

1. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL EXPLORATION REPORT PREPARED BY SCHNABEL ENGINEERING DATED APRIL 27, 2023.

2. FOUNDATIONS HAVE BEEN DESIGNED FOR A BEARING PRESSURE OF 5,000 PSF, UNLESS OTHERWISE NOTED. EXISTING SOILS ARE NOT ADEQUATE FOR A SHALLOW FOUNDATION SYSTEM. A SOIL IMPROVEMENT SYSTEM CAPABLE OF PROVIDING THE DESIGN PRESSURES MUST BE PREPARED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF VIRGINIA.

3. FOUNDATIONS FOR THE CONCESSION BUILDINGS AND TICKET BOOTH HAVE BEEN DESIGNED FOR A BEARING PRESSURE OF 2,500 PSF.

4. PRIOR TO PLACING FOUNDATION CONCRETE, ALL FOUNDATION EXCAVATIONS MUST

    a. **The Geotech report indicates the need for rammed aggregate piers (per page 7). Shallow foundations are what is included in the bid documents with exception of the soldier piles for the retaining wall. What is the intent of having rammed aggregate pier on the project? Please provide additional information on whether the whole building needs foundation improvements or locations of only partial improvement are needed so we can coordination with a deep foundation subcontractor.**

    RESPONSE: The intent of the rammed aggregate piers is to limit foundation settlement. Ground improvement consisting of rammed aggregate piers are only needed under the column and wall footings designed for a net allowable bearing pressure of 5,000 psf. Ancillary structures designed for a net allowable bearing capacity of 2,500 psf or lower do not need to be supported by ground improvement. Per the Geotech report and the contract documents: 1) rammed aggregate piers are to be used at the entirety of the shallow footings at the main

school building. 2) Rammed aggregate piers are not required at ancillary structures (field houses, bleachers and retaining walls).

b. **Also, is the existing school supported by deep foundations? If so, what is the system, and will they need to be removed under this contract?**
RESPONSE: A link to the As-built record drawings has been provided in response to question 18 above for reference. The structural footprint of the new school building does not coincide with the footprint of the existing school building. Therefore, the removal of the foundation system of the existing school building will not be required for the foundation pad preparation of the new school building. However, it should be noted that any existing foundation elements/buried utilities within the proposed building footprint should be removed per the geotechnical report.

31. **Referring to Mechanical Insulation section 230700 – 2 Part 2.5. states that all exterior duct is to receive the POLAR SEAL, or equal. Part 3.4 B then states to apply POLAR SEAL on all exposed ductwork. Then in Part 3.3 A 2 states that exposed ductwork is permanently in view, typically found in mechanical storage, electrical, or other unfinished space.**
    a) **I assume that the polar seal is only meant to be apply to exterior duct exposed to weather, but the way the specification is written, contradicts this. Can you please clarify this statement?**
    RESPONSE: Phenolic ductwork is to be utilized for exterior ductwork. POLAR SEAL requirement is not necessary for this type of ductwork.
32. **Mechanical Insulation section 230700 – 3 Part 2.10 refers to PVC jacketing, however the only PVC jacketing mentioned is on fittings. Can you please confirm that there is no PVC pipe jacketing, other than fittings, anywhere else in the building?**
RESPONSE: Contractor to provide PVC jacketing on pipe fittings.
33. **In lieu of Wood Veneer Laboratory Casework, could you please advise if a Particleboard core with a PLAM finish is acceptable?**
RESPONSE: Provide casework as specified in Section 123450 - Science Casework and Equipment.
34. **Please provide fence and gate schedule and layout plan for fences and gates showing size, type, and location.**
RESPONSE: Refer to Sheet A-006 Architectural Site Plan for fence and gate locations (Site Plan Keynote '2') as well as Sheet A-608 Gate and Fence Details for GATE SCHEDULE. Refer also to Section 323119 "Decorative Metal Fences and Gates" for more information.
35. **The bike rack count is different when comparing the landscape drawings and the civil layout drawings. Please confirm which drawings we should reference for the correct bike count?**
RESPONSE: Refer to the Landscape drawings for bike rack quantities. The bike rack details are included in the Landscape drawings and included in the specifications.
36. **Please confirm the fitness equipment shown on plan A906 is not part of the construction contract and will be provided by the Owner. We know that we are to provide 2 pull up bars in this room per the spec and addendum #2.**
RESPONSE: Fitness Equipment shown on plan A906 is not part of the construction Contract unless otherwise noted.

37. **Please confirm why some side-lite locations are called out and others are not.**
RESPONSE: All window and side-lite locations/types not shown on the 1/8" area plans are shown in the associated callouts on the enlarged plan A-400 series sheets.
38. **Please provide dimensions and call outs for the following window locations –**
RESPONSE: Refer to the enlarged plan A-400 series sheets for all window callouts and dimensions not shown on the 1/8" area plans. The two windows on the North Wall of Fashion A148 are Hollow Metal window type HM-6 and have been included in this Addendum. Missing callouts on windows in F110 were added in Addendum #2.

Sheet A-101:

- **Plan North wall Fashion #A148**
- **Plan North wall 3d Art #A141**
- **Plan North wall 2D Art #A138**
- **Plan West wall Admin #A120**
- **Plan West wall Attend #A119**
- **Plan West wall Mail Room #A122**

Sheet A-102:

- **Plan North, South & West walls Library #B124**

Sheet A-103:

- **Plan West Child Care Suite #C137**

Sheet A-104:

- **Plan North wall Maker Space #D121**

Sheet A-105:

- **Plan North & West REC #E120**
- **Plan North REC #E119**
- **Plan South POD #E117**
- **Plan East & North Chorus #E116**
- **Plan South Dance Studio #E128**
- **Plan South Drama #E138**

Sheet A-106:

- **Plan South & East Office #F110**

Sheet A-107:

- **Plan East PE Office #G-107**
- **Plan East PE Office #G-121**

39. **Drawing A601: Please advise/provide finish schedule for Room A102.**
RESPONSE: Refer to Sheet A-601 Finish Schedule, First Floor, Room A102 LOBBY for required finishes.
40. **Architectural Drawings: Please provide sheet A510, many locations call out details on sheet A510.**
RESPONSE: Sheet A-510, Section Details, is already included in the Bid Set drawings.
41. **Structural Notes S-100: Please confirm/advise that the total depth of second floor slab is 4" Thick (2 ½" Concrete on 1 ½" Form deck).**
RESPONSE: Confirmed. The Total depth of the typical second floor slab is 4". Where Terrazzo finish is present in corridors, the finish is included in the 4" thickness.

42. **Structural Notes S-100: Please confirm Framing Plan note 8/S-100 is correct. T.O.S must be 2 ½" below finish floor slab elevation (Note 4 states second floor must be a 4" Total Depth Concrete Slab on 1 ½" form deck.).**
    RESPONSE: Top of steel elevation 6 ½" below finished floor slab elevation, unless otherwise noted. Coordinate top of steel elevation where deeper open web steel bar joists seats are utilized and noted in section.
43. **Section 051200 – Structural Steel Framing: Please confirm if it is acceptable to waive the AISC Fabricator requirement, if the fabricator provides an independent third-party shop inspector during fabrication?**
    RESPONSE: AISC Fabricator requirement will not be waived.
44. **Acoustical/Ceiling: Please confirm if SAPC9 is required, it is not shown on the finish schedule. If required, finish legend states Woodworks Tegular #6486-W4, W4 being a "Round Straight" perforation, however, the specifications 095113 2.8 C states the surface texture is to be "smooth" meaning an unperforated panel. Please confirm perforation of SAPC9.**
    RESPONSE: SAPC9 is not used.
45. **Architectural Drawings: Sheet A436 Elevation A2 states that it is specifically for Stair C142/C216. Sheet A-601 Finish Schedule states stair D118/D216 are also to receive these walls panels. Can you please confirm this elevation counts for both areas as typical?**
    RESPONSE: Yes, A2/A-436 is a typical elevation for finish note 36.
46. **Architectural Drawings: Sheet A716 calls for AWP9 & AWP10 for rooms REC E120, REC E119, and POD E117 but no elevations are provided. Please confirm full coverage as per note25/A601 & A602?**
    RESPONSE: Yes, full coverage is to be provided as indicated in finish note 25.
47. **Architectural Drawings: Sheet A-428 Elevation A1 calls for AWP1 panels on either side of the walls to the vaulted roof, but there is not an elevation or layout provided for these panels. Please confirm if required.**
    RESPONSE: Provide 7'-0"H AWP1, full length (40'-0") of clerestory on the north and south walls. AWP1 panels to be butted together. To be installed 6" above bottom of bulkhead, typical. Notch/cut out for any electrical devices.
48. **We have reviewed the most recent addendum number two, and we see where which appears that RTW has put together a specification for the A/V systems however we still don't see specifications for the Intercommunications.**
    RESPONSE: An intercom system specification is included in this Addendum.
49. **Who is the manufacturer and what is track system name is the basis for the specs for the track surfacing? (ex- Rekortan(manufacturer) G13 Traditional (system name)**
    RESPONSE: Three manufacturers/products have been added to the specification section in this addendum.
50. **Can I have our Rekortan G13 Traditional Full Pour track be approved as an alternate?**
    RESPONSE: Refer to AIA document A701-2018 – Instructions To Bidders Page 4, paragraph 3.3.2 and the clarification statement in Addendum No. 2. Products not specifically listed in the specifications are allowed, provided they fully meet the specification requirements. If determined during the submittal phase that the product does not comply with the specification, it is the responsibility of the manufacturer or general contractor to provide a compliant product at no additional cost to the owner.

51. **What is the color required of the track surface? Black and Red are standard colors.**
    RESPONSE: It will be a standard color. The specification section has been updated in this addendum to address this question.
52. **Required independent testing for thickness, hardness, and deformation (No values are called out and if they are referring to World Athletics specs it's not noted)**
    RESPONSE: ASBA has been added as a reference standard and these tests have been removed from the specification as part of this addendum.
53. **Paint: Thickness: 12 mils DFT. Multiple coats to achieve thickness as required by paint manufacturer. (ASBA recommends against only using one coat and not multiples) (see the attached PDF ASBA)**
    RESPONSE: Paint requirements in this specification changed to "as recommended by surfacing system manufacturer." in this addendum.
54. **We noticed that the retaining wall notes did not specify a need for galvanized soldier piles but there was mention of galvanization in the structural notes. Can you confirm there is no need to galvanize the beams that are to be used in the retaining wall?**
    RESPONSE: There is no need to galvanize the soldier piles for the retaining wall.
55. **The intent of "question 29" as numbered in addendum 2 is referencing the ground improvements in the geotechnical report. As stated in specification 003132 "This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information. This Document and its attachments are not part of the Contract Documents".**
    Where is the contract documented direction for the RAP ground improvement?
    RESPONSE: The RAP ground improvement is delegated design and a spec that establishes the standard of quality will be provided in a forthcoming addendum early next week.

CLARIFICATIONS

3.1 **The last day to submit pre-bid questions was Dec. 7th and we will no longer be responding to any additional questions received.**

3.2 As-Built reference drawings can be downloaded from the RRMM Info Exchange at the following link: https://infoexchange.rrmm.com/UserWeb/Login/Login.aspx?v=0 . This work is NOT part of this proposal, it is provided for information only. The Architect makes no certification to the accuracy or completeness of the drawings included in the following files:

- IFB-23-7061-11_GEORGE WYTHE HS-EXISTING BUILDING AND SITE DRAWINGS_1 of 4
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- IFB-23-7061-11_GEORGE WYTHE HS-EXISTING BUILDING AND SITE DRAWINGS_4 of 4

CHANGES PERTAINING TO THE PROJECT MANUAL AND SPECIFICATIONS

3.3 PROJECT MANUAL – TABLE OF CONTENTS:

- Page TOC-6, Division 27 Communications; **ADD** new specification section **"271500 DATA COMMUNICATIONS SYSTEMS CABLING".**
- Page TOC-6, Division 27 Communications; **ADD** new specification section **"275123 INTERCOMMUNICATION SYSTEM".**
- Page TOC-6, Division 27 Communications; **ADD** new specification section **"275313 WIRELESS CLOCK SYSTEM".**
- Page TOC-7, Division 32 Exterior Improvements; **ADD** new specification section **"321800 ATHLETIC SURFACING".**

3.4 SECTION 230900 – AUTOMATIC TEMPERATURE CONTROLS:

- Page 1, sub-paragraph 1.2D, **REVISE** to read: **"General BAS Description: Building Automation System (BAS) manufacturer shall furnish and install a fully integrated building automation system, incorporating direct digital control (DDC) for energy management, equipment monitoring and control, and subsystems with open communications capabilities as herein specified."**
- Page 5, sub-paragraph 2.4.A, **REVISE** to read: **"General BAS Description: The software programs specified in this Section shall be provided as an integral part of DDC Controllers and shall not be dependent upon any higher-level computer for execution. The RTU controllers shall be provided by The DDC Contractor (all RAHU's and RTU's). RTU-1 shall have a factory mounted controller by equipment manufacturer. Programming shall be standard PPCL developed in accordance with RPS standards as specified in the sequence of operations. The DDC Contractor shall provide ABB VFDs with bypass and startup for the RAHU's, & MAU-1 supply and exhaust installed at manufacturer's factory. The DDC Contractor shall supply and install temperature sensors, pan moisture sensors, damper operators, control valves, and pressure sensors. RAHU and MAU manufacturer shall supply automatic control dampers."**

3.5 SECTION 271500 – DATA/COMMUNICATIONS SYSTEMS CABLING: **ADD** the attached specification section.

3.6 SECTION 275123 – INTERCOMMUNICATION SYSTEM: **ADD** the attached specification section.

3.7 SECTION 275313 – WIRELESS CLOCK SYSTEM: **ADD** the attached specification section

3.8 SECTION 321800 – ATHLETIC SURFACING: **ADD** the attached specification section.

3.9 SECTION 321823 – RUNNING TRACK SURFACE: **DELETE** specification section in its entirety and **REPLACE** with revised attached specification section.

CHANGES PERTAINING TO THE DRAWINGS

3.10 SHEET S-126 – LOW ROOF FRAMING PLAN – AREA 'F': High Roof Framing Plan – Area 'F'- **ADD** AESS designation to all eleven (11) exposed 51LH joists

3.11 SHEET S-131 – HIGH ROOF FRAMING PLANS – AREAS 'A' AND 'B':

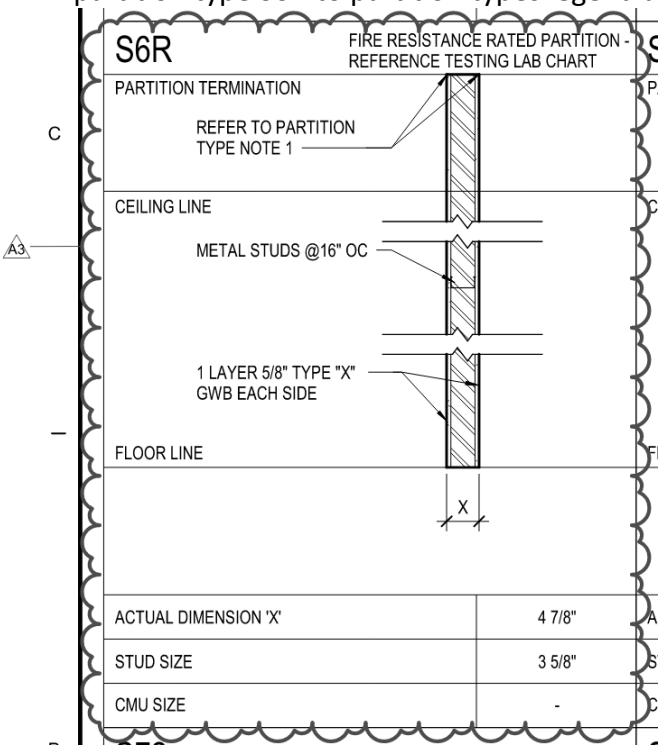
- High Roof Framing Plan – Area 'A'- **ADD** AESS designation to all eight (8) exposed 66LH joists.
- Media Center Pop-Up Roof Framing Plan - **ADD** AESS designation to all three (3) exposed 50LH joists.

3.12 SHEET S-312 - SECTIONS:

- Section 14/S-312 - **ADD** AESS designation to HSS12x3x1/4 (LSV)
- Section 15/S-312 - **ADD** AESS designation to HSS12x3x1/4 (LSV)

3.13 SHEET A-002 - PARTITION TYPES:

- Testing Lab Chart - **ADD** partition type **S6R** with UL **#U419** listed under 1 Hour Rating column.
- **ADD** partition type **S6R** to partition types legend as follows:



3.14 SHEET A-415 – ENLARGED PLAN - CLINIC, COUNSELING, & FCS SUITE: Enlarged Plan - FCS Suite **A4/A-415** – **ADD** hollow metal frame type elevation tag **HM-6** at both windows on North wall of Fashion F148.

3.15 SHEET A-605 – DOOR SCHEDULE AND DOOR & FRAME TYPES: **REVISE** all instances on sheet referring to Roller Shade "RS1" to be Roller Shade **"RS2".**

3.16 SHEET A-610 - STOREFRONT ELEVATIONS:

- **REVISE** all instances on sheet referring to Roller Shade "RS2" to be Roller Shade "**RS1**".
- SF-10 – **REVISE** roller shade from one shade that spans the full length of window, to **two separate roller shades** that span between edge of window and GL-6/GL-7 spandrel glazing. Wall behind spandrel glazing prevents one shade from spanning the full length.
- SF-17 – **REVISE** height of roller shade so top of shade is aligned with mullion at bottom of GL-6 spandrel glazing panel.
- SF-18 – **REVISE** height of roller shade so top of shade is aligned with mullion at bottom of GL-6 spandrel glazing panel.

3.17 SHEET A-611 - STOREFRONT ELEVATIONS:

- **REVISE** all instances on sheet referring to Roller Shade "RS2" to be Roller Shade "**RS1**".
- SF-35 – **DELETE** roller shade from storefront in all locations.

3.18 SHEET A-613 - STOREFRONT ELEVATIONS: **REVISE** all instances on sheet referring to Roller Shade "RS1" to be Roller Shade **"RS2".**

3.19 SHEET E-201 - FIRST FLOOR PLAN – AREA 'A' – POWER:

- First Floor Plan – Area 'A' – Power – **ADD** keynote 9 to vestibules A101 and A127 per the attached revised sheet.
- Construction Notes – **ADD** Keynote 9 per the attached revised sheet.

3.20 SHEET E-203 - FIRST FLOOR PLAN – AREA 'C' – POWER:

- First Floor Plan – Area 'C' – Power – **ADD** keynote 15 to vestibules C112 per the attached revised sheet.
- Construction Notes – **ADD** Keynote 15 per the attached revised sheet.

3.21 SHEET E-204 - FIRST FLOOR PLAN – AREA 'D' – POWER:

- First Floor Plan – Area 'D' – Power – **ADD** keynote 7 to vestibules D128 per the attached revised sheet.
- Construction Notes – **ADD** Keynote 7 per the attached revised sheet.

3.22 SHEET E-205 - FIRST FLOOR PLAN – AREA 'E' – POWER:

- First Floor Plan – Area 'E' – Power – **ADD** keynote 10 to vestibules E136 per the attached revised sheet.
- Construction Notes – **ADD** Keynote 10 per the attached revised sheet.

3.23 SHEET E-206 - FIRST FLOOR PLAN – AREA 'F' – POWER:

- First Floor Plan – Area 'F' – Power – **ADD** keynote 3 to vestibules F104 per the attached revised sheet.
- Construction Notes – **ADD** Keynote 3 per the attached revised sheet.

3.24 SHEET E-507 - PANEL SCHEDULES:

- Panel: LFH2 – **REVISE** wire size for circuits 11, 13, and 15 as follows:

PANEL: LFH2

LOCATION: IDF/ELEC 205 | VOLTS: 120/208 Wye | KAIC RATING: 10
MOUNTING: Surface | PHASES: 3 | MAINS TYPE: BREAKER
NEMA: Type 1 | WIRES: 4 | MAINS RATING: 60 A

CKT NO	LOAD SERVED	P	C/B TRIP	WIRE SIZE	A		B		C		WIRE SIZE	C/B TRIP	P	LOAD SERVED	CKT NO
9	[illegible]	2	30	10			17.1	12.5			12	20	1	EWH-A	10
11	SCOREBOARD POWER	1	20	8					4.2	0.0	--	20	1	SPARE	12
13	SCOREBOARD POWER	1	20	8	4.2	14.4					10	30	2	DATA RACK	14
15	SCOREBOARD POWER	1	20	10			4.2	14.4							16
17	SPACE	1	--	--	A3				--	10.0	12	20	1	DATA	18

- Panel: LFH – **ADD** circuit 40 AND 57 as follows:

PANEL: LFH

LOCATION: EXTERIOR | VOLTS: 120/208 Wye | KAIC RATING: 22
MOUNTING: Surface | PHASES: 3 | MAINS TYPE: BREAKER
NEMA: Type 1 | WIRES: 4 | MAINS RATING: 400 A

CKT NO	LOAD SERVED	P	C/B TRIP	WIRE SIZE	A		B		C		WIRE SIZE	C/B TRIP	P	LOAD SERVED	CKT NO
35	[illegible]	2	40	8					8.0	12.5	12	20	1	EHW-A	36
37	EWH-A	1	20	12	12.5	4.2					12	20	1	OVERHEAD COILING DOOR	38 A3
39	OU-13	2	30	10			17.1	6.0			8	20	1	SITE RECEPTACLES	40
41									17.1	0.0	--	20	1	SPARE	42
43	EF-28	1	20	12	4.0	0.0					--	20	1	SPARE	44
45	# RECEPTACLE	1	20	12			16.0	0.0			--	20	1	SPARE	46
47	# RECEPTACLE	1	20	12					16.0	0.0	--	20	1	SPARE	48
49	RECEPTACLES	1	20	12	3.0	0.0					--	20	1	SPARE	50
51	RECEPTACLES	1	20	8			3.0	0.0			--	20	1	SPARE	52
53	RECEPTACLE EXTERIOR	2	30	10					14.4	--	--	--	1	SPACE	54
55					14.4						--	--	1	SPACE	56
57	MUSCO CONTROLS	1	20	8			5.0	--			--	--	1	SPACE	58
59	SPACE	1	--	--					--	--	--	--	1	SPACE	60

3.25 SHEET E-601 - RISER DIAGRAM:

- POWER RISER DIAGRAM - **REVISE** circuit breaker size for panel **HFH** per the attached revised sheet.
- RISER DIAGRAM NOTES - **ADD** circuit breaker size for panel **HFH2** per the attached revised sheet.
- RISER DIAGRAM NOTES - **ADD** circuit breaker and feeder for panel **HAF** per the attached revised sheet.

3.26 SHEET E-701 – ELECTRICAL SITE PLAN: **REVISE** conduit and handhole routing per the attached revised sheet.

3.27 SHEET E-702 – ELECTRICAL SITE PLAN – ATHLETIC FIELD LIGHTING:

- **REVISE** construction notes per the attached revised sheet.
- **ADD** power pedestals near the home bleachers per the attached revised sheet.
- **ADD** panels "LFH" and "LFH2" per the attached revised sheet.
- **REVISE** contactors for poles A1, A2, B1, B2, C1 and C2 per the attached revised sheet.
- **ADD** feeders for panel "HAF" and lighting control panels per the attached revised sheet.

3.28 SHEET E-704 – ELECTRICAL SITE PLAN: **ADD** panel schedule “HAF” per the attached revised sheet.

END OF BID ADDENDUM NO. 3

SECTION 271500 - DATA/COMMUNICATION SYSTEMS CABLING (ADDENDUM NO. 3)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections, and Section 260100, "Electrical General Provisions," apply to this Section.

1.2 DESCRIPTION OF WORK

A. It is the purpose of this Specification to require the furnishing of the highest quality materials, equipment, and workmanship available, to fulfill the requirements of the work specified herein.

B. The Data/Communication Systems Cabling shall provide enhanced Category 6 UTP Data Cabling Infrastructure and a Fiber Backbone to a network operating system and application software to be provided by the Owner.

C. Work Included:

1. Provide all labor, equipment, supplies, materials, and incidentals and all operations necessary for the "TURNKEY," fully tested, and completed installation of a Data/Communications Systems Cabling, in complete accordance with the Contract Documents.

2. The work shall include, but not be limited to, the following:

a. Coordination of the Raceway installation
b. Furnish Special Backboxes, as indicated on the drawings, for installation under Division 26.
c. Furnish and Install all racks and Enclosures
d. Furnish, Install, and certify the Data/Communication Cable System

1.3 PERMITS AND INSPECTIONS

A. Obtain and pay for all permits and inspections required by all legal authorities and agencies having jurisdiction of the work. These permits or inspections shall be a part of the work of the Contractor performing the work.

1.4 SUBMITTALS

A. Submit the following Shop Drawings and Submittals, per the schedule listed below for review by the Architect:

1. Prior to proceeding with the work:

a. A complete schedule of ALL equipment and materials shall be furnished for the work. Accompanying the schedule shall be manufacturer's specification or data sheets for all major components listed in PART 2 of this Specification.

b. Shop Drawings: Complete shop drawings for all systems and assemblies specified. Each drawing shall have a descriptive title and all subparts of each drawing shall be labeled. All drawings shall have the name and location of the project and the installing Contractor's name in the title block. Data/Communication System Cabling shop drawings shall not be combined with any other auxiliary system shop drawings.

c. Racks & Assemblies: Complete CAD-generated scaled drawings of all equipment racks and assemblies. Each drawing shall show all equipment with its manufacturer and model number.

d. Device Locations: Complete CAD-generated scaled building drawings detailing installation locations of all data ports, data closets, equipment racks, etc. All conduit with cable quantities and types shall also be indicated.

e. Device Layout: Complete CAD-generated scaled drawings detailing all data plates, patch panels, input/output panels, rack panels and custom components to be fabricated by the Contractor. Include the same details for all custom or non-standard components to be furnished by vendor/manufacturers of the Contractor. Show all connectors, mounting devices and engraving, and other labeling detail on these drawings.

f. Contractor job references and key employee résumés, as described in the Contractor Qualifications portion of this Specification.

g. Qualification Statements of any proposed subcontractors to meet the requirements in the Contractor Qualifications portion of this Specification.

h. Contractor certificates as described in Paragraph 2.1 and in the Data Infrastructure Section of this Specification.

2. Prior to proceeding with respective portions of work:

a. Artwork, drawings, and listings indicating proposed nameplate nomenclature and arrangements for patch panels, plug panels, and nameplates prior to fabrication.

b. Front panel layouts for all equipment racks, prior to installation, reflecting equipment to be used.

c. Details and descriptions of any other aspect of the system which differ from the contract drawings due to field conditions or due to the equipment furnished.

d. Submittal as otherwise noted on the drawings and/or as noted herein.

e. Approved shop drawings and instruction brochures, including schematic diagrams for all electronic devices, shall be present at the job site during the period set aside for system testing.

3. At Project Completion:

a. Notebooks of operating instructions shall be prepared for the Owner as described herein.

b. Record drawings: Prior to Final Acceptance, provide three complete sets of drawings showing all cable numbers and construction details in accordance with the actual system installation. Revise all shop drawings to represent actual installation conditions.

c. Operation and Maintenance Manuals: Prior to Final Acceptance, provide three complete sets of operation and maintenance manuals for the system. The operation manual shall contain all instruction necessary for the proper operation of the installed system and manufacturers' instruction. The maintenance manual shall contain all "proof of performance" information as required in PART 3, and all manufacturers' maintenance information, and copies of non-priority computer programs and system set-up disks documenting all programmable features for the installed system.

1.5 DEFINITION OF TERMS

A. The term "Contractor" shall refer to the person, persons, or company who or which actually contracts to perform the Data Communications System work specified herein.

B. The term "data/telephone/fax/modem port" shall refer to the location where a three CAT 6 cables are connected. All data and/or data/telephone/fax/modem ports are to be fully activated with complete network accessibility without the need to alter any cable configurations anywhere on the network.

1.6 CONTRACTOR QUALIFICATIONS

A. The Contractor must be a contractor who has been regularly engaged in the furnishing and installation of data communications and related voice, data and video communications systems for a period of at least the last three (3) years and who can show evidence of successfully completing, with its present staff, at least three (3) projects of similar size and scope. The Contractor, not its employees, must meet these Contractor qualifications. With the submittal, provide a list of jobs completed, with contact, address and phone number of the Owner, and the Contractor's key employees assigned to the project, listing their responsibilities during the job and the length of time with the Contractor in this capacity.

B. The Contractor shall demonstrate to the satisfaction of the Architect/Engineer and Owner that they have:

1. Adequate plant and equipment to pursue the work properly and expeditiously.
2. Adequate staff and technical experience to implement the work.
3. Technically capable and factory trained service personnel at a Contractor-owned service facility within fifty (50) miles radius of the project site, to provide routine and emergency service for all products used in the project.

C. The Contractor shall:

1. *Be bondable.*
2. *Hold a Class A Contractor's License which is accepted as valid within the State of Virginia.*

D. *Any contractor, who intends to bid on this work and does not meet the requirements of the "Contractor Qualifications" paragraph(s) above, shall employ the services of a Contractor who does meet the requirements and who shall furnish the equipment, shop fabricate the equipment racks and subassemblies, make all connections to equipment and equipment racks, make all connections to all connection panels and plates, test the completed system, and continuously supervise the installation and connections of all system cable and equipment.*

E. *A subcontractor so employed shall be acceptable to the Architect/Engineer and Owner and shall be identified in the submittal.*

1.7 QUALITY ASSURANCE

A. *General: All equipment and materials required for installation under these Specifications shall be new (less than 1 year from date of manufacture) and without blemish or defect.*

B. *Specific: Each major component of equipment shall have the manufacturer's name, address, and model number on a plate securely affixed in a conspicuous place. NEMA code ratings, UL label, or other data which is die-stamped into the surface of the equipment shall be easily visible.*

C. *Substitutions:*

1. *Where a specific piece of equipment has been discontinued and/or replaced by a new model, submission of the new model does not guarantee acceptance. Substitute items shall require evaluation by the Architect/Engineer, Owner or their agent prior to acceptance.*
2. *If substitute equipment is allowed even by an approved submittal, the Contractor shall be completely responsible for its use and for its ability to fulfill all intended functions in the completed systems. The Contractor shall replace all such equipment with equipment listed by type and model number in the Specifications if there is any evidence of equipment instability and/or incompatibility.*
3. *Any use of substitute equipment shall be at no extra cost to the Owner.*

PART 2 - PRODUCTS

2.1 SINGLE SOURCE RESPONSIBILITY

A. *Except where specifically noted otherwise, all equipment supplied for the Data and/or Data/Communication Systems shall be the standard product of a single manufacturer of known reputation and experience in the industry. The Contractor shall have attended the*

manufacturer's installation and service schools. Certificates of this training shall be provided with the Contractor's submittal.

2.2 DATA CABLE INFRASTRUCTURE

A. Twisted Pair Cable:

1. Cabling shall be unshielded twisted pair (UTP) and shall meet EIA/TIA-568, requirements for Category 6. The following specifications shall apply:

a. Conductors: #23 AWG solid copper, 4 pair;
b. Impedance: 100 ohms ±15% at 1-250 MHz;
c. Mutual Capacitance: 5.6nf/100m nominal;

d. Attenuation (per 1000 ft):

1) 2.0 dB at 1 MHz
2) 3.8 dB at 4 MHz
3) 6.0 dB at 10 MHz
4) 7.6 dB at 16 MHz
5) 8.5 dB at 20 MHz
6) 15.4 dB at 62.5 MHz
7) 19.8 dB at 100 MHz
8) 29.0 dB at 200 MHz
9) 39.8 db at 250 MHz

2. Provide one "homerun" UTP cable between each data port indicated on the drawings and the appropriate data/communications patch panels racks.
3. In-field splicing of UTP cables shall not be permitted.
4. UTP cables shall not exceed 90 meters from the data outlet port to the appropriate IDF/MDF patch panel.
5. The National Electrical Code, Article 800, Type CMP specification shall be considered when UTP cables are installed, without benefit of adequate raceway, in a plenum air return.

B. Fiber Optic Cable:

1. Fiber Optic cabling shall meet the following specifications:

a. Glass type shall be 62.5 micron core;
b. Glass cladding shall be 125 micron;
c. Glass type shall be single-mode;
d. Each fiber shall have a color coded 900 micron tight buffer;
e. Each cable shall contain an up-jacketed central strength member;
f. Maximum attenuation at 850/1300 nm shall be 3.5/1.25 dB/Km;
g. Minimum bandwidth at 850/1300 nm shall be 160/500 MHz-km;

h. Each cable shall have a minimum short-term bend radius of 10X the cable diameter;
i. Each cable shall have a minimum long-term bend radius of 15X the cable diameter.

2. In-field splicing of fiber optic cables shall not be permitted.
3. The National Electric Code, Type OFNP Specification shall be considered when fiber optic cables are installed, without benefit of adequate raceway, in a plenum air return.

C. Fiber Optic Connectors:

1. Fiber Optic connectors shall meet the following specifications:

a. Connectors shall be pigtail LC types that are fusion spliced.

D. Fiber Optic Termination Box: Fiber optics cable termination box shall be 48 port SMP P/N WTC-48A (LIU) and 24 port SMP P/N WTC-24A (LIU) with LC-type connectors.

E. Data Station Outlets:

1. Face Plates: Data Station Outlets shall be provided as indicated on the drawings and meet the following specifications:

a. Single gang, flush mountable, almond colored plastic construction;
b. Shall accept data, telephone, fax, modem and blank insert modules;
c. Shall have the capability to accept up to three individual ports;
d. Inserts shall snap in and out from the front of the Data/Communication Station Outlet;
e. Face plates shall be supplied with pressure-sensitive icon labels;
f. Data Station Outlets shall be SMP P/N FPS03-00, or equivalent.

2. Inserts:

a. Data/Communications Port inserts shall be as follows: SMP P/N UMJEFS-XX with Red color Bezzel P/N BE-08-03D. Data jack must be located on the top of the face plate.
b. Telephone Inserts shall be as follows: SMP P/N UMJEFS-XX with Black color Bezzel P/N BE-08-04V. Telephone jack must be located in the center of the face plate.
c. Fax/Modem Inserts shall be as follows: SMP P/N UMJEFS-XX with Blue color Bezzel P/N BE-08-05F. Fax/Modem jack must be located on the bottom of the face plate.
d. Blank inserts shall be Mod-Tap 17-0433-01 with Black insert, or equivalent.

F. Patch Panels:

1. 48-port Category 6 2U QuickPort Patch panels shall be provided at each Data rack. Provide a minimum of 10 future data, telephone and fax/modem connections in each

data. Provide a number of patch panels as required to terminate all cables indicated on the contract document plus 10 future connections in each rack. Patch panels shall meet the following specifications:

2. *Provide a three (3) foot minimum patch cable for every Category 6 UTP data cable terminated to a patch panel. Install and neatly route patch cables between the panel and the concentrators utilizing cable management hardware.*

G. Data racks:

1. *Provide 19" data rack for owner provided network switches, Chatsworth products #46353-X03 with front and rear vertical manager, Panduit #WMPV45E and 2 RU patchlink horizontal cable manager between owner provided network switches, Panduit #WMPH2E or approved equal.*

H. Certification:

1. *Contractor shall be factory certified to install the Data Cabling Infrastructure. The Contractor shall include a copy of the factory-provided certification with his submittal.*
2. *The manufacturer of the passive, data connectivity components shall warrant the passive components of the Data Cabling Infrastructure for a period of fifteen (15) years, if installed by its factory certified contractor.*

PART 3 - EXECUTION

3.1 GENERAL

A. Perform the work in accordance with acknowledged industry and professional standards and practices, and the procedures specified herein.

B. Furnish and install all materials, devices, components, and equipment for complete operational systems.

C. Maintain a competent supervisor and supporting technical personnel, acceptable to the Architect/Engineer during the entire installation. Change of the Supervisor during the project shall not be acceptable without prior written approval from the Architect/Engineer.

D. Coordinate all efforts with those of related trades. In the event of any conflicts, delayed or improper preparatory work by others, notify the Architect/Engineer. The Architect's/Engineer's decision shall be binding. Verify all field conditions.

3.2 INSTALLATION OF SYSTEMS

A. Device Locations: Locate all apparatus requiring adjustments, cleaning, or similar attention so that is shall be accessible for such attention. Equipment racks shall be positioned to permit full access for operation and service.

B. Blank and Custom Panels: Finish of blank panels and custom assembly panels shall match adjacent equipment panels as closely as possible.

C. Markings: Ports, cables, and cable terminations shall be logically and permanently marked. Hand-written tags will not be accepted.

D. Environment: The equipment specified herein is designed to operate in environments of normal humidity, dust, and temperature. Protect equipment and related wiring during installation where extreme environmental conditions can occur.

E. Conduit: The Contractor shall be responsible for reviewing and coordinating conduit installation for the system with the Division 26 Prime Contractor. All wiring shall be in conduit as indicated on the drawings unless specifically authorized by the Engineer and permitted by Code.

3.3 ELECTRICAL POWER

A. Grounding: Review and coordinate electrical power system installation, including grounding, to ensure proper operation of the system.

B. Verification: Verify that all AC power circuits designated for the system are properly wired, phased, and grounded.

C. Equipment Rack: Provide distribution of electrical power within the equipment racks with a minimum of two spare AC receptacles per branch circuit, used in the racks.

3.4 CLEANING

A. Clean all junction and terminal box interiors thoroughly before installing plates, panels, or covers.

3.5 WIRING METHODS AND PRACTICES

A. Identification: All wires shall be permanently identified at each wire by marking with "E-Z" tape marker or equivalent.

B. Terminal Blocks: All terminal block connections shall be readily accessible. Not more than two wires connected to one terminal. Spare terminal blocks, equivalent to 10% of those in actual use, shall be provided.

C. Splicing: Splicing of cables shall not be permitted between terminations at specified equipment.

D. Pulling Cable: Do not pull wire or cable through any box fitting or enclosure where change of raceway alignment or direction occurs. Do not bend conductors to less than recommended

radius. Employ temporary guides, sheaves, rollers, and other necessary items to protect cables from excess tension, abrasion, or damaging bending during installation.

E. Cable Tie: Form in a neat and orderly manner all conductors in enclosures and boxes, wireways, and wiring troughs, providing circuit and conductor identification. Tie as required using T & B "Ty-Raps" (or equivalent) of appropriate size and type. Limit spacing between ties to 6" and provide circuit and conductor identification at least once in each enclosure.

F. Service Loops: Provide ample service loops at each termination so that plates, panels, and equipment can be demounted for service and inspection.

G. Wiring Harnesses:

1. All wires and cables entering equipment racks shall be formed into harnesses which are tied and supported in accordance with accepted Engineering practice.
2. Harnessed cables shall be formed in either a vertical or horizontal relationship to equipment, components, or terminations.

3.6 EQUIPMENT RACKS

A. General: The equipment racks shall be considered as custom assemblies and shall be assembled, wired, and tested in a properly equipped shop maintained by the Contractor. Assembly of racks on site shall not be permitted.

B. Equipment Location: Placement of equipment in equipment racks, as indicated in the drawings, is for maximum operator convenience. Verify any changes in placement prior to assembly. All system components and related wiring shall be located with due regard for the minimization of induced electromagnetic and electrostatic noise, for the minimization of wiring length, for proper ventilation, and to provide reasonable safety and convenience for the operator.

C. Rack Installation: Racks shall be installed plumb and square without twists in the frames or variations in level between adjacent racks.

D. Identification: All terminal blocks and rack-mounted equipment shall be clearly and logically labeled as to their function, circuit, or system as appropriate. Labeling on manufactured equipment shall be engraved plastic laminate with white lettering on a black or dark background that is similar to panel finish.

3.7 ACCEPTANCE TESTING

A. The Acceptance Testing shall be performed by the Owner or the Owner's agent. Coordinate this period so that free access, work lighting, and electrical power is available on the site.

B. Be prepared to verify the performance of any portion of the DCS system by demonstration and instrumented measurements.

3.8 SYSTEM DOCUMENTATION

A. Prior to Final Acceptance Tests, submit to the Architect three (3) copies of an operating and maintenance manual for the system that has been installed. These manuals shall be used during the Final Acceptance Testing of the system. Each manual shall contain the following information:

1. *Record drawings*
2. *Operations and maintenance manuals*
3. *Single line diagrams showing levels throughout system and impedances*
4. *Provide test certification for CAT-6 at 350Mpbs and Fiber cable at 850nm. Provide one hard copy and one disk compatible with Microsoft Office Excel for these test results to the City's Project Manager.*

3.9 WARRANTY

A. The Contractor shall guarantee all components and labor of the work defined in this Specification for a period of one year after Final Acceptance by the Owner. The following conditions shall apply:

1. *The Contractor shall provide service within eight (8) hours, after notification by the Owner or his representative, within the hours of 8:00 a.m. to 5:00 p.m. from Monday through Friday. Service Request forms shall be supplied to the Owner and the faxing or mailing of such a request form shall constitute notification by the Owner of a service request.*

END OF SECTION 271500 (ADDENDUM NO. 3)

SECTION 275123 - INTERCOMMUNICATION SYSTEM (ADDENDUM NO. 3)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the Contract Documents apply to this Section.

1.2 DEFINITIONS

A. Call-In

1. A call placed via a classroom call-switch or classroom workflow interface and intended to request assistance from the front office. A call-in will initiate a tone on the office located, administrative console and will be answered by front office staff using the handset or hands-free option on the console.

B. Workflow Request

1. A Workflow Request is any action request placed by touching a specifically labeled widget on the classroom workflow interface (not just a standard call-switch) that specifically communicates a need directly to a location other than the main office, maintenance, IT, nurse, Library etc. System of design has minimum of 168 various Workflow Requests initiations that can accommodate specific labeling. System allows for user defined customization of Workflow Requests actions and request target destinations.

1.3 SUMMARY

A. This section includes a fully operational, IP-based system for a district-wide and individual school internal communication, notification, and classroom workflow enhancement system. The system shall provide bell scheduling, general paging and intercom functions, school safety enhancements and critical communications with individual school and districtwide emergency notification and management capabilities, and classroom workflow enhancement features, all provided on an enterprise-based, single server platform. The following attributes shall be required and shall be described as:

1. A TCP/IP enterprise platform installed on a single server that serves the entire district. All capabilities listed within these specifications are intended to be native to a single platform. Systems that require third party application/platform integration or more than one server, or individual servers or PCs at individual school locations shall not be acceptable.
2. Classrooms shall be capable of initiating indication of changing room attributes such as "Needs Cleaned." Rooms needing cleaning will be identified by illuminating room status light and changing room status on mapping. When the room has been cleaned a "Cleaned" status change shall be initiated from the classroom and each

status shall be logged on integrated system software. Workflow requests and completion statuses shall be indicated on classroom Status Lights and integrated mapping. Emails relating to requests shall also be sent to user defined response group and each status shall be logged onto integrated system software.

3. ***Shall benefit hallway protocols with wayfinding, workflow and shall be accomplished through user-defined, preprogrammed messaging in hallways between classes. Visual indication of direction of hallway traffic flow shall be visible on hallway message boards and incremental audio messages reminding students of proper hallway etiquette shall be heard on overhead speakers in hallway zones.***
4. ***Shall include the ability for emergency announcements to override any field adjusted volume levels, assuring that all Emergency/Lockdowns etc., are heard at each speaker location. Any systems requiring local, hardwired volume controls to control speaker volumes shall not be acceptable.***
5. ***Capable of sending written Emergency Notification instructions directly to classroom or office staff on the interactive POE workflow interface.***
6. ***Capable of creating custom, pre-recorded emergency announcements that can be activated by an administrative console, panic button, SIP trunk connected phone, mobile application, POE classroom workflow interface, REST API and web browser user interface.***
7. ***Integrated two-way, handsfree audio separate from district or facility VOIP phone systems. Platforms that rely on district or facility VOIP telephones as the only two-way audio path to classrooms shall not be acceptable.***
8. ***Including a REST Application Programming Interface (API) for interface to third party systems. Systems that do not provide logic-based integration or rely solely on unsupervised, electronic relay inter-connections shall not be acceptable.***
9. ***Including a same-source, interactive floor plan that displays system activity including call-in and lockdown initiation location as well as device status at each connected school in the district. System device failures and/or off-line status as displayed on floorplan map shall be communicated via email to user defined recipient, or group of recipients. Maps shall be customizable and specific to each school and viewed on system browser-based, user interface.***
10. ***Capable of generating visual notifications based on system activity. Emergency priority calls from classrooms shall be visually indicated on all message boards. Visual notification shall include the priority of the call and its origin by classroom name and/or number. Notifications shall also include indication on all associated Status Lights.***
11. ***Capable of providing authorized administrators with the ability to initiate any preprogrammed emergency condition from any classroom with the proper credentials. Systems that are limited to classroom telephone integration, 3rd party mobile applications, or unsupervised hardware to accomplish this shall also provide a second, supervised means to initiate school-wide emergency notifications from all classrooms.***
12. ***Classroom emergency calls shall initiate a Text-To-Speech, location specific, real-time audio message to a speaker, zone of speakers or all speakers. Emergency call-in generated overhead audio messaging shall also be automatically activated or deactivated based on time of day.***
13. ***Including the ability to send a live or pre-recorded audio page to a SIP trunk connected SIP phone or group of SIP phones.***
14. ***Providing an associated, same-source IOS and Android mobile application. The mobile application shall give the authorized user the ability to initiate local***

emergencies from their mobile device, from any location within a school. The mobile application shall also provide authorized users the ability view, in real-time, classroom check-in status on their mobile device. Mobile application must deactivate once the mobile device has left the school it is associated with. Users of the APP shall be managed via the browser-based user interface.

15. ***Capable of network time protocol synchronization (NTP) with class change tones utilizing multiple, programmable schedules for each zone.***
16. ***Providing district-wide and individual school distribution of pre-recorded and live pages, tones, music and visual messaging.***
17. ***Including a web-based user interface for programming, configuration, bell scheduling and access for all uses as described herein with the proper credentials.***
18. ***Providing multiple levels of call-in priorities which shall be user-definable, allowing each call station to place a call with a user-selected priority as chosen from a minimum of 999 different priorities.***
19. ***Allowing any authorized administrator to call from outside the school into any classroom, page a zone, or entire school directly, via the School District supplied, SIP trunk enabled Telephone Network. This access shall include remote monitoring, and two-way conversation from outside the facility as well as paging into the system. Call-ins from the intercom platform to the SIP Trunk connected VIOP phone system shall display all Caller ID information on SIP phones with a display.***
20. ***Providing the capability for authorized system users to create automated sequences that include any or all of the following: voice instructions, tones, emails, program distribution, systems activations by relay and logical integration through a REST API, message board notification and automatic Text-To-Speech announcements.***
21. ***Capable of initiating automated audio and visual message strings from a single-button on a console, a panic button, mobile app, web-based user interface and third-party interfaces as directed by the end user.***
22. ***Providing paging from any system console or SIP trunk connected telephone for each campus or the whole district.***
23. ***Providing the means to allow each single campus installation to remain 100% operational for intercom, paging, bells, and emergencies such as lockdown, even when the main, district connection is unavailable. Survivability of individual schools shall last for a minimum of 14 days without connection to main server.***
24. ***Capable of providing a same-source, integrated, district-wide option for displaying all schools' locations on a single map, showing school status including active emergencies and connection status. Integrated, same source District-Wide application shall allow for live and prerecorded district-wide audio and initiation of emergency sequences to one or all schools in the district. Systems that require a third party or OEM option for this purpose shall not be acceptable.***
25. ***Including the ability to send specific and appropriate written response instructions to all classrooms when an emergency or non-emergency condition has been initiated. Written instructions shall be in addition to audio and visual notifications sent to speakers and message boards. The instructions must be specific as to the type of condition and shall have the ability to be included or excluded from condition sequences. Receipt of instructions shall not solely rely on classroom computers to be received and read.***
26. ***Any costs for annual system firmware updates shall be provided at no charge from the manufacturer for the life of the product (local installation fees may apply). Any fees for annual licensing shall be provided by the installing Contractor, for the life of the product.***

1.4 QUALITY ASSURANCE

A. ***Installer Qualifications: Submittals shall include documentation from the manufacturer that the installer is an authorized provider of the system.***

B. ***Factory authorized installers must have a minimum of not less than 3 years, as an authorized installer and service provider of the system being provided for this project and must provide a minimum of three reference sites that attest to their affiliation and competency.***

1.5 IN-SERVICE TRAINING

A. ***The contractor shall provide and implement a complete and comprehensive training program for all administrators, facility staff members, and teachers. This mandatory training program will provide school staff a complete understanding of how to utilize and properly operate all functions.***

B. ***The training program shall be implemented by a staff member/trainer employed by the system providing contractor and trained by the manufacturer. Manufacturer certification of trainer shall be provided in the submittals.***

C. ***All staff development training is to be coordinated through the owner's designated representative. As training sessions are completed, the trainer will provide the school's administrative staff and school district's staff with a document listing all the staff and faculty members who attended, received, and completed the training program.***

1.6 WARRANTY

A. ***Provide a manufacturer's five-year warranty of the internal communication, notification and classroom workflow enhancement system equipment against defects in material and workmanship. This warranty will cover all electronic system components. Additional warranties cover clocks, speakers, and call-in switches. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost (equipment only); a one-year warranty shall be provided for labor.***

B. ***A copy of the manufacturer's standard statement of warranty proving all equipment provided for the internal communication, notification and classroom workflow enhancement system is covered with the required five-year warranty shall be included with the project submittal. This statement of warranty shall be provided on the manufacturer's stationery. The Contractor shall respond, excluding weekends and holidays, within 24 hours to any warranty service calls. If equipment cannot be repaired within 24 hours of service visit, the contractor shall provide "loaner" equipment to the facility at no charge.***

C. ***Make available a service contract offering continuing factory authorized service of the system for regular maintenance on items not covered within the warranty.***

D. ***Due to potential distributor turnover, all equipment warrantees must be provided by the manufacturer and shall adhere to the 5-year warranty offered by the system selected as the***

basis of design in these specifications. Submittals shall include documentation of the manufacture's five-year warranty.

1.7 MANUFACTURERS

A. The basis of design for the internal communication, notification and classroom workflow enhancement system is the Rauland Telecenter U. Other manufacturers shall be considered however, final acceptance of the system will be by the owner. If the installed system for this project is not the basis of design and the owner is not satisfied with the installed system, Final Acceptance will not be given and the system providing contractor must provide the basis of design, installed at no cost to the owner and to the owner's satisfaction in accordance with the performance requirements of these specifications and adhering to the manufacturer's recommended installation guidelines. Requests for substitution or addition of any of the below manufacturer's approved for bidding must be received by the General Contractor and granted by the Engineer of record 10 days prior to the bidding date.

1. ***Rauland Telecenter U***
2. ***Authorized Distributor:***
   Name
   Address 1
   Address 2
   Contact:
   Email:

B. Additional manufacturers of consideration as provided by and subject to compliance with all performance requirements of this specification are:

1. ***XYZ Manufacturer***
2. ***Authorized Distributor:***
   Name
   Address 1
   Address 2
   Contact:
   Email:

3. ***XYZ Manufacturer***
4. ***Authorized Distributor:***
   Name
   Address 1
   Address 2
   Contact:
   Email:

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. Provide complete and satisfactorily operating district-wide and individual school internal communication, notification, emergency notification, management, and classroom workflow enhancement system as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated.

B. The single, MS Windows server, software-based platform shall natively provide but not be limited to, a minimum of 10 audio channels for each individual school, classroom IP Speaker Modules, Status Lights, Message Boards, call switches, IP Zone Modules, IP Administrative Console(s), SIP trunk enabled VOIP integration, local and district-wide paging, emergency notifications, calendar-based scheduling, application programming interface and integrated mapping. System shall include the latest classroom workflow enhancement capabilities as described herein.

C. Each Classroom shall be provided with a speaker, a Speaker Module interface, a status light, and call-in capability from the POE classroom workflow interface. The interface shall provide the classroom teacher with the ability to place up to 168 different types of calls and workflow requests to specific locations, including "Normal," "Emergency," "Check-in," "Needs Cleaned," "Cleaned," etc. Systems that rely solely on a phone or intercom handset or systems that cannot silently indicate classroom lockdown status shall not be acceptable.

D. Call-ins shall be prioritized, and each classroom shall be able to select a minimum of 5 call locations simultaneously. Systems that do not allow for classrooms to initiate call-ins and or workflow requests to more than one location simultaneously shall not be acceptable.

E. Call-ins shall automatically display priority and origin location on administrative consoles, interactive maps, and SIP trunk enabled phones. System shall provide the ability to annunciate a Text-To-Speech audio message of call-ins that include priority and origin location information, automatically using overhead speakers. Workflow requests shall also be capable of initiating a Text-to-Speech overhead page and visual notification on message boards as described herein.

F. Call-ins shall be programmed to automatically change priority and annunciation destination based on age of call-in or time of day the call-in is placed. Workflow requests shall also be capable of being escalated as described herein.

G. After office staff depart for the day, classroom call-in destinations shall be automatically re-routed to locations attended by security personnel or designated location as defined by end-user. Classroom call-in destinations shall automatically return to default call destinations prior to the start of each school day.

H. The platform shall lend itself to expansion by simple addition of hardware modules without having to adjust or change the main software.

I. The system shall allow for the adjustment of individual volume levels of incoming intercom, paging and program volumes from within the classroom, by properly credentialed personnel on the interactive POE workflow interface. Locally adjusted volume levels shall not interfere with the volume and distribution of emergency notifications.

J. The system shall include Text-To-Speech capability. Text-To-Speech is required to allow for the automatic distribution of audio messages generated by user-designated system activity. For Text-To-Speech audio messages, individual specifics of a classroom call-in shall be included in an audio notification which is then distributed to a speaker, group of speakers or all speakers. Messages shall also be displayed visually on designated message boards.

1. ***This specific project requires the system to distribute an audio message to all speakers when an emergency call-in has been activated from a classroom. Audio message shall contain and identify the priority name, priority number, room name, room extension. (All call switches must be capable of initiating a minimum of normal and emergency call priorities from their location.)***
2. ***Example audio and visual page for this specific project: "...An emergency call has been activated in room 116..."***
3. ***Duration, volume and content shall be programmable and customizable but must include the origin location and priority of the call.***

K. The platform shall connect directly to an existing, standard protocol WAN/LAN network, without the need for a separate server or PC at each school location. Daily use, configuration, bell schedules, and emergency sequences shall all be accessible by an authorized user on the native, web-based user interface.

L. The platform shall provide the ability to monitor individual classrooms in emergency situations from any administrative console or SIP trunk connected telephone from within the facility or from outside the facility. Communication from within the classroom shall be hands-free.

M. The system shall provide but not be limited to the following during a Lockdown condition:

1. ***A prerecorded, condition specific (Lockdown) audio message, shall be distributed to every designated speaker within the affected facility.***
2. ***A visual notification shall be distributed to every designated message board in the facility.***
3. ***User defined, integrated systems shall be activated through logical, API integrations.***
4. ***User defined, automatic municipal notification.***
5. ***Classroom and zone status lights shall indicate lockdown and check-in status condition.***
6. ***Initiate classroom check-in requirement.***
7. ***Appropriate response instructions shall be sent to classrooms and viewable on the POE classroom workflow interface.***
8. ***Classrooms shall be capable of indicating the successful completion of their classroom lockdown procedures via their call switch and or POE classroom workflow interface. All check-in procedures shall be logged in with the system activity logging software.***
9. ***Administrators shall be able to initiate two-way communication, without a pre-announcement tone, to the classroom during an emergency via the administrative console or any SIP trunk connected phone.***
10. ***Individual classroom check-in and school emergency status shall be viewed from the web-based user interface on the native mapping, a local Administrative Console, or the IOS/Android mobile application.***

11. *Bell schedules shall be automatically disabled during user-selected emergency sequences.*
12. *At the conclusion of the emergency, a system-wide All Clear shall be capable of being sent from an Administrative Console, classroom workflow interface or the native, web-based, user interface.*
13. *Pre-recorded Lockdown audio message shall also be transmitted to all school district radios. If the owner desires, audio message shall also be capable of being transmitted to local municipal responder radios.*

N. IP Addressable Classroom Speaker Modules for individual rooms shall be system programmable and may be assigned any two through six-digit number as well as name and description. Any extension may be reassigned at any time. Systems that do not allow for IP assignment of classroom control devices shall not be acceptable. Systems that limit or do not contain TCP\IP configuration or systems that only configure by a MAC address for classrooms shall not be acceptable.

O. IP-enabled two-way voice communication shall be available from any administrative console, SIP trunk connected telephone to classroom speakers in a school within the district. A programmable pre-announced tone shall sound immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when the talk/listen path is active, complying fully with all privacy legislation. Preannounce tone, supervisory tones and bell schedule tones shall be programmed to automatically disable during designated emergencies. The system shall also be able to provide two-way intercom and messaging to the interactive POE workflow interface for general and emergency communications.

P. The platform shall include a native, calendar-based scheduling application that allows users to view and amend bell schedules by selecting the month(s) and day(s) to view in a calendar format. Authorized users shall be able to configure multiple bell schedules per school, with a minimum of 500 unique events per schedule. Scheduled events shall include daily bell tones, relay actions, wayfinding announcements and direction, email notifications, visual messaging, status lights and paging exclusions as system configuration changes. The platform shall allow control of the bell schedules via the district WAN/LAN without the need for a separate server or PC at each school location. Bell schedules shall be locally or remotely created and changed by an authorized user through the native web-based user interface. Scheduling shall include the following minimum features:

1. *20 unique bell schedules per school*
2. *Minimum of 5 simultaneously active schedules on any given campus.*
3. *User selectable tones as well additional user created and uploaded audio files for class change signaling and messaging.*

Q. The platform shall connect to existing PA/intercom systems throughout the district and utilize them to provide distribution of live, pre-recorded, emergency or ad-hoc audio distribution as well as bell schedule tones. Connection to existing PA/intercom systems shall also support visual message boards, classroom status lights, POE classroom workflow interfaces and panic buttons in schools regardless of the manufacturer of the existing and installed intercom system in each school.

R. ***The platform shall allow for the hybrid connection of existing 25 Volt analog speakers and call-in devices that remain connected on existing wiring to provide two-way audio, call-in, and event/bell scheduling, classroom check-in and software-based volume level adjustments. The system shall also provide for the ability to utilize IP-addressable classroom speakers and hybrid connectivity within the same school.***

S. ***The school district shall not be responsible for recurring annual licensing or subscription fees related to this system. A minimum of 12 years of licensing fees for the provided system shall be included and provided in this contract by the installing Contractor at no additional cost to the owner.***

T. ***The platform allows for emergencies to be initiated as a "Drill." Drill sequences replicate all on-site emergency procedures and can be programmed to exclude any outside connection to municipal responders or actions as determined by the owner. All system activity for drills shall be documented on the included system reporting software.***

U. ***The platform shall provide status lights that display the status of individual classrooms, and aggregately for hallways, zones or sections of a school and school-wide status. Status lights shall be customizable in color and flash rate based on event type and priority.***

V. ***Visual message boards shall be available in 2 sizes. Small message boards shall have 8 by 40 LED display with 3 color LED's. Large message board shall provide 1 or 2 lines with 16 by 80 LED display with 3 color LED's. During idle time, the message boards can display date and time. Message boards shall also be capable of providing countdowns for class change, display emergency status, comply with COVID protocols for wayfinding and creating messages on the fly. Classroom message boards shall also be capable of a count-up/count-down function for testing.***

W. ***During a lockdown, status lights shall be configurable so as not to display classroom status until first responders arrive. Check-in notifications shall still be viewable on web-based browser, the mobile application, system console(s) and mapping application with the appropriate administrative credentials.***

X. ***The system shall include a native graphical map application accessible from the web-based user interface. The mapping feature shall include a visual floorplan of the school and inform the user of system activity in real-time. Call-ins, active audio, active emergencies, and device status shall be capable of being viewed on the mapping screen for any school or all schools.***

Y. ***The system shall provide the ability to connect to other critical systems within this school via a REST API for logic based inbound and outbound control to and from other systems within a school that include but are not limited to; fire alarm, access control, security systems and IPCCTV cameras and systems. Systems that rely solely on unsupervised, electronic relay connection of inbound and outbound control shall not be acceptable.***

2.2 EQUIPMENT AND MATERIAL

A. ***Enterprise Server and Software***

1. ***Provides a Windows based, single server platform with district-wide connectivity for native, individual school intercom, paging, bell event scheduling, emergency notification, text to speech and configuration for individual schools from a single server, accessed from anywhere via the web-based browser interface. The enterprise platform also provides for native, district-wide communication, control, notification and classroom workflow enhancements. Systems that require individual servers or PCs at each school location or 3rd party or OEM additions to main system to accomplish the above, required performances shall not be acceptable.***
2. ***Shall be capable of being installed in a virtual or physical server environment.***
3. ***Supports HTTPS browsing.***
4. ***Supports advanced encryption to ensure secure access.***
5. ***Specified users shall receive email notifications when system devices go offline.***
6. ***Includes logging and reporting of all system activity for a minimum of one year. These reports shall be capable of being exported to .CSV.***
7. ***Shall provide a minimum of 20 bell schedules per school, with a minimum of 5 simultaneous schedules assignable to a specific school day. Bell schedules can be programmed to annunciate tones, activate relays, swing configurations, send emails, activate program distribution, and notify SIP trunk connected phones. Schedules shall be accessible from anywhere, via the native, web-based browser interface, with the proper credentials.***
8. ***Shall allow for programmable end points to be automatically included or excluded for live paging, visual notifications, bell tones, or prerecorded audio, depending on the time of day or day of the week. These inclusions/exclusions shall be capable of being applied manually or automatically.***
9. ***The software shall provide a native, district-wide graphical map view of all schools and their current status including emergency and on/off-line statuses.***
10. ***The software shall provide the ability to identify individual classrooms that are not checked-in during an emergency using any web browser on the district's network. The software shall identify the name, extension, of the classroom that is not checked-in during the emergency.***
11. ***Shall provide a minimum of 18 customizable emergency sequences, including condition specific All-Clear – with the ability to return the system to normal status.***
12. ***Shall provide simultaneous communications to all schools or groups of schools within a district.***
13. ***The system provides the ability to export lists of bell schedule steps, emergency sequences, staff directory, users, peripherals, and zone targets.***

B. Campus Controller

1. ***Provides call routing for paging and intercom for a single school or building on the district's network.***
2. ***Supports a numbering plan allowing two, three, four, five, or six-digit extensions.***
3. ***Ability to upgrade priority level from individual call-in activation.***
4. ***The ability to automatically escalate incoming call-ins to an alternate console, telephone or group of telephones if a call-in remains unanswered for a predetermined amount of time.***
5. ***Synchronizes system time to the district network time server.***
6. ***Shall support a minimum of 100 independent zones for zone paging, program/music, distribution zones and class change tone zones; these assignments are a programmable function, changeable by time of day.***

7. *Shall support program distribution to be activated manually or automatically through an event/bell schedule.*
8. *Shall provide local survivability of 100% of local school communications if disconnected from the central server for a minimum of 14 days. Systems that cannot operate at all or operate in a degraded mode due to same conditions as indicated above, shall not be acceptable.*
9. *Provides SIP trunk interface to a district provided Telephone Network and shall be capable of allowing connected phones to display classroom call-ins, answer internal intercom call-ins, make pages, and change priorities of call-ins in progress. SIP trunk Interface shall provide:*

    a. *Audio paging access from any sip trunk connected telephone to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns throughout the entire facility.*
    b. *Ability to answer a call-in directed to a SIP trunk connected extension.*
    c. *Ability to upgrade a call-in directed to a SIP trunk connected extension.*
    d. *Ability to initiate a school-wide emergency including lockdown and evacuation sequences from a SIP trunk connected telephone.*
    e. *SIP device shall display call-in identification including classroom name, room number, and priority level.*
    f. *In administrative areas where there are no overhead speakers send audio pages to a SIP trunk connected phone or group of phones, as determined by the owner.*

C. POE Administrative Console

1. *A full color screen with 64 soft keys, 3-line select, volume control, push to talk, speakerphone mode and left/right and up/down scrolling.*
2. *Shall allow for a PIN code for all actions individually or selected actions. Systems that require a PIN for "all or none" shall not be acceptable.*
3. *Audio paging access from any Console to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns throughout the entire school as well as any owner defined SIP trunk connected phones or groups of phones.*
4. *Ability to perform intercom to any single IP Addressable Speaker Module.*
5. *Ability to display a minimum of 3 call-ins at a time on the screen while other call-ins are annunciating and the ability to scroll to view all call-ins.*
6. *Ability to upgrade a call-in priority via soft key.*
7. *Displays classrooms that have not activated a system check-in from a check-in activation, during an emergency event.*

D. POE Kiosk

1. *The POE, interactive, multi-touch, Kiosk provides a self-contained, full system control interface with two-way IP audio and contains features to enhance classroom workflow. The Kiosk shall be permanently mounted. See plans for locations. The Kiosk can be installed and associated with an IP classroom speaker module for control of classroom devices, classrooms controlled by the hybrid gateway interface or as a stand-alone control and communication device when a classroom endpoint is not needed. The Kiosk shall provide a minimum of 8 separate user-definable*

screens, protected by a 3-level hierarchy of protection: Public, Standard and Override. The control fields support up to 168 control options as defined by individual widgets or a combination of widgets. At minimum, the Kiosk shall support user definable actions that allow for any combination of the following:

a. Receive and initiate two-way audio with any console or SIP trunk connected phone.

b. Selection of up to 168 options for call-ins/workflow requests with up to 999 priorities from which to assign to each call/request. This project requires every classroom to be able to initiate these call-in/workflow request options for direct connection to:

1) Custodian
2) Library
3) Security
4) Office
5) Nurse
6) Needs Cleaning
7) Cleaned
8) Lockdown (with protected access by administration only)

c. Receive an audio page as part of a zone, multi-zone or all page.
d. Call any location that has an Administrative Console or SIP trunk connected phone.
e. Initiation of emergency sequences
f. Volume adjustments for the associated classroom speaker. Hard-wired, individual volume controls that are limited to all or none and do not allow for higher priority pages to bypass local volume settings shall not be acceptable.
g. Classroom Testing Mode shuts off normal pages, bell tones, intercom and program sources for testing while allowing all emergency notifications to come through. Shall also allow for the activation of the Status Light to owner selected color to indicate that testing is taking place inside the associated room.
h. Select program sources for music in the classroom with volume control.
i. Ability to disable the screen for a short time to clean it from a button.
j. Count up/count down time display
k. Call placed assurance indication
l. Call answered indication
m. Call ended indication

2. Under Emergency conditions, the Kiosk in each classroom shall be capable of receiving and displaying written instructions outlining the appropriate response for each emergency condition. Classrooms are to follow these instructions. Kiosk shall also include a check-in option to acknowledge receipt of notification and the completed execution of classroom response protocols, specific to the condition that has been activated.
3. The Kiosk widget assignment shall include the ability to select from a minimum of 999 call-in/workflow request priorities and apply them to a minimum of 168 desired actions associated with each individual widget. After final acceptance, changes in

widget priority, destination, size, color and quantity shall not require the additions of cable or the installation of back-boxes to support the additions of call-in/workflow request priorities and targets based on the current or future needs of the classroom.

E. The Kiosk shall be installed in all administrative rooms and offices that do not have a talk-back speaker and / or call station. Hybrid Gateway

1. ***Provides integration of existing analog wiring consisting of shielded two-pair classroom field wiring. The Gateway provides the ability to reuse speaker wiring, speakers, and punch blocks to integrate analog infrastructure with IP platform.***
2. ***Shall output a minimum of 5 watts of power per port and 25 watts total per device.***
3. ***Shall support a minimum of 24 classrooms.***

    a. ***Systems that do not utilize industry standard 25-volt transformers shall not be acceptable.***

4. ***Shall support a minimum of 999 call switch priorities per classroom and capable of lockdown check-in.***
5. ***Shall support classroom intercom and paging from browser-based user interface.***
6. ***Shall support installations that require a combination of analog Gateway and IP Addressable Modules.***

F. POE Classroom/Speaker Modules:

1. ***System shall include IP Addressable Classroom/Speaker Modules for classroom connection of speaker and other classroom devices.***
2. ***Shall support DHCP.***
3. ***Shall connect to network with a single RJ45 connector.***
4. ***Shall support privacy. When the Privacy switch is activated, it prevents administrative or classroom telephones from monitoring the specific classroom/location intercom speaker.***
5. ***Shall be designed to mount near ceiling and wall speakers in a plenum space***
6. ***Shall support intercom, paging and level adjustment through the browser-based user interface or associated Kiosk. Manual or analog classroom volume controls that do not allow for emergency notification announcements to override classroom volume settings, shall not be acceptable.***
7. ***Shall support and power a status light that displays individual classroom status including but not limited to call-ins of any priority, testing and emergency check-in.***
8. ***Shall support supervision of call-switches.***

G. POE Zone Paging Module

1. ***Shall be IP addressable and connect multiple speakers for district all page, zone paging, bells, audio events and, emergency notification.***
2. ***Shall be rack and wall mountable.***
3. ***Shall be able to belong to one or more than one independent zones for live paging, bells, pre-recorded audio, and emergency notification.***

H. POE, Aux I/O Module

1. *Shall be IP addressable with two input contacts and two output contacts.*
2. *Contacts shall be individually addressable.*
3. *Shall be wall and rack mountable.*
4. *Shall be activated manually, by event/bell schedule, or as part of alternative condition sequence.*

I. POE Program Line Input Module

1. *Shall be IP addressable and provide line level audio program distribution into system.*
2. *Shall have a 3.5mm cable jack.*
3. *Shall be configured via web-based user interface.*
4. *Shall support assignment of system priority level such that emergency communications may override Line Input Module when active.*

J. POE Microphone Input Module

1. *Shall be IP addressable.*
2. *Shall support dynamic and condenser style microphones.*
3. *Shall support microphones with or without Push-To-Talk functionality.*
4. *Shall support configurable paging priorities.*
5. *Shall have adjustable microphone gain levels.*
6. *Shall support automatic increase of audio priority during an emergency.*

K. POE Zone Page Powered Amplifier Module

1. *Shall be IP addressable and provide 14 or 35 watts output.*
2. *Shall be wall or rack mounted.*
3. *Powered with either a wall wort or POE+*

L. POE Visual message boards.

1. *Shall be IP addressable and powered by POE or POE+.*
2. *Shall be available in 2 sizes*
3. *Large: 2 lines 16 by 80 LED display*
4. *Small: 1 line 8 by 40 LED*
5. *3 color LEDs: Red, Amber and Green*
6. *Shall be self-contained and mountable on a Sigle-gang box without additional backboxes.*
7. *Shall be wall or ceiling mounted. Small messages boards shall be dual mountable (back-to-back.)*
8. *Small message board may be mounted in combination speaker and message board baffle and installed either flush or surface mount.*
9. *Shall be capable of displaying messages up to 100 characters long.*
10. *Shall support the addition of a Status Light.*
11. *Shall be assigned to any or all zones or individually for message distribution.*
12. *Shall be capable of displaying messages on the fly as generated in the user interface accessible through the web-based browser interface.*
13. *Shall display location an emergency call-button or widget within a school.*

14. *Shall be convertible to a count-up/count-down mode with the addition of local control panel.*

M. POE Combination Speaker/Clock/Message Board

1. *Shall be IP addressable.*
2. *Houses a message board IP speaker module, and speaker in single baffle.*
3. *Includes a high efficiency, full range 8" speaker and a small message board.*
4. *Transmits system audio and shows time on digital display.*
5. *Visually indicates condition changes and audio messaging.*
6. *Shall be flush or surface mount.*
7. *Connects to IP Classroom module for control, programming, and distributed audio and visual messaging.*

N. Status Light

1. *Shall be powered and controlled by an IP Classroom Module.*
2. *Shall support separation and individual indication of classroom status and school wide status.*
3. *Shall provide customizable and user-definable colors and blink patterns based on status priorities.*
4. *Shall indicated status of individual, associated classrooms as initiated by teacher via a call station or Kiosk.*
5. *Shall provide an aggregate condition status of a selected zone of rooms or locations to indicate overall status of the selected zone.*

O. Normal/Emergency Call Switch

1. *Normal/Emergency call stations are a single station, two-button, supervised station that provides call-ins with individual priority for each button. The "NORMAL" call button shall be clearly labeled and color coded (white) and shall initiate a normal call to the pre-selected destination. The "EMERGENCY" button shall be clearly labeled and color coded (Red) and shall initiate an emergency call from the classroom to the preselected destination and shall be capable of changing the associated classroom status light to indicate the presence of an initiated emergency call from the classroom. Under Lockdown condition, the "NORMAL" button shall automatically serve as a classroom, Lockdown Check-in button and shall be capable of changing the associated classroom status light to indicate an absence of or confirmation of completed lockdown response actions by the teacher or designated person within the classroom. All call-in stations shall be supervised by the main system. See plans for required locations of the Normal/Emergency call stations.*

P. Emergency/Check-In Call Switch

1. *Emergency/Check-in call stations are a single station, two-button, supervised station that provides call-ins with individual priority for each button. The "EMERGENCY" call button shall be clearly labeled and color coded (Red) and shall initiate an emergency call from the classroom to the preselected destination and shall be capable of changing the associated classroom status light to indicate the presence of an initiated emergency call from the classroom. Under Lockdown condition, the*

"CHECK-IN" button shall automatically serve as a classroom, Lockdown Check-in button and shall be capable of changing the associated classroom status light to indicate an absence of or confirmation of completed lockdown response actions by the teacher or designated person within the classroom. The "CHECK IN" button shall be clearly labeled and color coded (Blue). All call-in stations shall be supervised by the main system. See plans for required locations of the Emergency/Check-in call stations.

Q. 4-Button Call-In Switch

1. 4-Button Call Stations are a single station, 4-button, supervised station that provides call-ins with individual priority for each button. Each station shall be customized as directed by the owner and shall include call buttons to be clearly labeled and color coded. Each of the buttons shall initiate a pre-selected priority call from the classroom to the preselected destination and shall be capable of changing the associated classroom status light. All call stations shall be supervised by the main system. See plans for required locations of the 4-button call stations.

PART 3 - EXECUTION

3.1 GENERAL

A. Perform the work in accordance with acknowledged industry and professional standards and practices, and the procedures specified herein.

B. Provide all materials, devices, components, and equipment for complete operational systems.

C. Maintain a competent supervisor and supporting technical personnel, acceptable to the Owner, during the entire installation. Change of the Supervisor during the project shall not be acceptable without prior written approval from the Architect/Engineer.

D. Coordinate all efforts with those of related trades. In the event of any conflicts, delayed, or improper preparatory work by others, notify the Architect/Engineer. The Architect's/Engineer's decision shall be binding. Verify all field conditions.

3.2 INSTALLATION OF SYSTEMS

A. Device Locations: Locate all apparatus requiring adjustments, cleaning, or similar attention so that it shall be accessible for such attention. Equipment racks shall be positioned to permit full access for operation and service.

B. Blank and Custom Panels: Finish of blank panels and custom assembly panels shall match adjacent equipment panels as closely as possible.

C. Markings: Switches, connectors, jacks, receptacles, outlets, cables, and cable terminations shall be logically and permanently marked. Custom panel nomenclature shall be engraved,

etched, or screened. Marking for these items are purposely detailed on the drawings to ensure consistency and clarity. Verify any changes in working type size, and/or placement with the Owner prior to marking.

D. Environment: The equipment specified herein is designed to operate in environments of normal humidity, dust, and temperature. Protect equipment and related wiring during installation where extreme environmental conditions can occur.

E. Conduit: Review and coordinate conduit installation required for the system to ensure proper installation.

3.3 ELECTRICAL POWER

A. Grounding: Review and coordinate electrical power system installation, including grounding, to ensure proper operation of the system.

B. Verification: Verify that all AC power circuits designated for the system are properly wired, phased, and grounded. Report in writing any discrepancies found to the Division 26 Prime Contractor for corrective action.

C. Equipment Rack: Provide distribution of electrical power within the equipment racks with a minimum of two spare AC receptacles per branch circuit, used in the racks.

3.4 CLEANING

A. Clean all junction and terminal box interiors thoroughly before installing plates, panels, or covers.

3.5 WIRING METHODS AND PRACTICES

A. Identification: All wires shall be permanently identified at each wire end by marking with "E-Z" tape marker, or equivalent, identifying the classroom or space served using the final building room numbers.

B. Terminal Blocks: All terminal block connections shall be readily accessible. Not more than two wires connected to one terminal. Spare terminal blocks, equivalent to 10% of those in actual use, shall be provided.

C. Splicing: Splicing of cables shall not be permitted between terminations of specified equipment.

D. Pulling Cable: Do not pull wire or cable through any box fitting or enclosure where change of raceway alignment or direction occurs. Do not bend conductors to less than recommended radius. Employ temporary guides, sheaves, rollers, and other necessary items to protect cables from excess tension, abrasion, or damaging bending during installation.

E. ***Cable Tie: Form in a neat and orderly manner all conductors in enclosures and boxes, wireways, and wiring troughs, providing circuit and conductor identification. Tie as required using T & B "Ty-Raps" (or equivalent) of appropriate size and type. Limit spacing between ties to 6" and provide circuit and conductor identification at least once in each enclosure.***

F. ***Service Loops: Provide ample service loops at each termination so that plates, panels, and equipment can be demounted for service and inspection.***

G. ***Wiring Harnesses:***

1. ***All wires and cables used in assembling custom panels and equipment racks shall be formed into harnesses which are tied and supported in accordance with accepted engineering practice.***
2. ***Harnessed cables shall be formed in either a vertical or horizontal relationship to equipment, controls, components, or terminations.***

3.6 EQUIPMENT RACKS

A. ***General: The equipment racks shall be considered as custom assemblies and shall be assembled, wired, and tested in a properly equipped shop maintained by the Contractor. Assembly of racks on site shall not be permitted.***

B. ***Equipment Location: Placement of equipment in equipment racks, as indicated in the drawings, is for maximum operator convenience. Verify any changes in placement prior to assembly. All system components and related wiring shall be located with due regard for the minimization of induced electromagnetic and electrostatic noise, for the minimization of wiring length, for proper ventilation, and to provide reasonable safety and convenience for the operator.***

C. ***Rack Installation: Racks shall be installed plumb and square without twists in the frames or variations in level between adjacent racks.***

D. ***Identification: All terminal blocks, rack-mounted equipment, and active slots of card frame systems shall be clearly and logically labeled as to their function, circuit, or system as appropriate. Labeling on manufactured equipment shall be engraved plastic laminate with white lettering on black or dark background that is similar to panel finish.***

3.7 ACCEPTANCE TESTING

A. ***The Acceptance Testing will be witnessed by the Architect/Engineer. Coordinate this period so that free access, work lighting, and electrical power are available on the site.***

B. ***Be prepared to verify the performance of any portion of the system by demonstration, listening, and viewing tests and instrumented measurements.***

C. Make additional mechanical and electrical adjustments within the scope of work and which are deemed necessary by the Owner or Architect/Engineer as a result of the Acceptance Test.

3.8 SYSTEM DOCUMENTATION

A. Prior to Final Acceptance Tests, submit to the Owner three copies of an Operating and Maintenance Manual for the system that has been installed. These manuals shall be used during the Final Acceptance Testing of the system. Each manual shall contain the following information:

1. ***Record drawings, including floor plans showing all device locations as well as elementary wiring and interconnection wiring diagrams (3 sets of each).***
2. ***Copy of edited configuration files should be downloaded on disk and printed on hard copy paper given to School Plant for future editing and diagnostics.***
3. ***Copy of dial-in numbers assigned to each phone in the building identified by the final building room numbers.***
4. ***A copy of the software package required for the programming of the intercom system.***

END OF SECTION 275123 (ADDENDUM N0. 3)

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SECTION 275313 - WIRELESS CLOCK SYSTEM (ADDENDUM NO. 3)

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. All bids shall be based on the equipment as specified herein. The catalog numbers and model designations are that of the RAULAND-BORG CORPORATION. The specifying authority must approve any alternate system.

B. Bidders wishing to submit alternate equipment shall submit to the specifying authority, at least 10 days prior to bid opening, the equipment proposed to provide a precise functional equivalent system to meet specifications. The Bidder shall provide adequate information prior to bid date such as specification sheets, working drawings, shop drawings, and a demonstration of the system.

C. Final approval of the alternate system shall be determined at the time of job completion. Failure to provide the "precise functional equivalent" shall result in the removal of the alternate system at the contractor's expense.

1.2 RELATED DOCUMENTS

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

B. Requirements of the following Division 16 Sections apply to this Section:

1. *Basic Electrical Requirements.*
2. *Basic Electrical Materials and Methods.*

1.3 SUMMARY

A. This Section includes an NTP Synchronized Wireless Clock System. It includes requirements for a NTP Synchronization system components including, but not limited to, the following:

1. *Transmitter*
2. *NTP Receiver module*
3. *Wireless Analog Clocks (Battery/AC Powered)*
4. *Wireless Digital Clocks (AC Powered)*

1.4 RELATED SECTIONS:

A. The following Division 26 Section may contain requirements that relate to this Section:

1. "Electrical Boxes and Fittings," for boxes, cabinets and fittings used for installation of transmitter for system.
2. Intercommunication System for interface to bell system.

1.5 SYSTEM DESCRIPTION

A. Furnish and install all equipment, accessories, and materials in accordance with these specifications and drawings to provide a complete and operating NTP Synchronized Wireless Clock system for George Wythe High School.

1.6 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

1. Submit equipment drawings with precise locations of transmitter, NTP receiver and all locations of clocks.
2. Submit product data sheets on each component, describing its operational and physical characteristics along with method of installation.
3. The system must operate in accordance with a "Radio Station Authorization" form FCC 601 granted by the Federal Communication Commission (FCC). Submit evidence of application for operating license prior to installing equipment. Furnish the license, or if the license has not been received, a copy of the application for the license, to the Owner prior to operating of the equipment. Upon receipt of license, deliver original license to owner.
4. Provide complete installation, set-up and maintenance instructions and submit a certificate of completion of installation and service training.

1.7 QUALITY ASSURANCE

A. All items of equipment including wire and cable shall be designed by the manufacturer to function as a complete system and shall be accompanied by the manufacturer's complete service notes and drawings detailing all interconnections.

B. The manufacturer must be a company specializing in the manufacturer of commercial timekeeping products with a minimum 30 continuous years of documented experience.

C. The contractor shall be an established electronics contractor that has had and currently maintains a locally run and operated business for at least 3 years. The contractor shall utilize a duly authorized distributor of the equipment supplied for this project location with full manufacturer's warranty privileges.

D. The contractor shall show satisfactory evidence, upon request, that the supplier maintains a fully equipped service organization capable of furnishing adequate

inspection and service to the system. The supplier shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.

E. Electrical Component Standard: Provide work complying with applicable requirements of NFPA 70 "National Electrical Code" including, but not limited to:

1. Article 250, Grounding.
2. Article 300, Part A. Wiring Method.
3. Article 310, Conductors for General Wiring.
4. Article 725, Remote Control, Signaling Circuits.

F. EIA Compliance: Comply with the following Electronics Industries Association Standards:

1. Racks, Panels, and Associated Equipment, EIA-310-A.

G. Installation and start-up of all systems shall be under the direct supervision of a local agency regularly engaged in installation, repair, and maintenance of such systems. The supplier shall be accredited by the proposed equipment manufacturers and be prepared to offer a service contract for system maintenance.

H. The agency providing equipment shall be responsible for providing all specified equipment and mentioned services for all equipment as specified herein. The agency must be a local authorized distributor of all specified equipment for single source of responsibility and shall provide documents proving such. The agency must provide written proof that the agency is adequately staffed with factory-trained technicians for all of the specified equipment. The agency must have established business for and currently be providing all services for the equipment to be provided for a minimum of 3 years.

I. The contractor shall guarantee availability of local service by factory-trained personnel of all specified equipment from an authorized distributor of all equipment specified under this section. On-the-premise maintenance shall be provided at no cost to the purchaser for a period of one (1) year (parts and labor) from date of acceptance unless damage or failure is caused by misuse, abuse, neglect, or accident. Additionally, all manufacturer supplied products must be covered by a five (5) year (parts only) limited warranty from the date of acceptance. The warranty period shall begin on the date of acceptance by the owner/engineer.

J. The contractor shall, at the owner's request, make available a service contract offering continuing factory authorized service of the system after the initial warranty period.

K. The supplier shall visit the sites and familiarize himself with the existing conditions and field requirements prior to submitting a proposal.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in factory containers. Store products in a clean and dry space in original containers. Protect products from fumes and construction traffic. Handle carefully to avoid damage.

1.9 IN-SERVICE TRAINING

A. The contractor shall provide a minimum of 8 hours of in-service training with this system. Operators Manuals shall be provided at the time of this training.

PART 2- PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide one of the following systems:

1. *Synchronized Wireless Clock System and secondary clocks manufactured by Rauland-Borg Corp.*
2. *Approved Equal*

B. The intent of this specification is to establish a standard of quality, function and features. It is the responsibility of the bidder to insure that the proposed product meets or exceeds every standard set forth in these specifications.

C. The functions and features specified are vital to the operation of this facility, therefore, the acceptance of alternate manufacturers does not release contractor from strict compliance with the requirements of this specification.

D. Any proposed system that operates on an unlicensed frequency or has the FCC license in the name of someone other than the building owner will not be accepted.

E. The Contractor for this work shall be held to have read all of the Bidding Requirements, the General Requirements of Division 1, and Contract Proposal Forms; and in the execution of this work, he will be bound by all of the conditions and requirements therein.

F. The contractor shall be responsible for providing a complete functional system including all necessary components whether included in this specification or not.

G. In preparing the bid, the bidder should consider the following:

1. *No claim will be made against the owner for any costs incurred by the bidder for any equipment demonstrations which the owner requests.*

H. Any prior approval of an alternate system does not automatically exempt the supplier from meeting the intent of these specifications. Failure to comply with the operational

and functional intent of these specifications may result in the total removal of the alternate system at the expense of the contractor.

I. Alternate equipment shall be considered. Submission of an alternate shall contain engineering drawings of the system with specification sheets covering all components of the system as well as all items of Section 1 "SUBMITTALS." The system and equipment drawings and specifications sheet shall meet all items of the specification.

J. The specifying authority must approve any alternate supplier.

2.2 SYSTEM REQUIREMENTS

A. Wireless Clock System

1. ***Provide complete and satisfactorily operating NTP Synchronized Wireless Clock System with analog and/or digital secondary clocks as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated.***
2. ***Network Time Protocol (NTP) is a network standard protocol that assures accurate synchronization to the millisecond of computer clock times in a network of computers. Based on UTC, NTP synchronizes client workstation clocks to the U.S. Naval Observatory Master Clocks in Washington, DC and Colorado Springs, CO. Running as a continuous background client program on a computer, NTP sends periodic time requests to servers, obtaining server time stamps and using them to adjust computer clocks.***
3. ***The system shall be easy to learn and operate. All standard system programming shall be user friendly to allow the system administrator the ability to easily program system features.***
4. ***Use materials and equipment that comply with referenced standards and manufacturers' standard design and construction, in accordance with published product information.***
5. ***Coordinate the features of all materials and equipment so they form an integrated system, with components and interconnections matched for optimum performance of specified functions.***
6. ***The NTP Synchronized Wireless System consists of a master transmitter located on the inside of the building, and an NTP receiver connected to a time server. Wireless analog and digital clocks are synchronized to the NTP time. System shall synchronize all clocks to each other. System shall utilize NTP technology to provide atomic time to components.***
7. ***System shall not require hard wiring for its components except for AC Power. Analog Clocks may be battery operated for full portability if required.***
8. ***Analog Clocks shall synchronize to +/- 1 second of the transmitter displayed time.***
9. ***Clocks shall automatically adjust for Daylight Saving per settings on the transmitter.***
10. ***The system shall have an internal clock that is continually updated by the NTP receiver. If an NTP failure were to occur, the clocks would continue to be synchronized to the internal clock and would not deviate from each other. Once NTP time is restored, all clocks would once again be synchronized to the NTP time.***
11. ***The system must have a failsafe design so that if a power interruption were to occur, the clocks will continue to operate. If a sync signal is not received by the***

analog clocks for 48 hours, the second hand will double pulse to indicate this condition. Upon restoration of power, the transmitter will once again communicate with the clocks and normal operation will resume.

12. *Battery Powered Analog Clocks shall require 2 "D" cell batteries.*
13. *System shall be 100% programmable from the front operational panel with lights that indicate power status and NTP reception. Panel programming will also include Time Zone, Frequency, 12- or 24-hour operation and DST on/off.*
14. *The wireless backbone must support expansion of the system to include wireless alphanumeric displays for emergency crisis communications for district-wide communications.*
15. *The system may be modified to use GPS instead of NTP as the time source without the need to replace the transmitter. A GPS receiver would need to be added with access to the outside of the building.*
16. *The system shall lend itself to expansion by simple addition of wireless secondary clocks and their required power source.*

B. Interior Ceiling Speakers

1. *Provide Ceiling Speaker Assembly consisting of 8 Ohm, 8" speaker mounted in a 2 foot by 2 foot, or 2 foot by 1 foot, lay-in baffle, with an integrated back box that covers the full area of the baffle.*
2. *The speaker shall be connected by inserting an 8-pin RJ45 terminated CAT 5e or Cat 6 cable.*
3. *The speaker shall include provisions to allow attachment of a safety cable if required.*

C. Wall-Mounted Horns

1. *Provide double re-entrant type horn loudspeakers with integral driver. The horn loudspeaker shall be impervious to weather and vandalism. Horn shall be constructed of heavy-duty ABS plastic. Horn loudspeaker drivers shall be rated at 15 watts with a frequency response of 480 Hz to 14 KHz. Sensitivity shall be 106 dB 1 watt, 1 meter. Transformer assembly shall be dual voltage multi-tap type suitable for 25 or 70-volt installations. Dispersion pattern shall be 180 degrees conical. The horn loudspeaker shall be constructed of treated heavy gauge aluminum, with all exposed parts potted and a sealed driver. Wiring terminal shall be fully enclosed. The speaker flange and mounting surface shall have a cork-rubber gasket. The horn loudspeakers finish shall be gray baked on enamel.*
2. *The recessed back box shall be of heavy gauge cold-rolled steel, spot welded for stability with a rust-retardant gray primer finish. Acoustically treat the interior to eliminate mechanical resonance. The back box shall be 10-3/4"x10-3/4"x6" deep.*
3. *The baffle shall be vandal proof, the faceplate constructed of 14-gauge carbon steel with a minimum tensile strength of 55,000 PSI. A lattice grid sub-plate shall deny access to the horn but be acoustically transparent for sound projection. Provide tamper proof, stainless steel mounting hardware. The baffle shall a mar/scratch baked epoxy rust inhibitive finish.*

D. Uninterruptible Power Supplies (UPS)

1. *UPS equipment provided for this system will include Power Conditioning to smooth current and voltage fluctuations.*
2. *UPS equipment will be sized in accordance with the system manufacturer's recommendations.*
3. *Provide an individual UPS for EACH SYSTEM CONTROLLER (Gateway) furnished with the system.*
4. *Provide additional UPS(s) for protection of all other equipment furnished with the system and housed in the equipment racks.*
5. *All UPS equipment shall be rack mounted.*

E. Equipment and Materials

1. Wireless Transmitter

a. FCC Part 90 Approved, 467.2125-467.4375 MHz frequency range
b. Radio Technology (Narrowband FM, 12.5 KHz bandwidth)
c. 10 selectively available channels
d. 5-watt transmitter
e. Daylight Savings Time pre-programmed
f. Time Zone Pre-set
g. Non-Volatile Memory
h. LCD Display for time, date, year, power, time zone and signal reception
i. Operating Range (32 degrees F to 158 degrees F)
j. Rack or Shelf Mount
k. Power Supply Input: 120-volt AC, Output: 12-volt DC, 3 Amps
l. 7" Rear Mounted Antenna
m. Dimensions: 12" L x 6" W x 1.75"H Weight: 2 lbs.
n. NTP or GPS Receiver
o. Optional External Antenna for use in large campus applications.

2. Secondary 13" Analog Clock

a. 13" Analog Clock (Battery Powered using 2" D" Cell batteries).
b. Maintenance Free.
c. Five-year manufacturer's warranty.
d. Microprocessor based with built-in wireless receiver
e. Heavy Duty Construction
f. Durable ABS Casing
g. Clock numbering graphics shall be Standard Arabic Format (12HR-60 Minute)
h. Face of clock is white
i. Hour and Minute hands shall be black, second hand is red
j. The clock lens shall use a shatterproof polycarbonate material with no visible molding marks. Glass and/or visible molding marks are unacceptable.
k. Wire Guard Model in areas where protection is required as indicated on drawings or by owner.

3. Secondary Dual Face 13" Analog Clock

a. 13" Analog Clock (Battery Powered using 2" D" Cell batteries per face)

b. Wall or Ceiling Mount shall be determined by drawings or owner
c. Maintenance Free.
d. Five-year manufacturer's warranty
e. Microprocessor based with built-in wireless receiver
f. Heavy Duty Construction
g. Durable ABS Casing
h. Clock numbering graphics shall be Standard Arabic Format (12HR-60 Minute)
i. Face of clock is white
j. Hour and Minute hands shall be black, second hand is red
k. The clock lens shall use a shatterproof polycarbonate material with no visible molding marks. Glass and/or visible molding marks are unacceptable.

4. Secondary 16" Analog Clock

a. 16" Analog Clock (Battery Powered using 2" D" Cell batteries).
b. Maintenance Free.
c. Five-year manufacturer's warranty.
d. Microprocessor based with built-in wireless receiver
e. Heavy Duty Construction
f. Durable ABS Casing
g. Clock numbering graphics shall be Standard Arabic Format (12HR-60 Minute)
h. Face of clock is white
i. Hour and Minute hands shall be black, second hand is red
j. The clock lens shall use a shatterproof polycarbonate material with no visible molding marks. Glass and/or visible molding marks are unacceptable.
k. Wire Guard in areas where protection is required as indicated on drawings or by owner.

5. Secondary 2.5" Digital Clock

a. 2.5" Digital Clock (AC Powered 24V or 120V)
b. 4-Digit (Hours/Minutes)
c. Built-in Countdown/Count-up Timer
d. Maintenance Free
e. Five-year manufacturer's warranty
f. Microprocessor based with built-in wireless receiver
g. Heavy Duty Construction
h. 12/24 Hour Display Format
i. Clear Anti-Glare LED Display
j. Adjustable Brightness
k. AM/PM Indicator
l. Wire Guard in areas where protection is required as indicated on drawings or by owner
m. Bright Red or White LED Digit

6. Secondary 4" Digital Clock

a. 4" Digital Clock (AC Powered 24V or 120V)

b. 4-Digit (Hours/Minutes)
c. Built-in Countdown/Count-up Timer
d. Maintenance Free
e. Five-year manufacturer's warranty
f. Microprocessor based with built-in wireless receiver
g. Heavy Duty Construction
h. 12/24 Hour Display Format
i. Clear Anti-Glare LED Display
j. Adjustable Brightness
k. AM/PM Indicator
l. Wire Guard Model in areas where protection is required as indicated on drawings or by owner.
m. Bright Red or White LED Digit

7. Secondary 2.5" Dual-Sided Digital Clock

a. 2.5" Digital Clock (AC Powered 24V or 120V)
b. 4 Digit (Hours/Minutes)
c. Built-in Countdown/Count-up Timer
d. Maintenance Free
e. Five-year manufacturer's warranty
f. Microprocessor based with built-in wireless receiver
g. Heavy Duty Construction
h. 12/24 Hour Display Format
i. Clear Anti-Glare LED Display
j. Adjustable Brightness
k. AM/PM Indicator
l. Bright Red or White LED Digit

8. Secondary 4" Dual-Sided Digital Clock

a. 4" Digital Clock (AC Powered 24V or 120V)
b. 4 Digit (Hours/Minutes)
c. Built-in Countdown/Count-up Timer
d. Maintenance Free
e. Five-year manufacturer's warranty
f. Microprocessor based with built-in wireless receiver
g. Heavy Duty Construction
h. 12/24 Hour Display Format
i. Clear Anti-Glare LED Display
j. Adjustable Brightness
k. AM/PM Indicator
l. Bright Red or White LED Dig

PART 3 - EXECUTION

3.1 GENERAL

A. ***Perform the work in accordance with acknowledged industry and professional standards and practices, and the procedures specified herein.***

B. ***Provide all materials, devices, components, and equipment for complete operational systems.***

C. ***Maintain a competent supervisor and supporting technical personnel, acceptable to the Owner, during the entire installation. Change of the supervisor during the project shall not be acceptable without prior written approval from the Architect/Engineer.***

D. ***Coordinate all efforts with those of related trades. In the event of any conflicts, delayed, or improper preparatory work by others, notify the Architect/Engineer. The Architect's/ Engineer's decision shall be binding. Verify all field conditions.***

E. ***Examine conditions, with the Installer present, for compliance with requirements and other conditions affecting the performance of the NTP Synchronized Wireless Clock system. Do not proceed until unsatisfactory conditions have been corrected***

3.2 INSTALLATION OF SYSTEMS

A. ***Device Locations: Locate all apparatus requiring adjustments, cleaning, or similar attention so that it shall be accessible for such attention. Equipment racks shall be positioned to permit full access for operation and service.***

B. ***Blank and Custom Panels: Finish of blank panels and custom assembly panels shall match adjacent equipment panels as closely as possible.***

C. ***Markings: Switches, connectors, jacks, receptacles, outlets, cables, and cable terminations shall be logically and permanently marked. Custom panel nomenclature shall be engraved, etched, or screened. Marking for these items are purposely detailed on the drawings to ensure consistency and clarity. Verify any changes in working type size, and/or placement with the Owner prior to marking.***

D. ***Environment: The equipment specified herein is designed to operate in environments of normal humidity, dust, and temperature. Protect equipment and related wiring during installation where extreme environmental conditions can occur.***

E. ***Conduit: Review and coordinate conduit installation required for the system to ensure proper installation.***

F. ***Provide services of a duly factory authorized service representative for this project location to supervise the field assembly and connection of components and the pre-testing, testing, and adjustment of the system.***

3.3 ELECTRICAL POWER

A. ***Grounding: Review and coordinate electrical power system installation, including grounding, to ensure proper operation of the system.***

B. ***Verification: Verify that all AC power circuits designated for the system are properly wired, phased, and grounded. Report in writing any discrepancies found to the Division 26 Prime Contractor for corrective action.***

C. ***Equipment Rack: Provide distribution of electrical power within the equipment racks with a minimum of two spare AC receptacles per branch circuit, used in the racks.***

3.4 CLEANING

A. ***Clean all junction and terminal box interiors thoroughly before installing plates, panels, or covers.***

3.5 WIRING METHODS AND PRACTICES

A. ***Identification: All wires shall be permanently identified at each wire end by marking with "E-Z" tape marker, or equivalent, identifying the classroom or space served using the final building room numbers.***

B. ***Terminal Blocks: All terminal block connections shall be readily accessible. Not more than two wires connected to one terminal. Spare terminal blocks, equivalent to 10% of those in actual use, shall be provided.***

C. ***Splicing: Splicing of cables shall not be permitted between terminations of specified equipment.***

D. ***Pulling Cable: Do not pull wire or cable through any box fitting or enclosure where change of raceway alignment or direction occurs. Do not bend conductors to less than recommended radius. Employ temporary guides, sheaves, rollers, and other necessary items to protect cables from excess tension, abrasion, or damaging bending during installation.***

E. ***Cable Tie: Form in a neat and orderly manner all conductors in enclosures and boxes, wireways, and wiring troughs, providing circuit and conductor identification. Tie as required using T & B "Ty-Raps" (or equivalent) of appropriate size and type. Limit spacing between ties to 6" and provide circuit and conductor identification at least once in each enclosure.***

F. ***Service Loops: Provide ample service loops at each termination so that plates, panels, and equipment can be demounted for service and inspection.***

G. ***Wiring Harnesses:***

1. ***All wires and cables used in assembling custom panels and equipment racks shall be formed into harnesses which are tied and supported in accordance with accepted engineering practice.***
2. ***Harnessed cables shall be formed in either a vertical or horizontal relationship to equipment, controls, components, or terminations.***

3.6 EQUIPMENT RACKS

A. ***General: The equipment racks shall be considered as custom assemblies and shall be assembled, wired, and tested in a properly equipped shop maintained by the Contractor. Assembly of racks on site shall not be permitted.***

B. ***Equipment Location: Placement of equipment in equipment racks, as indicated in the drawings, is for maximum operator convenience. Verify any changes in placement prior to assembly. All system components and related wiring shall be located with due regard for the minimization of induced electromagnetic and electrostatic noise, for the minimization of wiring length, for proper ventilation, and to provide reasonable safety and convenience for the operator.***

C. ***Rack Installation: Racks shall be installed plumb and square without twists in the frames or variations in level between adjacent racks.***

D. ***Identification: All terminal blocks, rack-mounted equipment, and active slots of card frame systems shall be clearly and logically labeled as to their function, circuit, or system as appropriate. Labeling on manufactured equipment shall be engraved plastic laminate with white lettering on black or dark background that is similar to panel finish.***

3.7 ACCEPTANCE TESTING

A. ***The Acceptance Testing will be witnessed by the Architect/Engineer. Coordinate this period so that free access, work lighting, and electrical power are available on the site.***

B. ***Be prepared to verify the performance of any portion of the system by demonstration, listening, and viewing tests and instrumented measurements.***

C. ***Make additional mechanical and electrical adjustments within the scope of work and which are deemed necessary by the Owner or Architect/Engineer as a result of the Acceptance Test.***

D. ***When requested by the Architect within one year of date of Substantial Completion, provide on-site assistance in adjusting NTP Synchronized Wireless Clock system and adjusting controls to suit actual occupied conditions. Provide up to three visits to the site for this purpose.***

E. ***Make observations to verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Provide a list of final Atomic Clock Synchronized Master Clock system configuration.***

3.8 SYSTEM DOCUMENTATION

A. ***Prior to Final Acceptance Tests, submit to the Owner three copies of an Operating and Maintenance Manual for the system that has been installed. These manuals shall be used***

during the Final Acceptance Testing of the system. Each manual shall contain the following information:

1. ***Record drawings, including floor plans showing all device locations as well as elementary wiring and interconnection wiring diagrams (3 sets of each).***
2. ***Copy of edited configuration files should be downloaded on disk and printed on hard copy paper given to School Plant for future editing and diagnostics.***
3. ***Copy of dial-in numbers assigned to each phone in the building identified by the final building room numbers.***
4. ***A copy of the software package required for the programming of the intercom system.***

3.9 TRAINING

A. Train Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the clock system. Provide a minimum of 8 hours training. Operators Manuals and Users Guides shall be provided at the time of this training.

B. Schedule training with Owner through the Architect, with at least seven days advance notice.

END OF SECTION 275313 (ADDENDUM NO. 3)

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SECTION 321800 – ATHLETIC SURFACING (ADDENDUM NO. 3)

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide multi-layer acrylic tennis court surface. The work includes:

1. *Textured color acrylic tennis court surface.*
2. *Line markings.*

1.2 RELATED SECTIONS

2. *Section 321216: Asphalt Paving*

1.3 REFERENCE STANDARDS

A. American Sports Builders Association Tennis Court Construction Guidelines

1.4 QUALITY ASSURANCE

A. All work to be done in accordance with American Sports Buidlers Association (ASBA) guidelines.

1.5 SUBMITTALS

A. Product Data: Submit technical data, specifications, Material Safety Data Sheets, and ITF surface classification.

B. Submit manufacturer's color chart for Owner's selection of colors.

C. Shop Drawing: Submit shop drawing showing line marking layout and Owner selected color scheme for courts prior to start of surfacing.

1.6 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be delivered to the site in sealed containers with the manufacturer's label affixed.

1.7 PROJECT CONDITIONS

A. Work Notification: Notify Engineer 48 hours prior to installation.

B. New asphalt pavement shall cure for a minimum period as defined by the surface manufacturer.

C. Follow manufacturer's recommendations for acceptable temperature and weather conditions for installation.

PART 2 - PRODUCTS

2.1 ACRYLIC COURT SURFACE

A. Acrylic Resurfacer.

1. Acrylic based emulsion used for smoothing rough pavements.

B. Acrylic Color Finish System

1. Acrylic based textured color filler coat.
2. Acrylic based textured color finish coat.

C. Textured White Line Paint

1. Textured wear resistant acrylic line marking paint.

2.2 ACCESSORIES

A. Water: Water used in all mixtures shall be fresh and potable.

B. Sand: Sand gradation shall be 50 to 60 mesh unless otherwise specified by manufacturer.

PART 3 - EXECUTION

3.1 INSPECTION

A. The surface to be coated shall be inspected and made sure to be free of grease, oil, dirt, and other foreign matter before surfaces are applied.

B. The surface shall be flooded. Check for low areas after drainage of the area has ceased or after one hour at 70 degrees or above in sunlight as specified by the American Sports Builders Association. Areas retaining water that cover a nickel will be patched using an acrylic crack and leveling compound.

3.2 INSTALLATION

A. Mix and install acrylic court surface per manufacturer's instructions including, but not limited to, mix ratios, installation method, and drying times between coats.

B. Acrylic court surface should include the following number of coats unless specifically called out in manufacturer's instructions.

1. Acrylic Resurfacer – 2 Coats.
2. Acrylic Color Filler Coat – 1 Coat.
3. Acrylic Color Finish Coat – 1 Coat.
4. Acrylic Line Paint – 2 Coats.

3.3 PROTECTION

A. No traffic or other trades shall be allowed on the surface for a period of one week, or as directed in the manufacturer's recommendations, to allow for complete and proper cure of finish.

END OF SECTION 321800 (ADDENDUM NO. 3)

SECTION 321823 – RUNNING TRACK SURFACING (ADDENDUM NO. 3)

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this Section.

1.2 SECTION INCLUDES

A. Synthetic track surfaces.

B. Line markings.

1.3 RELATED REQUIREMENTS

A. Section 033055 – Cast in Place Concrete (Site).

B. Section 313000 – Earthwork (Site).

C. Section 321100 – Base Courses (Pavements).

D. Section 321215 – Asphalt Paving.

1.4 REFERENCE STANDARDS

A. American Sports Builders Asscociation "Running Tracks: A Construction and Maintenance Manual," Current Edition.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's product data including installation guidelines and maintenance instructions.

B. Shop Drawings: Submit Shop Drawings indicating location and color of lane lines, start lines, finish lines, and related markings for Owner to review a minimum of 4 weeks prior to application.

C. Samples: Submit 3 representative track Samples in color of surfacing to be installed.

D. Test Reports: Submit test reports that verify manufacturer's specifications for products to be installed.

E. Additional Documentation:

1. Submit documentation that verifies that synthetic surfacing material does not contain toxic or hazardous substances, which exceeds limits set forth by the EPA.

2. Submit letter stating that surfacing contractor has reviewed asphalt specifications and accepts specifications as correct. Submit letter from surfacing contractor after checking asphalt and accepting it for synthetic surface installation. Should areas be found that do not meet specifications, repair or replace surfaces prior to synthetic surfacing contractor issuing its letter of acceptance.

3. *Submit certificate of accuracy from registered engineer or land surveyor stating that track measures specified distance in lanes from start to finish.*
4. *Submit letter from synthetic surfacing material manufacturer stating that surfacing contractor is qualified to install surfacing material manufacturer's synthetic surface system.*
5. *Submit evidence that synthetic surfacing contractor holds necessary contractor's license to install synthetic surfacing.*
6. *Submit evidence that synthetic surfacing contractor is a member of the American Sports Builders Association (ASBA).*
7. *Submit evidence that a member of synthetic surfacing team is a Certified Track Builder (CTB).*

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Company that has produced surfacing materials for not less than 10 years, with not less than 5 similar projects that have been successful use for not less than 5 years.

B. Installer Qualifications: Minimum 5 years' experience in successful installation of surfacing systems of type specified.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store in a weathertight location and protect from damage during delivery storage and handling.

1.6 WARRANTY

A. Provide manufacturer's 5-year written warranty that its products are free from defects in material and workmanship, and that manufacturer agrees to repair or replace items proven to be defective or refund purchase price of item.

1. *Furnish documents with warranty stating that applied surface materials conform to manufacturer's specifications and that material will not separate from asphalt or concrete base, and will not blister, bubble, fade, crack, or wear excessively during life of warranty.*

B. Provide manufacturer's 5-year written warranty for line markings.

1.7 MAINTENANCE

A. Schedule annual inspection with Owner and synthetic surfacing contractor and inspect synthetic surface during life of warranty. Repair surfacing as required for warranty issues. For non-warranty items, present method for correction.

PART 2 – PRODUCTS

2.1 SYNTHETIC SURFACING

A. General: 1/2 inch (13 mm) thick, impermeable, full pour, self-leveling polyurethane and rubber granule surface with EPDM rubber granule encapsulated in colored polyurethane and sealed with UV-stabilized topcoat, standard color.

B. Approved Products:

1. Rekortan G13 Traditional with Encapsulated Finish

2. Beynon BSS 1000ML with Encapsulated Finish

3. EpiQ Tracks G4000 with Encapsulated Finish

2.3 ACCESSORIES

A. Paint: Line marking paint as recommended by surfacing system manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine areas and conditions under which Work is to be performed and identify conditions detrimental to proper or timely completion.

B. Do not proceed until unsatisfactory conditions have been corrected.

C. Substrate tolerances:

1. Planarity: Not to exceed 1/4 inch (6 mm) in 10 feet (3048 mm), noncumulative.

2. Levelness: Not to exceed 0.1 percent in running direction.

3.2 PREPARATION

A. Protection: Protect surfaces adjacent to track surfacing operations from polyurethane liquids.

B. Surface Preparation: Ensure substrate is fully cured, and free from excess surface oils and chemicals that would impair track surface installation.

1. Asphalt: Volatiles and latent asphalt content within acceptable limits as directed by manufacturer's technical consultant: Not less than 28-day cure time.

C. Ensure that asphalt compaction tests indicate compaction of 95 percent or greater. Check asphalt with 10-foot (3048 mm) straightedge in all directions. Repair areas not in conformance or replace with new materials, recompact, and recheck surfaces.

3.3 INSTALLATION

A. Install track surface system in accordance with manufacturer's instructions and ASBA best practices.

3.4 TOLERANCES

A. Percent granules: Plus or minus 2 percent.

B. Surface Thickness: Minus 0.0 inch (0.0 mm), plus 1/8 inch (3.0 mm).

C. Color Deviation: 5 Delta E (hunter) units maximum allowed.

3.5 SPECIFIC SLOPES

A. Track Oval

1. ***Running Direction: 0.1 percent.***
2. ***Lateral Slope: 2.0 percent maximum NFHS,***

B. High Jump (D Area): 1 percent downward towards cross bar.

C. Run Ups: Same as oval unless located in high jump (D) area.

3.6 FIELD QUALITY CONTROL

A. Certifications: Provide certification by registered surveyor attesting to compliance of areas and dimensions defined by striping meets NFHS requirements for sanctioned events.

3.7 CLEANING

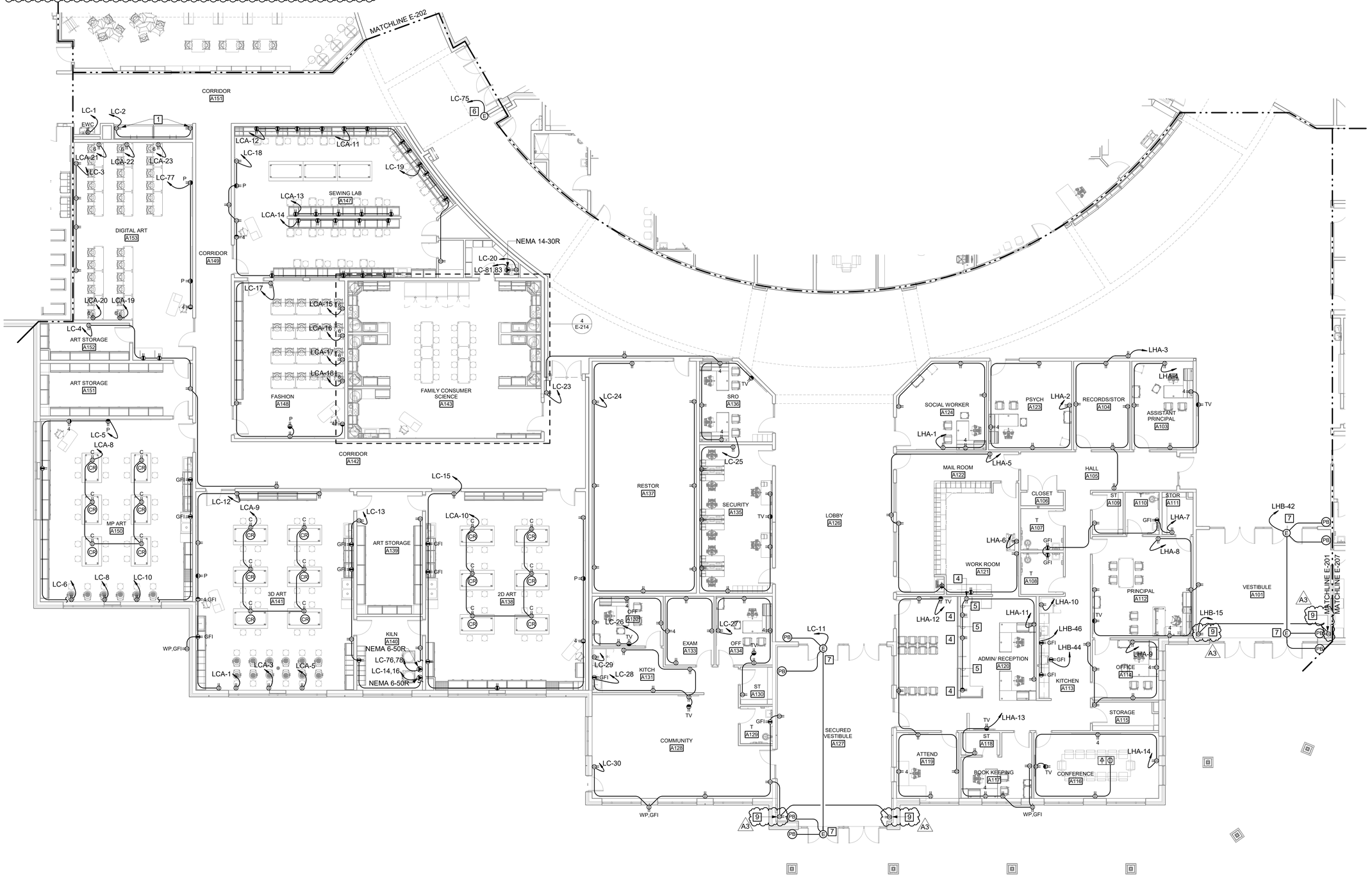
A. Leave track surface in clean condition with no surface defects.

B. Touch-up paint striping once during warranty period.

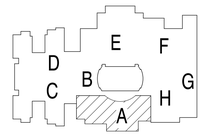
END OF SECTION 321823 (ADDENDUM NO. 3)

CONSTRUCTION NOTES: (THIS DRAWING ONLY)

1. INSTALL RECEPTACLE IN DISPLAY CASE. COORDINATE WITH ARCHITECTURAL DETAILS.
2. SEE DRAWING E-203 FOR LOCATION OF PANEL "LC".
3. SEE DRAWING E-207 FOR LOCATION OF PANEL "LHA".
4. INSTALL RECEPTACLE IN CASEWORK BESIDE DATA OUTLET. COORDINATE EXACT LOCATION AND HEIGHT WITH ARCHITECTURAL DETAILS.
5. CONCEAL ALL CONDUIT IN CASEWORK. COORDINATE WITH ARCHITECTURAL DETAILS.
6. PROVIDE ELECTRICAL CONNECTION TO COILING DOORS. COORDINATE WITH EQUIPMENT SUPPLIER.
7. PROVIDE ELECTRICAL CONNECTION TO AUTOMATIC DOOR OPENER AND ASSOCIATED CONTROL STATION COORDINATE WITH SUPPLIER OF EQUIPMENT.
8. PROVIDE ELECTRICAL CONNECTION TO ELECTRICAL PULSE METER. SEE "DOMESTIC WATER METERING SYSTEM DIAGRAM" ON DRAWING P-501 FOR ADDITIONAL INFORMATION.
9. COORDINATE EXACT QUANTITY AND LOCATION OF RECEPTACLES WITH METAL DETECTOR INSTALLER. A3



KEY PLAN - AREA A
NOT TO SCALE



FIRST FLOOR PLAN - AREA 'A' - POWER 2 3
SCALE: 1/8" = 1'-0"

PLAN NORTH / TRUE NORTH

1/32" = 1'-0" | 1/16" = 1'-0" | 3/32" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 3/8" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0" | 6" = 1'-0" | 12" = 1'-0"

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TELEPHONE: (757) 399-4433 PROJECT NUMBER: 23-008

MARK	DATE	REVISIONS
A3	1.4.2024	ADDENDUM NO. 3
MJT		DESCRIPTION
		BY

DATE	11.14.2023
PROJECT	21310-00
DESIGNED	JAW/NRP
DRAWN	GIM
CHECKED	KC

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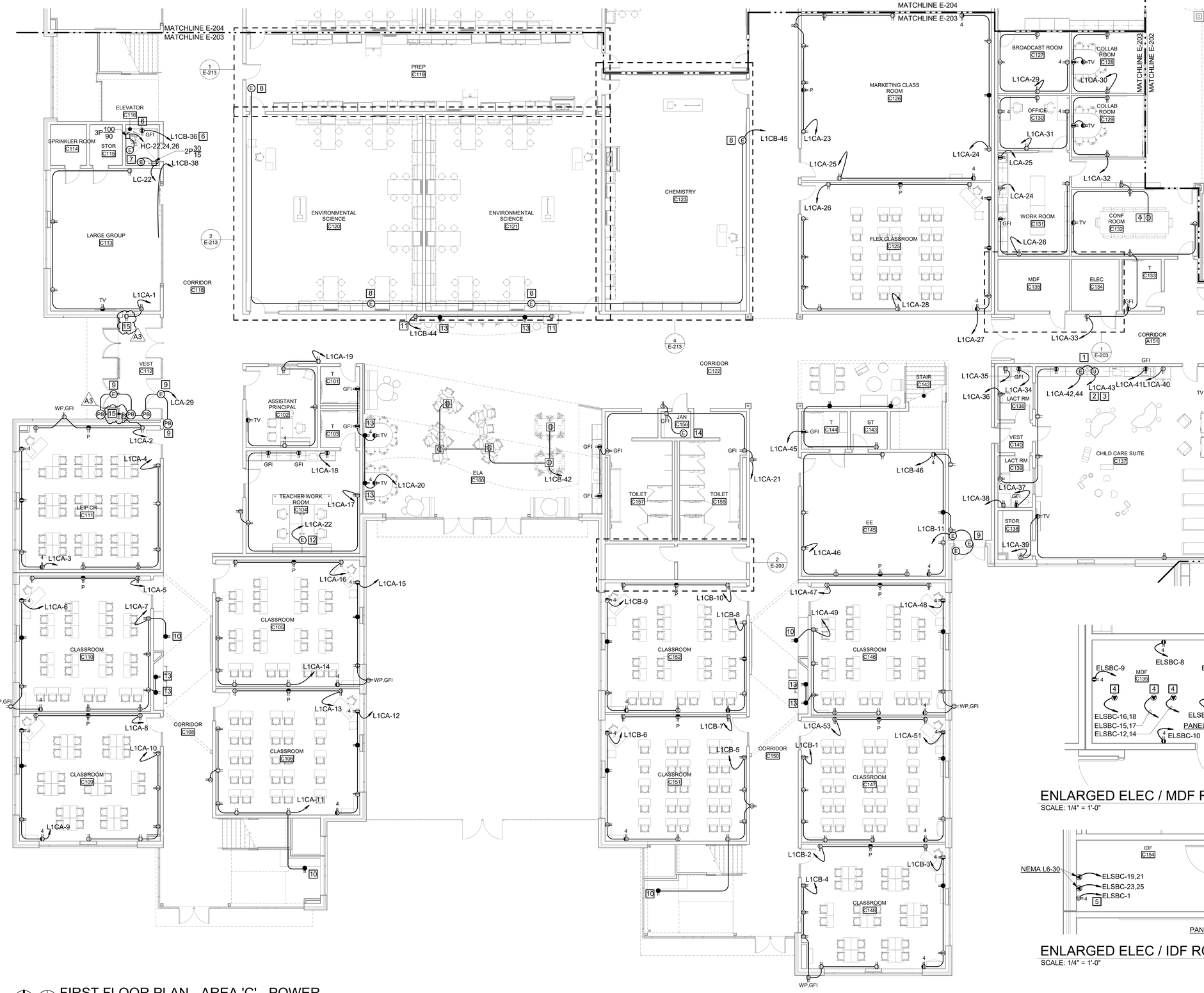
COMMONWEALTH OF VIRGINIA
KENZIE CAMBAR
Lic. No.049752
11.14.2023
PROFESSIONAL ENGINEER

IFB: 23-7061-11
VIRGINIA DEPARTMENT OF EDUCATION: 123-1401-100

PROJECT: RICHMOND PUBLIC SCHOOLS
GEORGE WYTHE HIGH SCHOOL
4314 CRUTCHFIELD STREET
RICHMOND, VIRGINIA 23225

DRAWING: FIRST FLOOR PLAN - AREA 'A' - POWER

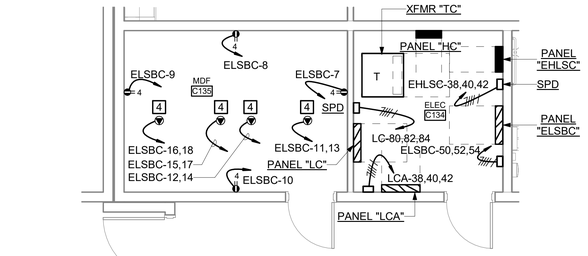
SHEET
E-201



FIRST FLOOR PLAN - AREA 'C' - POWER

SCALE: 1/8" = 1'-0"

PLAN NORTH / TRUE NORTH



ENLARGED ELEC / MDF ROOMS C134 & C135 - POWER

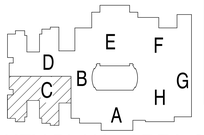
SCALE: 1/4" = 1'-0"

1 / E-203

ENLARGED ELEC / IDF ROOM C152 & C153 - POWER

SCALE: 1/4" = 1'-0"

2 / E-203



KEY PLAN - AREA C

SCALE: 12" = 1'-0"

CONSTRUCTION NOTES: (THIS DRAWING ONLY)

1. PROVIDE 1/2" CONDUIT WITH PULLWIRE BETWEEN JUNCTION BOXES (RANGE HOOD JUNCTION BOX AND RANGE JUNCTION BOX). COORDINATE EXACT LOCATION OF JUNCTION BOXES WITH SUPPLIER OF RANGE HOOD AND RANGE.
2. PROVIDE 1/2" CONDUIT WITH PULLWIRE FROM ADA SWITCH LOCATION AND TERMINATE AS DIRECTED BY SUPPLIER OF RANGE HOOD. SWITCH PROVIDED BY SUPPLIER OF RANGE HOOD. COORDINATE WITH ARCHITECTURAL DETAILS FOR EXACT LOCATION OF ADA SWITCHES.
3. RANGE OUTLET BOX AND RECEPTACLE WILL BE PROVIDED BY SUPPLIER OF RANGE HOOD. ELECTRICAL CONTRACTOR SHALL INSTALL OUTLET BOX AND RECEPTACLE. COORDINATE EXACT LOCATION WITH RANGE HOOD PROVIDER.
4. PROVIDE NEMA L6-30 RECEPTACLE WITH MATCHING PLUG. INSTALL RECEPTACLE IN RACK. FIELD VERIFY LOCATION WITH OWNER. INSTALL BRANCH CIRCUITRY IN EMT CONDUIT TO A JUNCTION BOX ABOVE CEILING. THEN TERMINATE HOMERUN IN INDICATED PANEL.
5. PROVIDE TWO DOUBLE DUPLEX RECEPTACLES MOUNTED ON WALL NEAR EQUIPMENT RACK: ONE AT +18" A.F.F. AND THE OTHER AT +60" A.F.F.
6. INSTALL RECEPTACLE +3'-0" ABOVE ELEVATOR PIT FLOOR.
7. RECEPTACLE FOR SUMP PUMP. COORDINATE EXACT LOCATION WITH PLUMBING SUB-CONTRACTOR.
8. PROVIDE 120-VOLT CONNECTION TO SMOKE DAMPER. PROVIDE ELECTRICAL CONNECTION TO SMOKE DAMPER REMOTE TEST SWITCH AND REMOTE INDICATOR LIGHTS/TEST SWITCH. TEST SWITCH AND REMOTE INDICATOR LIGHTS/TEST SWITCH ARE FURNISHED BY DIVISION 28 CONTRACTOR, INSTALLED AND CONNECTED TO THE SMOKE DAMPER BY ELECTRICAL CONTRACTOR. COORDINATE WIRING REQUIREMENT WITH SUPPLIER OF EQUIPMENT. SEE MECHANICAL DRAWINGS AND/OR SPECIFICATIONS FOR QUANTITY AND LOCATION OF SMOKE DAMPERS. CONNECT SMOKE DAMPERS ON THIS DRAWING TO INDICATED PANEL AND CIRCUIT NUMBER VIA A 2P, 120V.
9. PROVIDE ELECTRICAL CONNECTION TO AUTOMATIC DOOR OPENER AND ASSOCIATED CONTROL STATION COORDINATE WITH SUPPLIER OF EQUIPMENT.
10. INSTALL RECEPTACLE IN FACE OF BENCH SEATING. COORDINATE WITH ARCHITECTURAL DETAILS.
11. INSTALL RECEPTACLE IN DISPLAY CASE. COORDINATE WITH ARCHITECTURAL DETAILS.
12. PROVIDE ELECTRICAL CONNECTION TO FURNITURE STATIONS COORDINATE WITH SUPPLIER OF EQUIPMENT.
13. INSTALL RECEPTACLE +6" ABOVE COUNTER BACKSPLASH.
14. PROVIDE ELECTRICAL CONNECTION TO ELECTRICAL PULSE METER. SEE "DOMESTIC WATER METERING SYSTEM DIAGRAM" ON DRAWING P-501 FOR ADDITIONAL INFORMATION.
15. COORDINATE EXACT QUANTITY AND LOCATION OF RECEPTACLES WITH METAL DETECTOR INSTALLER. (A3)

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MARK	DATE	REVISIONS
A3	1.4.2024	ADDENDUM NO. 3
MJT		BY
		DESCRIPTION

DATE	11.14.2023
PROJECT	21310-00
DESIGNED	JAW/NRP
DRAWN	GIM
CHECKED	KC

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COMMONWEALTH OF VIRGINIA
KENZIE CAMBAR
Lic. No.049752
11.14.2023

PROJECT: RICHMOND PUBLIC SCHOOLS
GEORGE WYTHE HIGH SCHOOL
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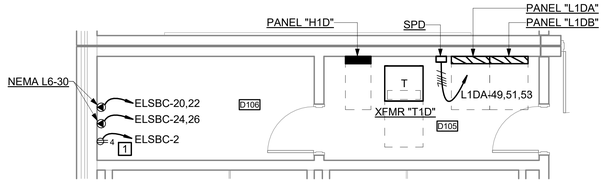
RICHMOND, VIRGINIA 23225

DRAWING: FIRST FLOOR PLAN - AREA 'C' - POWER

FB: 23-7061-11
VIRGINIA DEPARTMENT OF EDUCATION: 123-14-01-100

SHEET
E-203

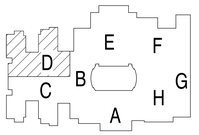
1/2/2024 5:12:54 PM Autodesk Docs://21310-00 George Wythe High School/George Wythe HS - Electrical - R23.rvt



ENLARGED ELEC / IDF ROOMS D105 & D106 - POWER

SCALE: 1/4" = 1'-0"

1 / E-204

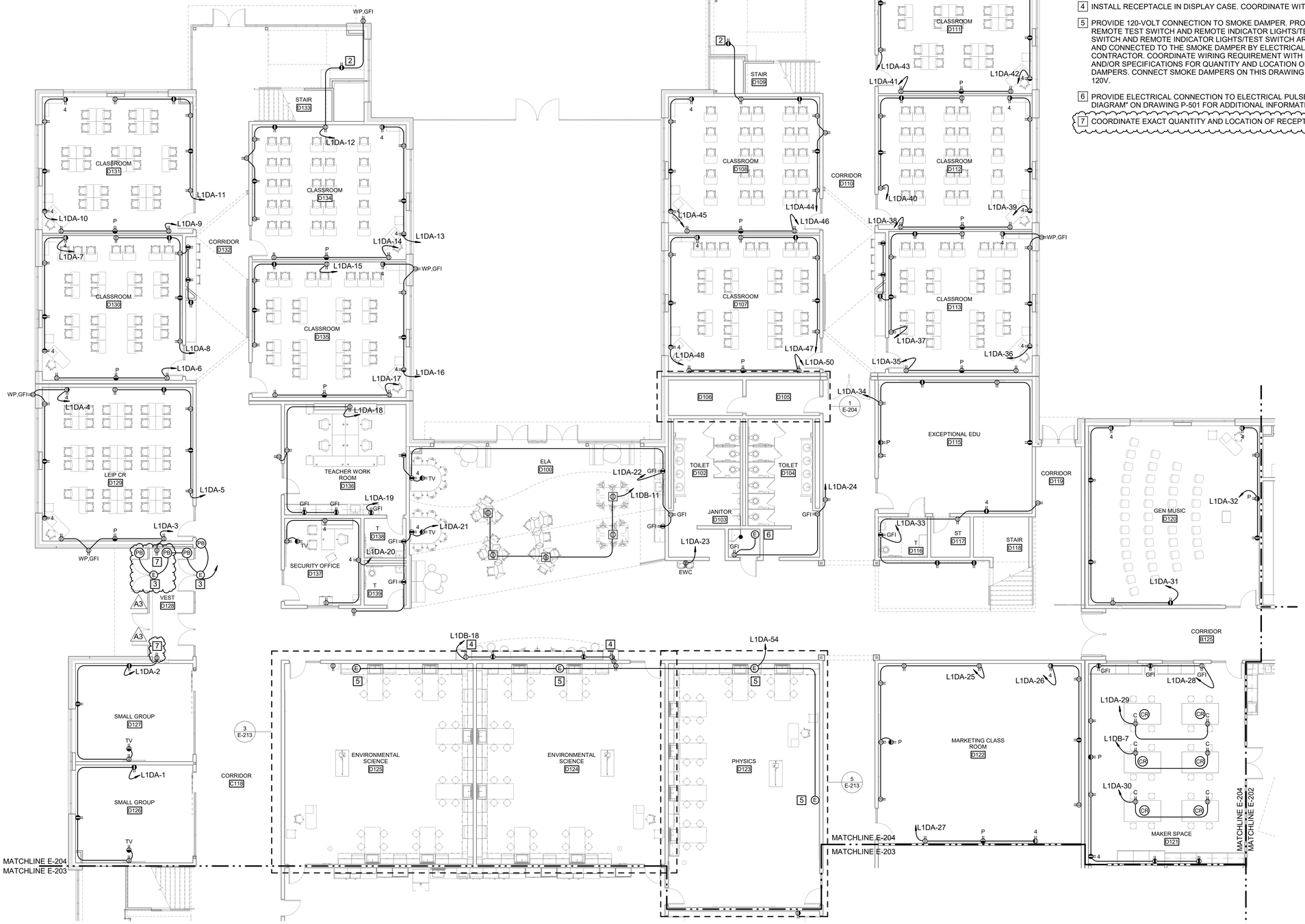


KEY PLAN - AREA D

NOT TO SCALE

CONSTRUCTION NOTES: (THIS DRAWING ONLY)

1. PROVIDE TWO DOUBLE DUPLEX RECEPTACLES MOUNTED ON WALL NEAR EQUIPMENT RACK: ONE AT +18" A.F.F. AND THE OTHER AT +60" A.F.F.
2. INSTALL RECEPTACLE IN FACE OF BENCH SEATING. COORDINATE WITH ARCHITECTURAL DETAILS.
3. PROVIDE ELECTRICAL CONNECTION TO AUTOMATIC DOOR OPENER AND ASSOCIATED CONTROL STATION COORDINATE WITH SUPPLIER OF EQUIPMENT.
4. INSTALL RECEPTACLE IN DISPLAY CASE. COORDINATE WITH ARCHITECTURAL DETAILS.
5. PROVIDE 120-VOLT CONNECTION TO SMOKE DAMPER. PROVIDE ELECTRICAL CONNECTION TO SMOKE DAMPER REMOTE TEST SWITCH AND REMOTE INDICATOR LIGHTS/TEST SWITCH. TEST SWITCH AND REMOTE INDICATOR LIGHTS/TEST SWITCH ARE FURNISHED BY DIVISION 28 CONTRACTOR, INSTALLED AND CONNECTED TO THE SMOKE DAMPER BY ELECTRICAL CONTRACTOR. COORDINATE WIRING REQUIREMENT WITH SUPPLIER OF EQUIPMENT. SEE MECHANICAL DRAWINGS AND/OR SPECIFICATIONS FOR QUANTITY AND LOCATION OF SMOKE DAMPERS. CONNECT SMOKE DAMPERS ON THIS DRAWING TO INDICATED PANEL AND CIRCUIT NUMBER VIA A 2P, 120V.
6. PROVIDE ELECTRICAL CONNECTION TO ELECTRICAL PULSE METER. SEE "DOMESTIC WATER METERING SYSTEM DIAGRAM" ON DRAWING P-501 FOR ADDITIONAL INFORMATION.
7. COORDINATE EXACT QUANTITY AND LOCATION OF RECEPTACLES WITH METAL DETECTOR INSTALLER. A3



FIRST FLOOR PLAN - AREA 'D' - POWER

SCALE: 1/8" = 1'-0"

PLAN NORTH / TRUE NORTH

NO.	DESCRIPTION	MARK	DATE	BY
ADDENDUM NO. 3	REVISIONS	A3	1.4.2024	MJT

DATE	11.14.2023
PROJECT	21310-00
DESIGNED	JAW/NRP
DRAWN	GIM
CHECKED	KC

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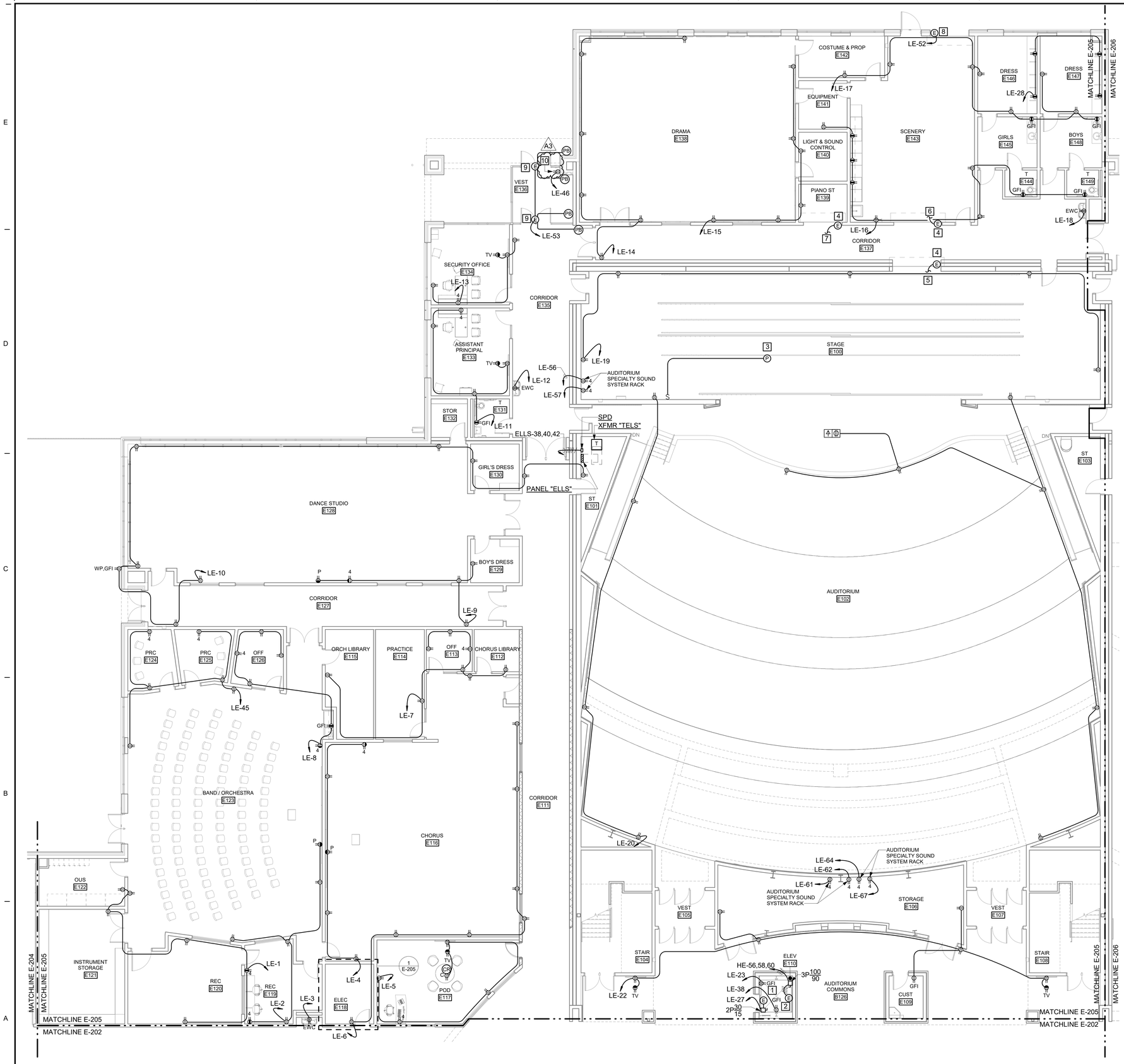
VIRGINIA DEPARTMENT OF EDUCATION: 123-74-011-100
IFB: 23-7061-11

DRAWING: FIRST FLOOR PLAN - AREA 'D' - POWER

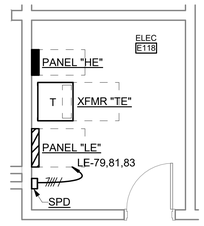
SHEET
E-204



FIRST FLOOR PLAN - AREA 'E' - POWER

SCALE: 1/8" = 1'-0"

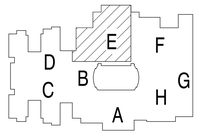
PLAN NORTH / TRUE NORTH



ENLARGED ELEC ROOM E119 - POWER

SCALE: 1/4" = 1'-0"

1 E-205



KEY PLAN - AREA E

NOT TO SCALE

CONSTRUCTION NOTES: (THIS DRAWING ONLY)

1. INSTALL RECEPTACLE +3'-0" ABOVE ELEVATOR PIT FLOOR.
2. RECEPTACLE FOR SUMP PUMP. COORDINATE EXACT LOCATION WITH PLUMBING SUB-CONTRACTOR.
3. PROVIDE ELECTRICAL CONNECTION TO PROJECTION SCREEN AND CONTROL STATION. COORDINATE EXACT LOCATION WITH OWNER AND EQUIPMENT INSTALLER.
4. PROVIDE FIRE ALARM CONNECTION TO OVERHEAD COILING DOOR. COORDINATE WITH EQUIPMENT INSTALLER.
5. PROVIDE 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT. CONNECT TO 20A-1P CIRCUIT BREAKER LE-47.
6. PROVIDE 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT. CONNECT TO 20A-1P CIRCUIT BREAKER LE-48.
7. PROVIDE 2 #12 AND 1 #12 GROUND IN 3/4" CONDUIT. CONNECT TO 20A-1P CIRCUIT BREAKER LE-50.
8. PROVIDE ELECTRICAL CONNECTION FOR ELECTRIFICATION FOR OVERHEAD COILING DOORS. COORDINATE WITH EQUIPMENT SUPPLIER.
9. PROVIDE ELECTRICAL CONNECTION TO AUTOMATIC DOOR OPENER AND ASSOCIATED CONTROL STATION COORDINATE WITH SUPPLIER OF EQUIPMENT.
10. COORDINATE EXACT QUANTITY AND LOCATION OF RECEPTACLES WITH METAL DETECTOR INSTALLER.

A3

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PROJECT NUMBER: 23-008

MARK	DATE	REVISIONS
A3	1.4.2024	ADDENDUM NO. 3
MJT		BY
		DESCRIPTION

DATE	11.14.2023
PROJECT	21310-00
DESIGNED	JAW/NRP
DRAWN	MWH
CHECKED	KC

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COMMONWEALTH OF VIRGINIA
KENZIE CAMBAR
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11.14.2023
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PROJECT
RICHMOND PUBLIC SCHOOLS
GEORGE WYTHE HIGH SCHOOL
4314 CRUTCHFIELD STREET
RICHMOND, VIRGINIA 23225

IFB: 23-7061-11
VIRGINIA DEPARTMENT OF EDUCATION: 123-14-01-100

DRAWING
FIRST FLOOR PLAN - AREA 'E' - POWER

SHEET
E-205

MATCHLINE E-205
MATCHLINE E-206
MATCHLINE E-207

LFA-30
VEST F104
CORRIDOR F103
TV
LFA-48
USB, P
LFA-52
FOOD COURT F102
LFA-47
CORRIDOR F101
LFA-12
EWC

1 E-212
2 E-206
WP,GFI
LFA-54
LFA-1
RECEIVING F114
ELEC F115
XFMR "TK"
3P 400/400 240V
T
SUPPLY ROOM F116
LFA-2
LFA-3
LFA-4
LFA-5
DRESS F119
CUSTODIAL F120
GFI
LFA-7
CHAIR STORAGE F118
T F122
OFF F121
4
BUILDING STORAGE F123
LFA-6
CORRIDOR F125
LFA-26
LFA-8
TV +7'-4" A.F.F.
LFA-20
LFA-10
LFA-11
LFA-21
LFA-22
LFA-23
LFA-24
LFA-25
LFA-9
FITNESS F124

LFA-19
MECH YARD F135
MECH F134
4, GFI
PANEL "HM"
LFA-18
P
JROTC ARMORY F133
JROTC OFF F132
JROTC CLASSROOM F131
LFA-17
HALL F130
LFA-16
LFA-15
JROTC OFF F128
JROTC CLASSROOM F129
JROTC STORAGE F127
LFA-14
LFA-13
WRESTLING F126

NEMA L6-30
LFA-29
ELSBC-32,34
ELSBC-35,37
IDF F117

ENLARGED IDF ROOM F117 - POWER
SCALE: 1/4" = 1'-0"
1 E-206

ATS-LS
SPD
PANEL "EHLS"
EHLS-38,40,42
ATS-SB
PANEL "EHSB"
EHSB-38,40,42
MDS
C/T
PV
MAIN
DIST
DIST
DIST
XFMR "TESB"
ELEC F115
PANEL "ELSB"
ELSB-38,40,42
XFMR "TF"
PANEL "LFA"
LFA-56,58,60
PANEL "LFB"
MDS-25
LFB-29
PANEL "HF"

ENLARGED ELEC ROOM F115 - POWER
SCALE: 1/4" = 1'-0"
2 E-206

CONSTRUCTION NOTES: (THIS DRAWING ONLY)

1. PROVIDE TWO DOUBLE DUPLEX RECEPTACLES MOUNTED ON WALL NEAR EQUIPMENT RACK: ONE AT +18" A.F.F. AND THE OTHER AT +60" A.F.F.
2. PROVIDE ELECTRICAL CONNECTION FOR ELECTRIFICATION FOR OVERHEAD COILING DOORS. COORDINATE WITH EQUIPMENT SUPPLIER.
3. COORDINATE EXACT QUANTITY AND LOCATION OF RECEPTACLES WITH METAL DETECTOR INSTALLER. (A3)

KEY PLAN - AREA F
NOT TO SCALE

FIRST FLOOR PLAN - AREA 'F' - POWER
SCALE: 1/8" = 1'-0"

PLAN NORTH / TRUE NORTH

1/32" = 1'-0" | 1/16" = 1'-0" | 3/32" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 3/8" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0" | 6" = 1'-0" | 12" = 1'-0"

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IFB: 23-7061-11
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PROJECT: RICHMOND PUBLIC SCHOOLS
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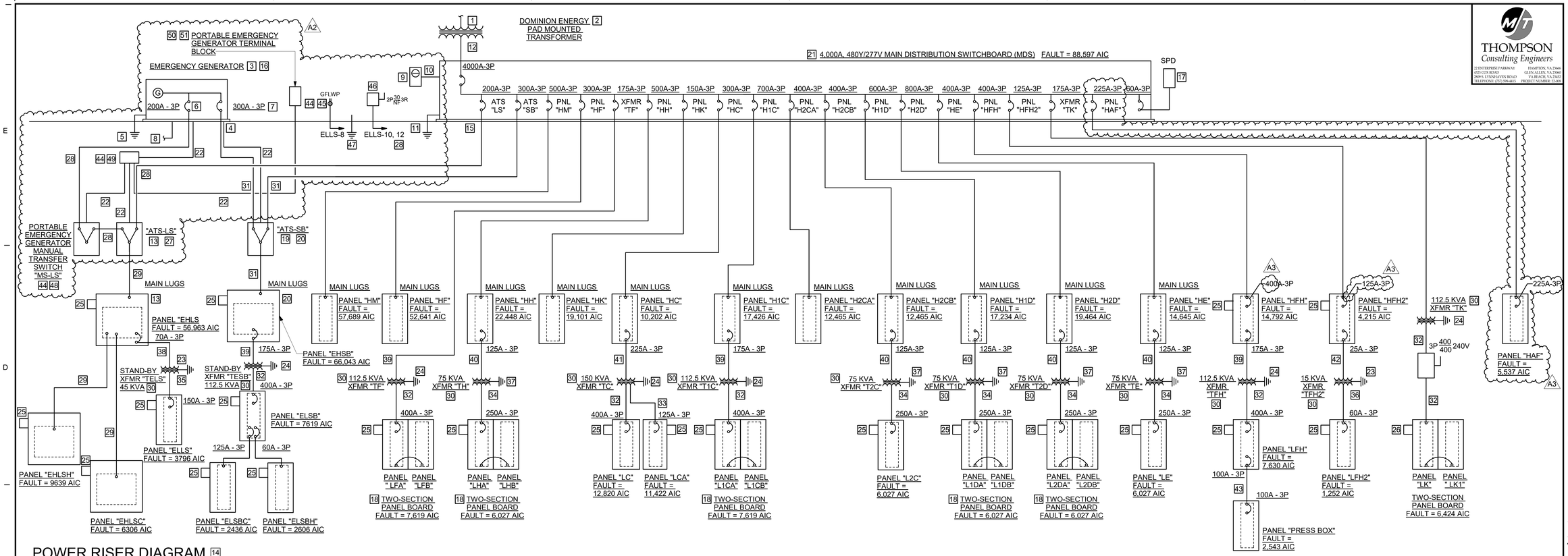
DRAWING: FIRST FLOOR PLAN - AREA 'F' - POWER

SHEET
E-206



POWER RISER DIAGRAM 14

NOT TO SCALE

RISER DIAGRAM NOTES

(THIS DRAWING ONLY)

1. PROVIDE TWO (2) 6" PVC CONDUITS WITH PULLWIRE FOR USE BY DE. TERMINATE CONDUITS AS DIRECTED BY "DE". TERMINATE AS INDICATED ON DRAWING E-701.
2. PROVIDE TRANSFORMER PAD IN ACCORDANCE WITH "DOMINION ENERGY TRANSFORMER PAD DETAIL" ON DRAWING E-602.
3. PROVIDE EMERGENCY GENERATOR IN ACCORDANCE WITH SPECIFICATION SECTION 263213.
4. EMERGENCY GENERATOR PAD; PROVIDE 12" CONCRETE PAD, 3000 PSI. TOP OF PAD SHALL BE 2" ABOVE FINISHED GRADE. PROVIDE #4 REBAR 12" ON CENTER, BOTH DIRECTIONS, IN CENTER OF PAD. SET PAD ON 12" BASE OF CRUSHER-RUN STONE. EXCEED DIMENSIONS OF EQUIPMENT BY 12" ON ALL SIDES. CHAMFER ALL EXPOSED EDGES 1/2".
5. PROVIDE #3/0 COPPER GROUNDING CONDUCTOR IN 1" CONDUIT FROM THE LUG ON THE GENERATOR CHASSIS TO THE SERVICE ENTRANCE GROUND.
6. PROVIDE 200A-3P CIRCUIT BREAKER AT GENERATOR. LABEL CIRCUIT BREAKER "ATS-LS"
7. PROVIDE 300A-3P CIRCUIT BREAKER AT GENERATOR. LABEL CIRCUIT BREAKER "ATS-SB"
8. PROVIDE 1" CONDUIT WITH CONDUCTORS AS DIRECTED BY GENERATOR MANUFACTURER TO GENERATOR ANNUNCIATOR PANEL LOCATED IN THE MAIN OFFICE. SEE DRAWING E-401 FOR EXACT LOCATION.
9. KWHR METER BASE. FURNISHED BY DOMINION ENERGY AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS DIRECTED BY DOMINION ENERGY.
10. PROVIDE 1-1/4" EMPTY CONDUIT WITH PULLWIRE FOR USE BY DOMINION ENERGY.
11. PROVIDE #3/0 COPPER GROUNDING ELECTRODE CONDUCTOR TO EACH OF THE FOLLOWING. BUILDING STEEL, (IN ACCORDANCE WITH N.E.C. ARTICLE 250.52 (A)(2)(1)), 3/4" X 10'-0" COPPER GROUND ROD, METAL WATER PIPE AND 20'-0" LONG CONCRETE-ENCASED ELECTRODE.
12. PROVIDE TWELVE (12) 4" PVC CONDUITS WITH PULLWIRE 24" BELOW FINISHED GRADE. TERMINATE CONDUITS AT TRANSFORMER AND IN C/T COMPARTMENT AS DIRECTED BY "DE". SERVICE ENTRANCE CONDUCTORS WILL BE PROVIDED BY "DE".
13. PROVIDE BAKELITE NAMEPLATES ON PANEL "EHLS" AND "ATS-LS" INDICATING THAT THIS EQUIPMENT IS "EMERGENCY SYSTEM EQUIPMENT" IN ACCORDANCE WITH ARTICLE 700, SECTIONS 700.7 OF THE N.E.C. PROVIDE SELECTIVE COORDINATION FOR THE EQUIPMENT IN ACCORDANCE WITH ARTICLE 700.32 SECTION 700.27 OF THE N.E.C.
14. PROVIDE ARC FLASH HAZARD WARNING LABELS ON MAIN DISTRIBUTION SWITCHBOARD AND ALL DISTRIBUTION PANELBOARDS IN ACCORDANCE WITH SHORT CIRCUIT AND COORDINATION STUDY.
15. PROVIDE CONCRETE HOUSEKEEPING PAD IN ACCORDANCE WITH SPECIFICATION SECTION 262413.
16. PROVIDE BAKELITE NAMEPLATE ON THE GENERATOR ENCLOSURE INDICATING THAT THIS EQUIPMENT IS "EMERGENCY SYSTEM EQUIPMENT" IN ACCORDANCE WITH ARTICLE 700, SECTIONS 700.7 OF THE N.E.C.
17. PROVIDE SURGE PROTECTIVE DEVICE "SPD" IN NEMA 1 SURFACE ENCLOSURE IN ACCORDANCE WITH SPECIFICATION SECTION 264313. PROVIDE 4 #6 AND 1 #10 GROUND, IN 1" CONDUIT AND CONNECT TO CIRCUIT BREAKER IN ACCORDANCE WITH MAIN DISTRIBUTION SWITCHBOARD "MDS" SCHEDULE.
18. PROVIDE THRU-FEED LUGS IN FIRST SECTION OF PANELBOARD. PROVIDE CONDUCTORS MATCHING PANEL FEEDER BETWEEN THRU-FEED LUGS AND MAIN LUGS IN SECOND SECTION OF PANELBOARD.
19. PROVIDE 400 AMP, 4 POLE AUTOMATIC TRANSFER SWITCH (ATS-2) IN ACCORDANCE WITH SPECIFICATION SECTION 263213.
20. PROVIDE BAKELITE NAMEPLATES ON PANEL "EHSB" AND "ATS-SB" INDICATING THAT THIS EQUIPMENT IS "OPTIONAL STANDBY SYSTEM EQUIPMENT" IN ACCORDANCE WITH ARTICLE 700, SECTIONS 702.7 OF THE N.E.C.
21. PROVIDE BAKELITE NAMEPLATE ON "MDS" STATING THE FOLLOWING; "EMERGENCY POWER FOR BUILDING PROVIDED BY EMERGENCY GENERATOR LOCATED IN MECHANICAL EQUIPMENT YARD".
22. PROVIDE 1" CONDUIT FOR GENERATOR CONTROL WIRING. COORDINATE NUMBER AND SIZE OF CONTROL WIRES WITH THE GENERATOR AND/OR FIRE PUMP CONTROLLER MANUFACTURER.
23. PROVIDE 1 #6 COPPER GROUNDING ELECTRODE CONDUCTOR IN 1/2" CONDUIT. CONNECT TO BUILDING STEEL IN ACCORDANCE WITH N.E.C. ARTICLE 250.52 (A)(2)(1).
24. PROVIDE 1 #1/0 COPPER GROUNDING ELECTRODE CONDUCTOR IN 3/4" CONDUIT. CONNECT TO BUILDING STEEL IN ACCORDANCE WITH N.E.C. ARTICLE 250.52 (A)(2)(1).
25. PROVIDE SURGE PROTECTIVE DEVICE "SPD" IN NEMA 1 ENCLOSURE IN ACCORDANCE WITH SPECIFICATION SECTION 264313. PROVIDE 4 #10 AND 1 #10 GROUND, IN 3/4" CONDUIT AND CONNECT TO CIRCUIT BREAKER IN ACCORDANCE WITH PANELBOARD SCHEDULE.
26. PROVIDE SURGE PROTECTIVE DEVICE "SPD" IN NEMA 1 FLUSH ENCLOSURE IN ACCORDANCE WITH SPECIFICATION SECTION 264313. PROVIDE 4 #10 AND 1 #10 GROUND, IN 3/4" CONDUIT AND CONNECT TO CIRCUIT BREAKER IN ACCORDANCE WITH PANELBOARD SCHEDULE.
27. PROVIDE 200 AMP, 4 POLE AUTOMATIC TRANSFER SWITCH (ATS-LS) IN ACCORDANCE WITH SPECIFICATION SECTION 263213.
28. PROVIDE 4 #3/0 AND 1 #6 GND. IN 3" CONCRETE ENCASED CONDUIT.
29. PROVIDE 4 #3/0 AND 1 #6 GND. IN 3" CONDUIT.
30. PROVIDE CONCRETE HOUSEKEEPING PAD IN ACCORDANCE WITH SPECIFICATION SECTION 262200.
31. PROVIDE 4-350 KCMIL AND 1 #4 GND. IN 3" CONDUIT.
32. PROVIDE 3-600 KCMIL, 2-600 KCMIL NEUTRALS AND 1 #1/0 GND. IN 4" CONDUIT.
33. PROVIDE 3 #1 AND 2 #1 NEUTRALS AND 1 #6 GND. IN 2" CONDUIT..
34. PROVIDE 3-250 KCMIL, 2-250 KCMIL NEUTRALS AND 1 #2 GND. IN 4" CONDUIT.
35. PROVIDE 3 #1/0 AND 2 #1/0 NEUTRALS AND 1 #6 GND. IN 2" CONDUIT.
36. PROVIDE 3 #6 AND 2 #6 NEUTRALS AND 1 #8 GND. IN 1-1/4" CONDUIT.
37. PROVIDE 1 #2 COPPER GROUNDING ELECTRODE CONDUCTOR IN 1/2" CONDUIT. CONNECT TO BUILDING STEEL IN ACCORDANCE WITH N.E.C. ARTICLE 250.52 (A)(2)(1).
38. PROVIDE 3 #4 AND 1 #8 GND. IN 1-1/4" CONDUIT.
39. PROVIDE 3 #2/0 AND 1 #6 GND. IN 2" CONDUIT.
40. PROVIDE 3 #1 AND 1 #6 GND. IN 1-1/2" CONDUIT.
41. PROVIDE 3 #4/0 AND 1 #2 GND. IN 2-1/2" CONDUIT.
42. PROVIDE 3 #10 AND 1 #10 GND. IN 1/2" CONDUIT.
43. PROVIDE 4 #2 AND 1 #8 GND. IN 1-1/2" CONDUIT.

A2

44. PROVIDE ENGRAVED BAKELITE NAMEPLATE WARNING SIGN WITH THE FOLLOWING INSCRIPTION, "WARNING. PERMANENT GENERATOR OUTPUT BREAKER MUST BE IN THE OPEN POSITION PRIOR TO CONNECTING THE PORTABLE GENERATOR." PROVIDE RED NAMEPLATE WITH WHITE LETTERS.
45. BATTERY CHARGER CONNECTION FOR PORTABLE GENERATOR. PROVIDE FLUSH MOUNTED GFI/WP DUPLEX RECEPTACLE, COORDINATE EXACT LOCATION ADJACENT TO GENERATOR JACKET HEATER DISCONNECT SWITCH.
46. JACKET WATER HEATER CONNECTION FOR PORTABLE GENERATOR. PROVIDE KNOCK OUTS AND REMOVABLE COVERS FOR TEMPORARY CONNECTION.
47. PROVIDE A GROUND ROD FOR THE PORTABLE GENERATOR. PLACE ROD BELOW BATTERY CHARGER FOR PORTABLE GENERATOR NEAR EXTERIOR WALL. GROUNDING CONDUCTOR SHALL BE PROVIDED BY THE SUPPLIER OF PORTABLE GENERATOR.
48. PROVIDE 400-AMP, 4-POLE MANUAL TRANSFER SWITCH IN ACCORDANCE WITH SPECIFICATION SECTION 263213. PROVIDE REQUIRED CAM-LOK CONNECTORS PLUGS INSIDE FOR CONNECTION TO PORTABLE GENERATOR. COORDINATE EXACT LOCATION OF MANUAL TRANSFER SWITCH IN FIELD WITH OWNER. INSTALL THE MANUAL TRANSFER SWITCH SO THAT IT SETS AT LEAST 12" A.F.G.
49. PROVIDE SINGLE POLE DOUBLE THROW SWITCH WITH PROTECTIVE HINGED COVER. LOCATE IN MAIN ELECTRICAL ROOM THE EXTERIOR NEAR DOOR EXIT. SWITCH TO CONTROL GENERATOR STARTER SIGNAL FROM "ATS-LS" AND TOGGLE BETWEEN PERMANENT GENERATOR AND PORTABLE GENERATOR. PROVIDE ENGRAVED BAKELITE NAMEPLATE INDICATING PERMANENT GENERATOR AND PORTABLE GENERATOR SWITCH POSITION. PROVIDE RED NAMEPLATES WITH WHITE LETTERS.`
50. PROVIDE ENGRAVED BAKELITE NAMEPLATE WITH THE FOLLOWING INSCRIPTION, "TEMPORARY STARTER CONTROL TO SINGLE POLE DOUBLE THROW SWITCH IN MAIN ELECTRICAL ROOM THE EXTERIOR NEAR DOOR EXIT. PLACE SWITCH IN THE PORTABLE GENERATOR POSITION WHEN USING PORTABLE GENERATOR." PROVIDE RED NAMEPLATE WITH WHITE LETTERS.
51. PROVIDE TERMINAL BLOCK TO ACCEPT PORTABLE GENERATOR STARTER CONTROL WIRING IN WEATHERPROOF JUNCTION BOX (SIZED AS REQUIRED) WITH A WEATHERPROOF WHILE-IN-USE RATED COVER. COORDINATE EXACT LOCATION IN FIELD WITH OWNER.

MAIN DISTRIBUTION SWITCHBOARD: MDS

4,000 AMP, 480/277 VOLT, 3 PHASE, 4 WIRE WITH 4000 AMP, 100% DUTY RATED MAIN BREAKER WITH GROUND FAULT PROTECTION, U.L. SERVICE ENTRANCE RATED FREE STANDING, DEAD FRONT. BRACE BUS FOR SHORT CIRCUIT CURRENT RATING OF 100 KAIC. PROVIDE SWITCHBOARD WITH CT, AND PV SECTIONS.

CKT NO.	LOAD SERVED	POLES	FRAME SIZE (AMPS)	TRIP RATING (AMPS)	CONNECTED LOAD (KVA)	WIRE AND CONDUIT SIZE
1	CHILLER # 1	3	800	600	312	3-350 KCMIL & 1 #1 GND. IN EACH OF TWO 3"C.
2	CHILLER # 2	3	800	600	312	3-350 KCMIL & 1 #1 GND. IN EACH OF TWO 3"C.
3	CHILLER # 3	3	800	600	312	3-350 KCMIL & 1 #1 GND. IN EACH OF TWO 3"C.
4	CHILLER # 1	3	800	600	338	3-350 KCMIL & 1 #1 GND. IN EACH OF TWO 3"C.
5	CHILLER # 2	3	800	600	338	3-350 KCMIL & 1 #1 GND. IN EACH OF TWO 3"C.
6	CHILLER # 3	3	800	600	338	3-350 KCMIL & 1 #1 GND. IN EACH OF TWO 3"C.
7	ATS-SB	3	400	300	98	4–350 KCMIL AND 1 #4 GND. IN 3" C.
8	ATS-LS	3	400	200	68	4 #3/0 AND 1 #6 GND. IN 3" C.
9	XFMR "TF"	3	225	175	140	3 #2/0 AND 1 #6 GND. IN 2" C.
10	XFME "TK"	3	400	20	114	3 #2/0 AND 1 #6 GND. IN 2" C.
11	PANEL "HFH"	3	400	400	261	4-400 KCMIL & 1 #2 GND. IN EACH OF TWO 3"C.
12	PANEL "HFH2"	3	125	125	48	4 #4/0 AND 1 #2 GND. IN 3" C.
13	PANEL "HM"	3	800	500	454	4–250 KCMIL AND 1 #2 GND. IN EACH OF TWO 3" C.
14	PANEL "HF"	3	400	300	206	4–350 KCMIL AND 1 #4 GND. IN 3" C.
15	PANEL "HH"	3	800	500	329	4–250 KCMIL AND 1 #2 GND. IN EACH OF TWO 3" C.
16	PANEL "HK"	3	225	150	78	4 #1/0 AND 1 #6 GND. IN 2" C.
17	PANEL "HC"	3	400	300	233	4–350 KCMIL AND 1 #4 GND. IN 3" C.
18	PANEL "H1C"	3	800	700	469	4–500 KCMIL AND 1 #1/0 GND. IN EACH OF TWO 4" C.
19	PANEL "H2CA"	3	400	400	296	4–250 KCMIL AND 1 #3 GND. IN EACH OF TWO 3" C.
20	PANEL "H2CB"	3	400	400	168	4-250 KCMIL AND 1 #3 GND. IN EACH OF TWO 3" C.
21	PANEL "H1D"	3	800	600	585	4–350 KCMIL AND 1 #1 GND. IN EACH OF TWO 3" C.
22	PANEL "H2D"	3	800	800	614	4–600 KCMIL AND 1 #1/0 GND. IN EACH OF TWO 4" C.
23	PANEL "HE"	3	400	400	372	4–500 KCMIL AND 1 #3 GND. IN 4" C.
24	PANEL "HAF"	3	225	225	144	4–250 KCMIL AND 1 #2 GND. IN 3" C.
25	SPD	3	125	60	1	4 #6 & 1 #10 GROUND IN 1-1/4" C.
26	SPACE	3	400	0	0	
27	SPACE	3	400	0	0	
	TOTAL CONNECTED LOAD (KVA)				6391	
	TOTAL CONNECTED LOAD (AMPS)				7687	
	TOTAL DEMAND (KVA)				6161	
	TOTAL DEMAND (AMPS)				7410	

A3

Notes:

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MARK	DATE	REVISIONS
A2	12.18.2023	ADDENDUM NO. 2
A3	1.4.2024	ADDENDUM NO. 3
MJT		BY
MJT		DESCRIPTION

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PROJECT RICHMOND PUBLIC SCHOOLS
GEORGE WYTHE HIGH SCHOOL
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RICHMOND, VIRGINIA 23225

DRAWING RISER DIAGRAM

FB: 23-7061-11
VIRGINIA DEPARTMENT OF EDUCATION: 123-74-011-100

SHEET
E-601

1/2/2024 5:13:23 PM Autodesk Docs://21310-00 George Wythe High School/George Wythe HS - Electrical - R23.rvt

1/32" = 1'-0" 1/16" = 1'-0" 3/32" = 1'-0" 1/8" = 1'-0" 1/4" = 1'-0" 3/8" = 1'-0" 1/2" = 1'-0" 3/4" = 1'-0" 1" = 1'-0" 1 1/2" = 1'-0" 3" = 1'-0" 6" = 1'-0" 12" = 1'-0"

EXTERIOR LIGHT FIXTURE SCHEDULE				
TYPE	MANUFACTURER'S CATALOG No.	VOLT	MOUNTING	REMARKS
X1	COOPER-PRV-PA2B-740-U-T2R-HSS	277	25 - POLE	SEE NOTES 1 & 2
X2	COOPER-PRV-PA2B-740-U-5WQ	277	25 - POLE	SEE NOTES 1 & 2
X3	COOPER-PRV-PA2B-740-U-T4W-HSS	277	25 - POLE	SEE NOTES 1 & 2

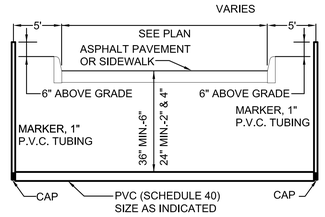
LIGHT FIXTURE SCHEDULE NOTES:

GENERAL:

LIGHT FIXTURE AND POLE HOUSING COLORS SHALL BE CONFIRMED BY THE ARCHITECT PRIOR TO RELEASE.

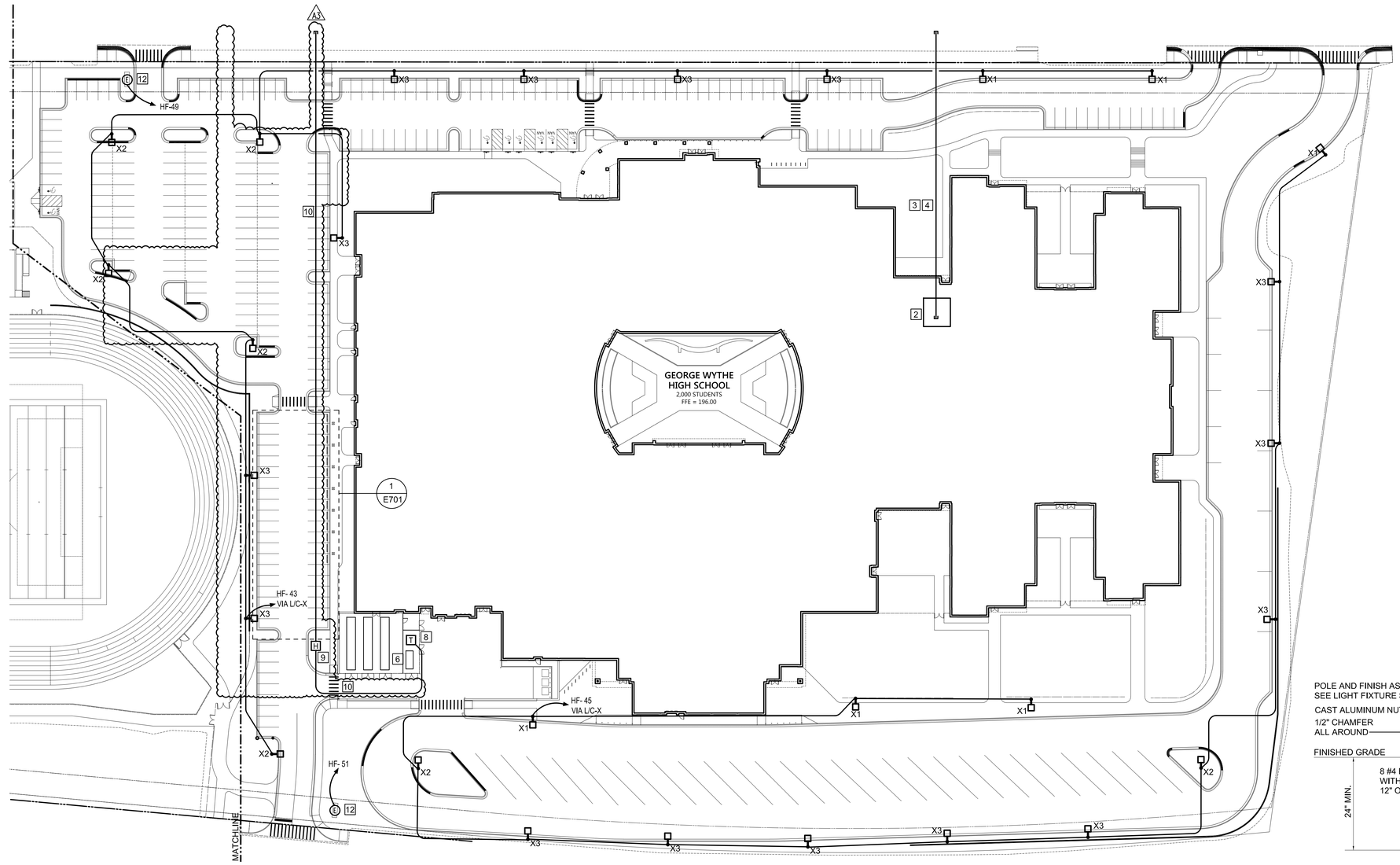
SPECIFIC

1. PROVIDE 25' POLE: VALMONT CATLAOG #DSS30-400Q250-DX, OR APPROVED EQUAL.
   PROVIDE POLE FOUNDATION IN ACCORDANCE WITH "POLE FOUNDATION DETAIL" ON THIS DRAWING.
   POLE AND FIXTURE COMBINATION SHALL HAVE A WIND SPEC RATING OF 105 MPH, MINIMUM.
2. LUMEN OUTPUT IS PER FIXTURE.



PAVEMENT CROSSING DETAIL

NOT TO SCALE



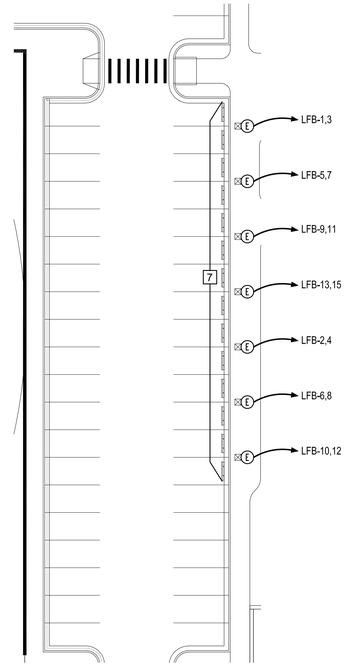
ELECTRICAL SITE PLAN 1 5 11 13

SCALE: 1" = 40'-0"

CONSTRUCTION NOTES:

(THIS DRAWING ONLY)

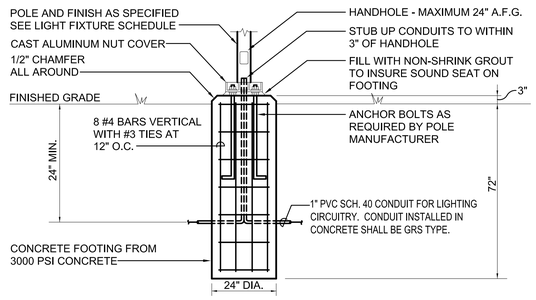
1. VERIFY LOCATION OF ALL UNDERGROUND UTILITIES (POWER, TELEPHONE, TELEVISION, ETC.) BEFORE DIGGING OR INSTALLING ANY UNDERGROUND CONDUITS. ANY EXISTING UNDERGROUND UTILITY THAT IS DAMAGE DURING CONSTRUCTION OF THIS PROJECT SHALL BE REPAIRED BACK TO ITS ORIGINAL CONDITION UTILIZING THE APPROPRIATE TRADES AT NO ADDITIONAL COST TO THE OWNER. BEFORE DIGGING CALL "MISS UTILITY" OF TIDEWATER TOLL FREE (1-800-552-7001) AND/OR PRIVATE UTILITY LOCATING CONTRACTOR.
2. MDF ROOM C135. SEE DRAWING E-203 FOR LOCATION.
3. PROVIDE FOUR (4) 4" CONDUITS WITH PULLWIRE. TWO(2) FOR USE BY TELEPHONE PROVIDER AND TWO(2) FOR USE BY INTERNET PROVIDER. BURY CONDUITS 24" B.F.G., MINIMUM.
4. TERMINATE 4" CONDUITS 6" A.F.F. IN "MDF" ROOM C135.
5. SEE DRAWING E-206 FOR LOCATION OF PANEL "HF" AND "LF"
6. PROPOSED LOCATION OF EMERGENCY GENERATOR.
7. PROVIDE CHARGING STATION CHARGE POINT TYPE "C74041" OR APPROVED EQUAL. PROVIDE ALL ACCESSORIES AND HARDWARE FOR A COMPLETE TURNKEY SYSTEM INSTALLATION. CONCEAL ALL CONDUITS AND WIRING IN ACCORDANCE WITH MANUFACTURERS BASE PLATE. INSTALL ALL ANCHOR BOLTS FOR BOLLARD SUPPORT SYSTEM AS DESCRIBED BY MANUFACTURERS RECOMMENDATIONS.
8. PROPOSED LOCATION OF DOMINION ENERGY PAD MOUNTED TRANSFORMER.
9. PROVIDE A TRAFFIC RATED HANDHOLE (SIZE AS REQUIRED) ON THE END OF CONDUITS. INSTALL FLUSH WITH FINISH GRADE. PROVIDE STACKABLE UNIT BY QUAZITE OR EQUAL.
10. PROVIDE (3) 6" CONDUITS WITH PULLWIRE FOR USE BY DOMINION ENERGY.
11. ALL LIGHT FIXTURES SHALL BE OF A DIRECTIONAL TYPE THAT SHIELDS THE LIGHT SOURCE FROM DIRECT VIEW FROM ANY PUBLIC RIGHT OF WAY.
12. PROVIDE ELECTRICAL CONNECTION TO LED MARQUEE SIGN. COORDINATE CONNECTION REQUIREMENTS WITH SUPPLIER OF SIGN. PROVIDE 1" CONDUIT WITH PULLWIRE FOR CONTROLS. TERMINATE +6" A.F.F. IN NEAREST MDF/IDF ROOM.
13. SEE "PAVEMENT CROSSING DETAIL" ON THIS DRAWING FOR ADDITIONAL INFORMATION.



PARTIAL ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

1 E701



POLE FOUNDATION DETAIL

NOT TO SCALE

NOTE: PROVIDE HEX NUTS BOTH TOP AND BOTTOM OF POLE BASE PLATE. ATTACH COPPER EQUIPMENT GROUND CONDUCTOR TO INTERNAL LUG ON INTERIOR OF POLE.

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TELEPHONE: (757) 399-4433 PROJECT NUMBER 22-009

MARK	DATE	REVISIONS
A3	1.4.2024	ADDENDUM NO. 3
MJT		BY
		DESCRIPTION

DATE	11.14.2023
PROJECT	21310-00
DESIGNED	KGD
DRAWN	MWH
CHECKED	KC

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COMMONWEALTH OF VIRGINIA
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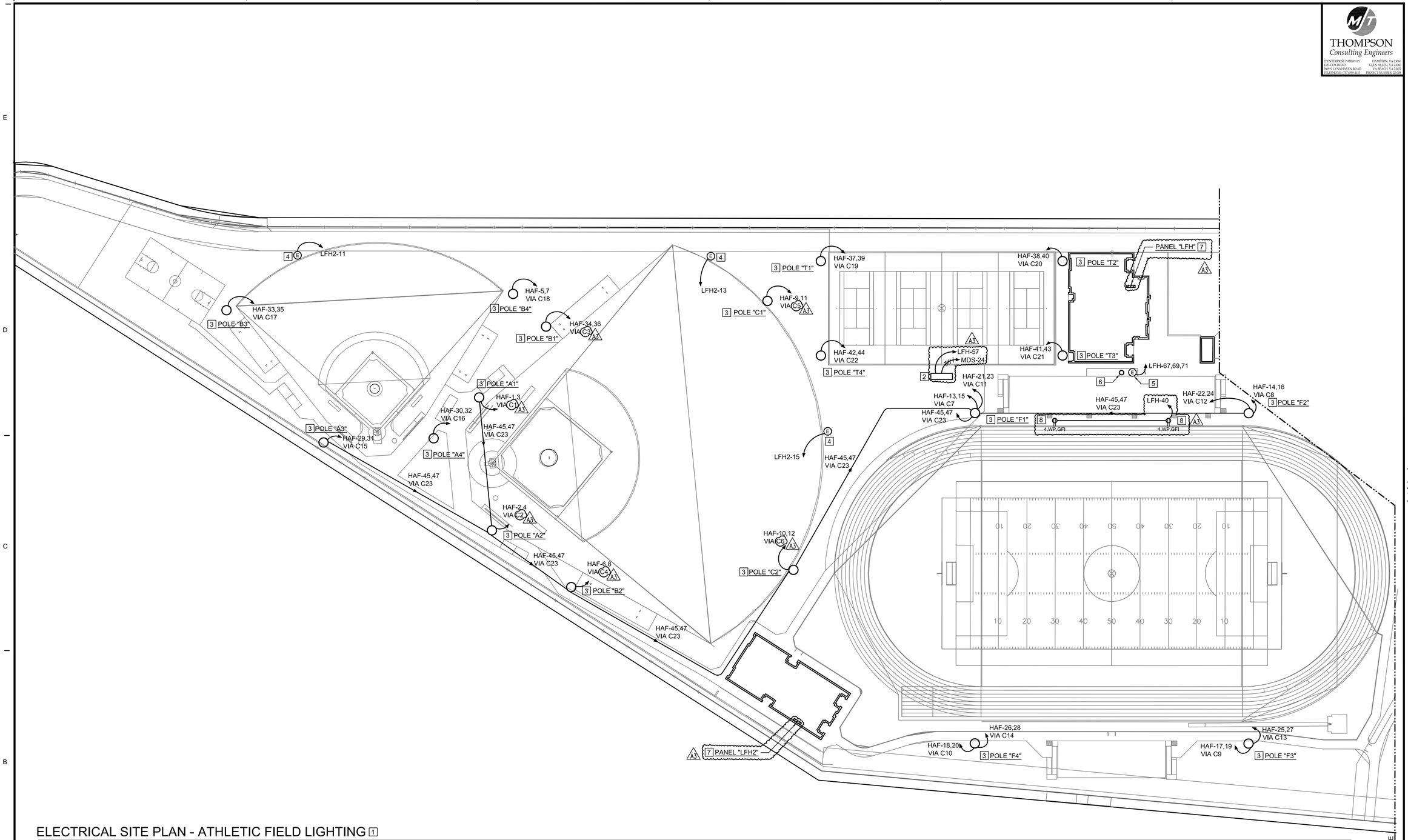
Lic. No.049752
11.14.2023
PROFESSIONAL ENGINEER

PROJECT
RICHMOND PUBLIC SCHOOLS
GEORGE WYTHE HIGH SCHOOL
4314 CRUTCHFIELD STREET
RICHMOND, VIRGINIA 23225

DRAWING
ELECTRICAL SITE PLAN

IFB: 23-7061-11
VIRGINIA DEPARTMENT OF EDUCATION: 123-7401-100

SHEET
E-701

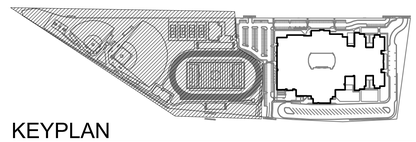


ELECTRICAL SITE PLAN - ATHLETIC FIELD LIGHTING 1

SCALE: 1" = 40'-0"

CONSTRUCTION NOTES: (THIS DRAWING ONLY)

1. INSTALL ALL CONDUITS 24" B.F.G. MINIMUM.
2. LIGHTING EQUIPMENT; PANEL "HAF" AND LIGHTING CABINETS "LCC". SEE "LIGHTING EQUIPMENT STRUCTURE DETAIL #1", ON DRAWING E-704 FOR ADDITIONAL INFORMATION. PROVIDE CHAIN LINK FENCE AROUND LIGHTING EQUIPMENT. MAINTAIN NEC REQUIRED CLEARANCE.
3. PROVIDE 3/4" DIAMETER X 10'-0" COPPERWELD GROUND ROD DRIVEN IN GROUND ADJACENT TO POLE. PROVIDE 1 #6 GROUNDING CONDUCTOR FROM GROUND ROD TO GROUNDING LUG LOCATED INSIDE POLE. INSTALL GROUNDING CONDUCTOR UP INSIDE OF POLE. PROVIDE EXOTHERMIC OR IRREVERSIBLE COMPRESSION CONNECTION OF GROUNDING CONDUCTOR TO GROUND ROD. SEE "POLE FOUNDATION DETAIL" ON DRAWING E-703 FOR ADDITIONAL INFORMATION.
4. PROVIDE ELECTRICAL CONNECTION TO SCOREBOARD. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS. A3
5. PROVIDE ELECTRICAL CONNECTION TO FOOTBALL FIELD PRESS BOX 100 AMP, 208Y/120 VOLT, 3 PHASE, 4 WIRE PANEL.
6. PROVIDE TWO (2) 4" CONDUITS FOR FIBER CABLES. TERMINATE CONDUITS IN CONCESSION BUILDING, ROOM 103. TERMINATE FIBER OPTIC CABLE IN MDF ROOM C135 VIA COMMUNICATION CONDUITS BETWEEN CONCESSION BUILDING AND MDF ROOM C135. SEE DRAWING R-403 FOR LOCATION OF MDF ROOM. A3
7. SEE DRAWING E-211 FOR EXACT LOCATION OF PANEL.
8. PROVIDE POWER PEDESTALS WITH TWO DUPLEX RECEPTACLES; LEGRAND CATALOG #XPP2G3OC-BK, OR APPROVED EQUAL. PROVIDE CONCRETE BASE AS REQUIRED FOR MOUNTING PEDESTAL.



KEYPLAN
NOT TO SCALE

1/32" = 1'-0" | 1/16" = 1'-0" | 3/32" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 3/8" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0" | 6" = 1'-0" | 12" = 1'-0"

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11.14.2023

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VIRGINIA DEPARTMENT OF EDUCATION: 120-7491-100

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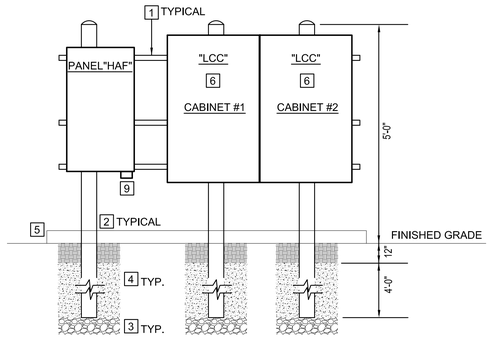
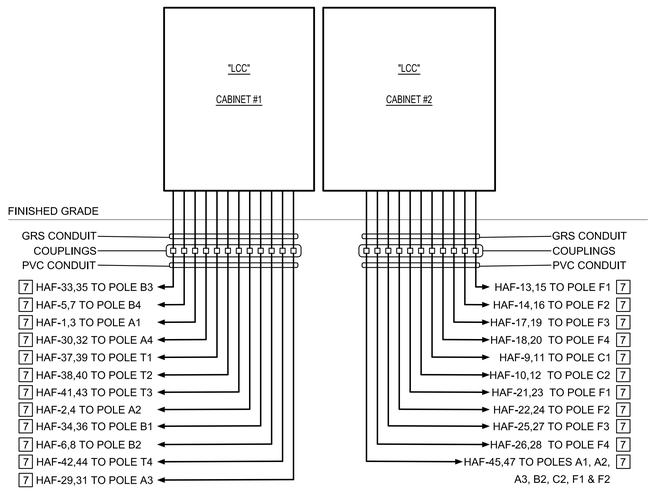
DRAWING
ELECTRICAL SITE PLAN - ATHLETIC FIELD LIGHTING

SHEET
E-702



LIGHTING EQUIPMENT STRUCTURAL DETAIL #1

NOT TO SCALE



MUSCO LIGHTING CONTROL CABINETS "LCC" DETAIL #1 8

NOT TO SCALE

CONSTRUCTION NOTES (THIS DRAWING ONLY)

1. PROVIDE 1-1/2" X 1-1/2" EPOXY COATED STEEL UNISTRUT CHANNEL. SECURE CHANNEL TO PIPE WITH APPROPRIATELY SIZED "U" BOLTS, WASHERS, LOCK WASHERS AND SELF-LOCKING NUTS. COORDINATE QUANTITY AND EXACT LOCATION OF UNISTRUT CHANNELS WITH THE APPROVED EQUIPMENT BEING PROVIDED AS A PART OF THIS PROJECT.
2. PROVIDE 3" DIAMETER GALVANIZED STEEL PIPE WITH PIPE CAPS ON EACH END.
3. SET END OF PIPE AND CONCRETE FOUNDATION ON A 6" THICK LAYER OF TIGHTLY COMPACTED CRUSHER-RUN STONE.
4. PROVIDE 12" DIAMETER HOLE FOR PIPE. PROVIDE 4' DEEP CONCRETE FOUNDATION AROUND PIPE WITH 12" OF SOIL ON TOP OF CONCRETE.
5. PROVIDE 8" CONCRETE PAD, EXCEED DIMENSIONS OF EQUIPMENT ENCLOSURES BY 12" ON TWO SIDES AND BACK, AND 4'-0" IN FRONT OF THE EQUIPMENT ENCLOSURES. PROVIDE 1/2" CHAMFER ON ALL EXPOSED EDGES. TOP OF CONCRETE PAD SHALL BE SET SO TOP OF PAD 2" ABOVE FINISHED GRADE.
6. PROVIDE MUSCO LIGHTING CONTROL CABINETS "LCC", OR APPROVED EQUAL. PROVIDE MAIN HANDLE WITH PROVISIONS FOR PAD LOCKING. PROVIDE OFF-ON-AUTO KEYED SWITCHES WITH COVERS AND PROVISIONS FOR PAD LOCKING OPTION. SEE "MUSCO LIGHTING CONTROL CABINETS "LCC" DETAIL #1" ON THIS DRAWING FOR ADDITIONAL INFORMATION.
7. SEE DRAWING E-702 FOR CONTINUATION.
8. INSTALL ALL CONDUITS 24" B.F.G.
9. PROVIDE SURGE PROTECTIVE DEVICE "SPD" WITH NEMA 3R ENCLOSURE.

ZONE SCHEDULE

ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
ZONE 1	1	BASEBALL	A1	A1
			A2	A2
			B1	B1
			B2	B2
			C1	C1
			C2	C2
ZONE 2	2	FOOTBALL	F1	C7
			F2	C8
			F3	C9
			F4	C10
ZONE 3	3	FOOTBALL ACCENT LIGHTS	F1	C11
			F2	C12
			F3	C13
			F4	C14
ZONE 4	4	SOFTBALL	A3	C15
			A4	C16
			B3	C17
			B4	C18
ZONE 5	5	TENNIS	T1	C19
			T2	C20
			T3	C21
			T4	C22
ZONE 6	6	SECURITY	A1	C23
			A2	C23
			A3	C23
			B2	C23
			C2	C23
			F1	C23
			F2	C23

PANEL:HAF

LOCATION:
MOUNTING: Surface #
NEMA: 3R

VOLTS: 277/480 Wye
PHASES: 3
WIRES: 4

KAIC RATING: 14
MAINS TYPE: MCB
MAINS RATING: 225 A

CKT NO	LOAD SERVED	P	C/B TRIP	WIRE SIZE	A	B	C	WIRE SIZE	C/B TRIP	P	LOAD SERVED	CKT NO
1	POLE A1	2	30	6	5.8	5.8		6	30	2	POLE A2	2
3						5.8	5.8					4
5	POLE B4	2	30	6			10.7	6	30	2	POLE B2	6
7					10.7	14.7						8
9	POLE C1	2	30	8		11.7	11.7	8	30	2	POLE C2	10
11							11.7					12
13	POLE F1	2	30	8	23.3	22.7		8	30	2	POLE F2	14
15						23.3	22.7					16
17	POLE F3	2	30	6			23.3	6	30	2	POLE F4	18
19					23.3	22.7						20
21	POLE F1	2	30	8		2.8	2.8	8	30	2	POLE F2	22
23							2.8					24
25	POLE F3	2	30	6	2.8	2.8		6	30	2	POLE F4	26
27						2.8	2.8					28
29	POLE A3	2	30	6			5.2	6	30	2	POLE A4	30
31					5.2	5.2						32
33	POLE B3	2	30	6		10.7	14.7	6	30	2	POLE B1	34
35							10.7					36
37	POLE T1	2	30	8	6.5	6.5		8	30	2	POLE T2	38
39						6.5	6.5					40
41	POLE T3	2	30	8			6.5	8	30	2	POLE T4	42
43					6.5	6.5						44
45	POLES A1, A2, A3, B2, C2, F1, F2	2	30	6		7.2	--	--	--	1	SPACE	46
47							7.2	--	--	1	SPACE	48
49	SPACE	1	--	--	--	1.0		10	30	3	SPD	50
51	SPACE	1	--	--		--	1.0					52
53	SPACE	1	--	--			--	1.0				54
	CONNECTED LOAD (AMPS):				102 A	82 A	100 A					
	CONNECTED LOAD (KVA):				12 kVA	10 kVA	12 kVA					

TOTAL CONNECTED LOAD (KVA): 33 kVA
TOTAL ESTIMATED DEMAND LOAD (KVA): 23 kVA

NOTES:
PROVIDE PANELBOARD IN LOCKABLE, NEMA 3R ENCLOSURE.

A3

LIGHTING CONTROL CABINET SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS
1	1	C1	Pole A1	5.81
1	1	C2	Pole A2	5.81
1	1	C3	Pole B1	14.70
1	1	C4	Pole B2	14.70
1	1	C5	Pole C1	11.65
1	1	C6	Pole C2	11.65
1	1	C7	Pole F1	23.26
1	1	C8	Pole F2	22.72
1	1	C9	Pole F3	23.26
1	1	C10	Pole F4	22.72
1	1	C11	Pole F1	2.78
1	1	C12	Pole F2	2.78
2	1	C13	Pole F3	2.78
2	1	C14	Pole F4	2.78
2	1	C15	Pole A3	5.17
2	1	C16	Pole A4	5.17
2	1	C17	Pole B3	10.69
2	1	C18	Pole B4	10.69
2	1	C19	Pole T1	6.51
2	1	C20	Pole T2	6.51
2	1	C21	Pole T3	6.51
2	1	C22	Pole T4	6.51
2	1	C23	Pole A1,A2,A3,B2,C2,F1,F2	7.22

LIGHTING SYSTEM – POLE / FIXTURE SUMMARY

POLE ID	POLE HEIGHT	MTG HEIGHT	FIXTURE QTY	LUMINAIRE TYPE
A1–A2	70'	70'	1	TLC–LED–1200
		70'	2	TLC–LED–900
		16'	1	TLC–LED–575
		55'	1	TLC–LED–550
A3	60'	60'	3	TLC–LED–900
		16'	1	TLC–BT–575
		50'	1	TLC–LED–550
A4	60'	60'	3	TLC–LED–900
		16'	1	TLC–BT–575
B1	80'	80'	6	TLC–LED–1500
		16'	1	TLC–BT–575
		65'	1	TLC–LED–400
B2	80'	80'	6	TLC–LED–1500
		16'	1	TLC–BT–575
		60'	1	TLC–LED–400
		60'	1	TLC–LED–550
B3–B4	70'	70'	4	TLC–LED–1500
		16'	1	TLC–BT–575
C1	70'	70'	5	TLC–LED–1200
		16'	2	TLC–BT–575
C2	70'	70'	5	TLC–LED–1200
		16'	2	TLC–BT–575
		55'	2	TLC–LED–550
F1	90'	90'	1	TLC–LED–1200
		90'	9	TLC–LED–1500
		90'	1	TLC–RGBW
		16'	2	TLC–BT–575
		16'	1	TLC–RGB–U
		60'	2	TLC–LED–550
F2	90'	90'	1	TLC–LED–1200
		90'	9	TLC–LED–1500
		90'	1	TLC–RGBW
		16'	2	TLC–BT–575
		16'	1	TLC–RGB–U
		60'	1	TLC–LED–550
F3–F4	90'	90'	1	TLC–LED–1200
		90'	9	TLC–LED–1500
		90'	1	TLC–RGBW
		16'	2	TLC–BT–575
		16'	1	TLC–RGB–U
T1–T4	60'	60'	2	TLC–LED–1200
		60'	2	TLC–LED–900
18			137	

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PROJECT
RICHMOND PUBLIC SCHOOLS
GEORGE WYTHE HIGH SCHOOL
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DRAWING
ELECTRICAL SITE PLAN

SHEET
E-704

File Transfer

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PROJECT	RICHMOND PUBLIC SCHOOLS (RPS) – GEORGE WYTHE HIGH SCHOOL REPLACEMENT 21310-00	EXPIRES	2/15/2024
SUBJECT	IFB-23-7061-11_GEORGE WYTHE HS-RHSA_BID DOCUMENTS		
PROJECT MANAGER	Dan Weigand		
VIA	Info Exchange		

FROM

NAME	COMPANY	EMAIL	PHONE
Larry Simerson	RRMM Architects, PC	lsimerson@rrmm.com	757-213-6374

TO

NAME	COMPANY	EMAIL	PHONE
Melanie Weatherford	RRMM Architects, PC	mweatherford@rrmm.com	757-213-6350

REMARKS: Referenced Bid Documents will be live upon upload.

CHANGE LOG

EVENT TYPE	PROJECT TEAM MEMBER	DATE	TIME
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Background upload completed	Larry Simerson	11/14/2023	8:59 PM
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IFB-23-7061-11_GEORGE WYTHE HS-RHSA_BID DRAWINGS_VOL_2 of 3.pdf	PDF Document	11/14/2023	4:18 PM	109,870 KB
IFB-23-7061-11_GEORGE WYTHE HS-RHSA_BID DRAWINGS_VOL_3 of 3.pdf	PDF Document	11/13/2023	4:16 PM	94,679 KB
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