

PROJECT	Near East Play Fields Reconstruction	ADDENDUM NUMBER	2
PROJECT NO.	0629-2220, A-22-011, 14272	DATE	9/28/2023
PROJECT LOCATION	Madison, WI		
OWNER	Board of Regents of the University of Wisconsin-Madison		
PREPARED BY	SmithGroup, ME Engineers		

This Addendum is issued pursuant to the Instructions to Bidders and/or Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

PART 1 - NEW DOCUMENTS ISSUED WITH THIS DOCUMENT

1.1 NEW PROJECT MANUAL DOCUMENTS AND SPECIFICATIONS

A. None

1.2 NEW DRAWING SHEETS

A. None

1.3 NEW SKETCHES

A. None

PART 2 - DOCUMENTS DELETED BY THIS DOCUMENT

2.1 DELETE THE FOLLOWING FROM THE PROJECT MANUAL

A. 26 09 43 Distributed Digital Lighting Controls

2.2 DELETE THE FOLLOWING DRAWING SHEETS

A. None

PART 3 - REVISED DOCUMENTS ISSUED WITH THIS DOCUMENT

3.1 REVISED PROJECT MANUAL DOCUMENTS AND SPECIFICATIONS

A. 26 55 88 Sports Lighting Fixtures (Soccer Stadiums)

1. Description: Sports Lighting Specifications

2. Removed DMX controls. Added section on sports lighting pole specifications.
Added spill and glare requirements. Updated fixture type specifications.

3.2 REVISED DRAWING SHEETS

- A. CS404 – SITE DETAILS
- B. L300 – LANDSCAPE PLAN ENLARGEMENTS
- C. E0-2 – ELECTRICAL ONE-LINE DIAGRAM
- D. E0-3 – ELECTRICAL SCHEDULES
- E. E2-0 – ELECTRICAL SITE PLAN
- F. E2-1 – ELECTRICAL GROUND LEVEL FLOOR PLAN
- G. E2-2 – ELECTRICAL GROUND LEVEL FLOOR PLAN
- H. E3-1 – LIGHTING GROUND LEVEL FLOOR PLAN
- I. E4-0 – SPORTS LIGHTING
- J. E8-1 – ELECTRICAL DETAILS

PART 4 - PROPOSED CHANGES IN THE WORK

4.1 None

PART 5 - CLARIFICATIONS

5.1 None

END OF DOCUMENT

SECTION 26 55 88
SPORTS LIGHTING FIXTURES (~~Soccer Stadiums~~)

PART 1 - GENERAL

RELATED DOCUMENTS

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

- Section 26 05 00, Basic Electrical Requirements.
- Section 26 05 19, Low-Voltage Electrical Power Conductors and Cables.
- Section 26 05 26, Grounding and Bonding for Electrical Systems.
- Section 26 05 29, Hangers and Supports for Electrical Systems.
- Section 26 05 33, Raceways and Boxes for Electrical Systems.

Division 26 Basic Electrical Materials and Methods sections apply to work specified in this section.

SUMMARY

The intent of this specification and the field lighting drawings is to bid the sports lighting fixtures for the project. This bid document includes lighting fixtures, lamps, brackets, mounting hardware, shop drawings and nighttime field aiming prior to the first event.

The basis for this bid document is for the listed manufactures to provide the quantity of fixtures along with lamps, mounting brackets/hardware complete for complete installation by electrical contractor. The manufacturers bid submittal shall include separate cost for the following items and work activities.

These bid documents are for LED technology.

Types of sports lighting fixtures in this section include the following:

Light Emitting Diode (LED) Sports Lights.

- Types SL1 and SL2: 900 1200 Watt LED, Sports lighting luminaire with high power LEDs. Individual lensing for glare controlled optics. Heavy duty cast aluminum housing, flicker free control gear, high power factor, energy conserving, 20,000 hour constant light output, stainless-steel hardware, trunnion mount with protractor base-plate, vertical adjustment aiming, safety cable, beam spreads and aiming as determined by the engineer's computer study of the stadium geometry for uniform lighting. Full DMX enabled (per fixture head) and controlled for dynamic effects.
- ~~Type SL3: 394 Watt LED, forward throw luminaire with aluminum heavy duty reflector assembly, cast aluminum housing, high power factor, energy conserving, 50,000 hour constant light output, clear tempered and impact resistant glass, stainless steel hardware, trunnion mount with protractor base plate, safety cable, vertical adjustment aiming, beam spreads and aiming as determined by the engineer's computer study of the stadium geometry.~~

Applications of sports lighting fixtures required for this project include the following:

The performance of the light fixture shall be guaranteed with the normal electricity supply voltage at 277-Volts plus or minus 10% at 60 HZ.

Site Conditions:

The project is located in Madison, Wisconsin. The maximum wind speed the fixtures and brackets shall be able to withstand is 110 mph with a 1.3 gust factor.

SUBMITTALS

Product Data: Submit manufacturer's product data and installation instructions on each type sports lighting fixture and component. Product data shall include but not limited to noise level, starting current, running current, power factor and the time it takes to change from starting current to running current.

Shop Drawings: After the successful manufacturer is awarded the project the manufacturer may be given the aiming strategy prepared by the engineer for the manufacturer to prepare their shop drawings. The design will include aiming diagrams, illumination levels for both horizontal and vertical angles. Submit fixture shop drawings in booklet form with separate sheet for each fixture, assembled in "luminaire type" alphabetical or numerical order, with proposed fixture and accessories clearly indicated on each sheet.

Shop Drawing Submittal:

Submit plans showing proposed mounting brackets using manufacturer's application software with the catwalk mounting heights, with the spacing of all fixtures on a 3'-0" grid for both horizontal and vertical.

Submit computer generated photometric information as required.

Array Test Points: Shall be provided on a 30 feet x 30 feet grid covering the entire playing surface and seating bowl as required.

Computer photometrics shall be provided at 3 feet above playing field, 20 feet above playing field and 50 feet above playing field.

Glare ratings, GR, shall be calculated for all calculation points on the field, seating bowl and for all camera locations.

Luminaire dirt depreciation shall be utilized in the calculations.

The contractor shall be responsible for installing the sports fixture to the structure, and aiming of each fixture to maintain the computer generated photometric design.

The manufacturers shall submit a complete set of aiming diagrams showing the target aiming point coordinates and an alpha numeric aiming assignment on the playing surface for each luminaire, as part of the shop drawing submittal.

Submit documentation depicting luminaire locations on the structure and indicate coordinate, vector and target assignments for each luminaire.

The engineer may visit the manufacturer prior to shop drawing approval to review and analyze the computer model for the field and seating bowl.

Illumination Data: Provide isolux plot diagram of footcandles on horizontal and vertical surface which shows composite values of illuminance projected from the arrangement of light sources for indicated fixture locations and heights.

Maximum spill calculation and maximum glare calculation will be required by the successful manufacturers. Using a 400 100 foot dimension from the stadium field perimeter footprint provide a perimeter ring around the facility, reporting spill light vertically and horizontally at 50 foot increments, provide for additional rings if light readings exceed 1 footcandle on a horizontal plan 3 feet above grade.

1 **QUALITY ASSURANCE**

2
3 Manufacturer's Qualifications: Firms regularly engaged in manufacture of sports lighting fixtures of types
4 and ratings required, whose products have been in satisfactory use in similar professional soccer stadiums
5 and installed in the last 5 years. Only the manufacturers listed on the drawings will be allowed.

6
7 Installer's Qualifications: Firms with at least 5 years of successful installation experience on projects with
8 sports lighting fixture work similar to that required for this project.

9 10 Codes and Standards:

11
12 Electrical Code Compliance: Comply with applicable local code requirements of the authority
13 having jurisdiction and NEC Articles 225, 250 & 410 as applicable to installation, and
14 construction of lighting fixtures.

15
16 NEMA Compliance: Comply with applicable requirements of NEMA Standards Pub/No. LE 2
17 pertaining to lighting equipment.

18
19 IES Compliance: Comply with IES RP-6-88, pertaining to sports lighting.

20
21 UL Compliance: Comply with requirements of UL standards, including Standards 486A and
22 486B, pertaining to exterior lighting fixtures. Provide lighting fixtures and components which are
23 UL-listed and labeled.

24 25 **DELIVERY, STORAGE, AND HANDLING**

26
27 Deliver lighting fixtures in factory-fabricated containers or wrappings, which properly protect fixtures from
28 construction debris and physical damage.

29
30 Store lighting fixtures in original wrappings in a clean dry space. Protect from weather, dirt, fumes, water,
31 construction debris, and damage.

32
33 Handle lighting fixtures carefully to prevent damage, breaking, and scoring. Do not install damaged
34 fixtures or components. Remove damaged units from site and replace with new.

35 36 **SEQUENCING AND SCHEDULING**

37
38 Coordinate with other electrical work including wires/cables, electrical boxes and fittings, and raceways, to
39 properly interface installation of lighting fixtures with other work.

40
41 Sequence lighting fixtures installation with other work to reduce possibility of damage and soiling of
42 fixtures during remainder of construction period.

43 44 **MAINTENANCE**

45
46 Maintenance Data: Submit maintenance data and parts list for each lighting fixture and accessory;
47 including "trouble-shooting" maintenance guide. Include that data, product data, and shop drawings in a
48 maintenance manual; in accordance with requirements of Division 01.

49 50 ~~Extra Stock:~~

51 ~~LED Boards: Furnish stock or replacement LED boards amounting to not less than 2% of each~~
52 ~~type and size board used in each type fixture. Deliver replacement stock as directed to owner's~~
53 ~~storage area.~~

1 Drivers: Furnish stock or replacement drivers amounting to not less than 5% of each type and size
2 driver used for each type of fixture. Driver replacement stock as directed to Owner's storage
3 space.
4

6 PART 2 - PRODUCTS

8 MANUFACTURERS

9
10 Available Manufacturers: Subject to compliance with requirements, manufacturers offering products to be
11 incorporated in the work, shall be limited to the manufacturers listed below. All luminaires shall include
12 internal glare control on all diodes is required for full cutoff and control of glare. Exterior visor shall be
13 provided, if necessary, for glare control.

14 SL1 /SL2- 900 1200 Watt LED Fixtures

15 Musco Dome 136

16 GigaTera USA

17 Carolina High Mast
18

19 SPORTS LIGHTING FIXTURES

20
21 General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to,
22 housing, energy efficient drivers, safety chain, glass lens, heavy duty double shroud construction, and
23 internal fitting wiring.
24

25 Wiring: Provide electrical wiring within fixtures which are suitable for connection to branch circuit wiring
26 as follows:

27 NEC Type SF-2 for 277-Volts, minimum No. 18 AWG.
28

29 All light fixtures and drivers shall be U.L. listed and bear the label.
30

31 SPORTS LIGHTING FIXTURES

32
33 General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to,
34 housing, mounting brackets, energy efficient drivers, safety chain, glass lens, and internal fitting wiring.
35

36 All light fixtures and drivers shall be U.L. listed and bear the label.

37 LED Luminaires
38

39 Provide enclosed, gasketed and filtered heavy duty, narrow beam trunnion-mounted flood light
40 which has a separate optical assembly completely enclosed by an all-aluminum housing.
41

42 Each LED shall have a reflector to control light and limit glare.
43

44 Driver assembly shall be remote from the optical LED assembly and have a cast aluminum
45 housing.
46

47 An adjustable yoke or knuckle shall be secured to the luminaire housing. A calibrated indicator
48 shall be integral to each luminaire for vertical and horizontal angular aiming. Each yoke or
49 knuckle support shall have after typical maintenance repositioning mechanism. Each luminaire
50 shall have a retractable target aiming site mechanism secured to the housing.
51

52 The optical assembly shall be gasketed using a continuous extruded silicone rubber at the door and
53 lens to seal the optical assembly from dust particles.
54

55 Reflector shall have door enclosure of tempered glass mounted to the reflector body by means of a
56 hinged and secured by no less than three spring type stainless-steel clamps.

The door frame shall be hinged and secured by no less than three spring type stainless-steel clamps.

Target playing surface illumination design is based on the following photometric characteristics using lamp performance:

Rated hours: Minimum 20,000 – 100,000 hours

Color Temperature: ~~4,500K~~ ~~5,000K~~ 5,700K

Color Rendering Index: ~~80+~~ 75+

Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following.

	Average	Maximum
100' Horizontal Footcandles – 3'	.1 fc	.45 fc
100' Max. Vertical Illuminance Metric – 3'	.2 fc	.5 fc
100' Maintained Candela – 5'	4,000 Cd	7,500 Cd

All external parts shall be corrosion resistant.

LED Lamps

Sources shall conform with the IESNA LM-79 and LM-80 published standards. They shall have a color temperature binning that does not exceed +/-200K. LED Lamp life shall be rated at 70% of initial lumens remaining. LED drivers shall be used @ 100% output for lumen output rating and not be underdriven or overdriven.

Initial delivered lumens – thermal losses should be less than 10% when operated at a steady state at an average ambient operating temperature of 25°C, and optical losses should be less than 15%.

Average Delivered Lumens – Average delivered lumens over 20,000 hours should be minimum of 100% of initial delivered lumens.

Poles

Provide metal, raceway type, lighting poles and standards, comprised of shafts and tenon joints. Equip with grounding connections readily accessible from handhole at the base of the pole. Heights shall be as required by the drawings. Registered structural engineer shall design the pole shaft, base, etc. as required by the latest AASHTO wind requirements.

Pole finish shall be hot dipped, galvanized for field lighting. Galvanizing shall be to ASTM A123, Galvanized.

Luminaire crossarms shall be made of tubular members to reduce wind drag. The crossarm shall consist of horizontal main members as determined by the structural engineer. Horizontal, angle luminaire supports shall have holes to accommodate luminaire adaptor plates or pipe tenons to accommodate specific size slipfitters. Luminaire mounting angle supports shall be attached to the main member. Crossarm to withstand maximum wind load and fixture weight without misalignment.

Pole shaft cross section shall be round or 16 sided with a 4" bend radius. Each pole shall be a constant tapered hollow high strength steel as determined by the structural engineer.

Located appropriately above ground level shall be a reinforced hand hole with a nominal opening size of ID 6" x 10" to have a hinged cover with provisions for lock. Pole to have plate internally mounted 180° from the handhole for mounting enclosure with contactor and disconnecting device.

Provide climbing steps with appropriate safety cable for safety harness connection. Wire entrance to the pole shaft shall be a standard 1" ID grommited hole with 3" x 5" handhole.

The shaft shall be supplied with an integrally welded steel base plate as designed by the structural engineer.

Steel climbing steps shall begin approximately 20 feet above ground and shall be staggered on 15" centers to top of pole. Poles shall be equipped with 3/8" galvanized safety cable at step initiation and step attached at top and bottom with welded brackets.

Each pole shall include an electrical enclosure (NEMA 3R) mounted to the pole, equipped with a UL listed thermal magnetic circuit breaker such that electrical power to all equipment on the pole served by the feeder circuit shall be disengaged by the operation of one switch. The breaker ampacity shall be sized in accordance with NEC. The breaker shall be located in a compartment separated from any capacitors or ballasts. There shall be provided by the manufacturer a set of distribution terminal blocks which shall be factory wired from the breaker to the blocks. These blocks shall provide for termination of all ballast connection wiring. In addition, the enclosure shall have a control contactor rated for the pole load to turn the pole on and off. Disconnect device to be located at 12 feet above grade

Anchor bolts shall be furnished loose with a checking template as standard. Anchor bolts shall be galvanized and designed by the structural engineer. All exposed anchor bolts shall be provided with steel cover.

A 3" and 2" diameter hole in the pole base shall be provided for wiring access. The hole shall be located at 2' 6" below the ground line and 90° clockwise with respect to the luminaire arm when viewed from the top of the pole. This contractor shall have a professional engineer design the concrete pole base to meet AASHTO requirements for the project location. The engineer shall use the project soils report to determine their design.

Vertical forces due to pole weight, luminaries, attachments and maintenance device shall be included in the maximum stress at the base. Wind pressures, adjusted for shape and height, to be applied to the centroids of all projected areas. Eccentric moments due to deflection under maximum wind and eccentric loads shall be considered. Sum of maximum stresses shall not exceed the guaranteed minimum yield strength of the material. Base and anchor bolts shall be designed to withstand the maximum combined stress at the base of the pole.

Pole structures shall be shipped by rail or truck at the option of the manufacturer. All structures will be firmly secured and adequately packed to assure protection of the structures and finish.

All poles shall be capable of being slip fitted in the field, full telescoping points shall be marked, and sections match marked. Pole assembly procedure with suggested equipment shall be provided.

All poles structure shall be equipped with lightning protection in accordance with NFPA 780.

Pole Shop Drawings: Submit shop drawings of electrical poles and standards, including mast arms; wind loading, and wire/cable connections which are custom work. Light pole drawings shall be submitted with the seal of the Professional Structural Engineer responsible for the design of the poles.

Drivers

Driver shall be capable of dimming the LED array from 10% to 100%.

~~Driver shall have DMX input capable of dimming and controlling fixtures.~~

Driver casing shall be constructed from aluminum.

Driver shall have universal voltage input – 277 to 480-Volt.

1 All drivers shall comply with IEC 61347-2-13.

2
3 **Field Measurements:**

4 A minimum of sixty days prior to the first event, a complete and comprehensive testing and final
5 adjusting schedule shall be completed by the manufacturer of the fixtures and the contractors. The
6 goal of the testing is to permanently aim and permanently mark each fixture in the position for
7 service. It is anticipated that five consecutive nights will be set aside for this testing. The electrical
8 contractor shall conduct the tests. This will include personnel available for aiming, marking the
9 field, providing a cosign corrected digital light meter for recording values, a man lift capable of
10 reaching the fixtures from the field and attendance of lighting fixture manufacturer's
11 representative and other personnel and equipment needed to complete the testing. The engineer
12 shall be notified thirty days prior to testing and will be available to observe and participate in the
13 testing. All suggestions and observations made by the engineer must be completed. At the end of
14 the aiming, the engineer will approve the installation and turn the system over to the Owner.

15
16 **Lighting Control:**

17 The lighting control computer shall be located in the Building Engineer's office.

18
19 ~~Provide individual luminaire DMX control for all fixtures.~~ Provide remote Control Link software
20 system or control of fixtures from remote location. Coordinate with owner for exact programming
21 requirements.

22
23 UL924 listed transfer devices shall be provided for designated emergency luminaires.

24
25 Provide show controller for theatrical playback of dynamic scenes. Manufacturer to assume a
26 minimum of 12 dynamic scenes for programming.

27
28 ~~Provide DMX hold up device to maintain last scene in the event of loss of DMX.~~

29
30 Provide Hand-Over-Auto switches connected to the lighting control system for manual control of
31 the sports lights.

32
33 ~~Manufacturer shall show evidence of successful participation in similar major league soccer stadiums.~~

34
35
36
37
38 **PART 3 - EXECUTION**

39
40 **EXAMINATION**

41
42 Examine areas and conditions under which lighting fixtures are to be installed, and substrate which will
43 support lighting fixtures. Notify Architect and Engineer in writing of conditions detrimental to proper
44 completion of the Work. Do not proceed with Work until unsatisfactory conditions have been corrected.

45
46 **INSTALLATION OF LIGHTING FIXTURES**

47
48 Install lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's
49 written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA
50 standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

51
52 Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturers
53 published torque tightening values for equipment connectors. Where manufacturer's torquing
54 requirements are not indicated, tighten connectors and terminals to comply with tightening torques
55 specified in UL Standards 486A and 486B.

1 Fasten electrical lighting fixtures and brackets securely to indicated structural supports and ensure that
2 installed fixtures are plumb and level.

3
4 Provide a safety cable for each external glare louver that prevents the louver from falling when means of
5 fastening are removed. All safety cables shall be wrapped around permanent building steel. Wrapping
6 around manufacturer provided bracketry is not considered acceptable.

7
8 Upon completion of installation, protect installed fixtures from damage during remainder of construction
9 period.

10 11 **GROUNDING**

12
13 Provide equipment grounding connections for lighting fixtures as indicated. Tighten connections to comply
14 with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

15 16 **FIELD QUALITY CONTROL**

17 18 **Warranty**

19 LED boards, drivers and associated components shall have a Warranty of ~~15~~ 25 years on the
20 LEDs, LED boards, the driver, the paint finish, and guaranteed illumination levels for the full ~~15~~
21 25 year period from the date of product shipment.

- 22 • Warranty shall cover all fixtures, drivers, etc. including but not limited to material costs,
23 labor, shipping, etc.

24 25 **ADJUSTING AND CLEANING**

26
27 Aim adjustable lighting fixtures and lamps in night test of system. Verify that measured illuminance values
28 comply with computer calculated values submitted.

29
30 Clean lighting fixtures of dirt and debris upon completion of installation. Two weeks prior the first event,
31 the contractor shall re-clean all fixtures which have accumulated dust, fingerprints and smudges on the
32 reflector and lens.

33 34 **DEMONSTRATION**

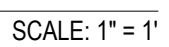
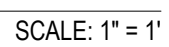
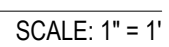
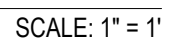
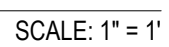
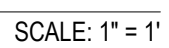
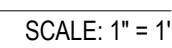
35
36 Upon completion of installation of sports lighting fixtures, and associated electrical supply circuitry, apply
37 electrical energy to circuitry to demonstrate capability and compliance with requirements. Where possible,
38 correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace
39 with new units, and proceed with retesting. Reference field measurements section within this document for
40 commissioning and turn over to Owner.

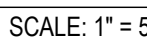
41 42 **BIENNIAL LIGHTING MEASUREMENT EVALUATION**

43
44 The successful lighting fixture manufacturer shall include in his/her formal bid the cost to perform a
45 biennial (every two years during the warranty period) lighting measurement of the sports lighting for
46 identification of performance compliance and required maintenance. The stadium personnel with assistance
47 of the lighting fixture manufacturer will perform field illumination footcandle level readings and submit to
48 the lighting fixture manufacturer for evaluation and recommendation.

49
50 **END OF SECTION**









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A SHOVEL CUT BED EDGE

3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK UNDER THIS CONTRACT AND REQUEST THAT UNDERGROUND UTILITIES BE LOCATED. ANY UTILITY LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY, AND OTHER UTILITIES MAY BE PRESENT.
4. SODDING APPLIES TO ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES EVEN IF ACTIVITIES EXTEND BEYOND THE DISTURBED SOILS. SODDING SHALL BE DONE IN ACCORDANCE WITH THE DRAWINGS. REPAIR ANY DISTURBED AREAS TO THE SAME CONDITION AS ORIGINALLY FOUND TO AND THE OWNER'S SATISFACTION. IN AREAS WHERE LAWN IS DISTURBED BEYOND THE LIMITS OF CONSTRUCTION, REPLACE LAWN WITH NEW LAWN SOIL (INCLUDING TOPSOIL) AT NO ADDITIONAL COST TO THE OWNER.
5. ALL SOD AREAS SHALL BE HEALED IN LEVEL AND SMOOTH WITH EXISTING LAWN. SOIL OF SOD SHALL BE FLUSH WITH SOIL OF EXISTING LAWN.
6. MINIMIZE CULTIVATION WITHIN THE DRIPLINES OF EXISTING TREES. PREPARE SOIL FOR SODDING BY MINIMIZING DISTURBANCE TO 4-INCH DEPTH. HAND CULTIVATE WHEN ENCOUNTERING ROOTS. NO HEAVY EQUIPMENT ALLOWED WITHIN DRIPLINE OF EXISTING TREES.

PLANT SCHEDULE					
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	FORM
	CB	13	CORNUS SERICEA 'BERGESON'S COMPACT' / BERGESON'S RED TWIG DOGWOOD	#5	CONT.
PERENNIALS & GROUNDCOVERS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	FORM
	AC	157	ASARUM CANADENSE / WILD GINGER	#1	CONT.
	BA	19	BAPTISIA ALBA / WHITE WILD INDIGO	#1	CONT.
	BC	119	BOUTELOUUA CURTIPENDULA / SIDE OATS GRAMA	#1	CONT.
	CR	39	CAREX RADIATA / EASTERN STAR SEDGE	#1	CONT.
	EP	148	ECHINACEA PALLIDA / PALE PURPLE CONEFLOWER	#1	CONT.
	SL	149	SCHIZACHYRIUM SCOPARIUM / LITTLE BLUESTEM	#1	CONT.
	SO	35	SYMPHYOTRICHUM OOLENTANGIENSE / SKY BLUE ASTER	#1	CONT.

01

Plot Date:

EXISTING MAN-HOLE #10P02

EXISTING CIRCUIT 4740

ARRESTER

15KV/5KV DUAL RATED
600A
S&C PMH-19

800/3

50E/3

800/3

ARRESTER

(3-1c) #350 KCMIL SKV CU/XHHW-2 WITH SHIELD, 133% EPR INSULATION, PVC JACKET AND #1950 KCMIL CU/XHHW-2 GND 5°C CONDUIT CASKED IN CONCRETE. CONDUCTORS SHALL HAVE WATER RESISTANT JACKET.

(3-1c) #350 KCMIL SKV CU/XHHW-2 WITH SHIELD, 133% EPR INSULATION, PVC JACKET AND #1950 KCMIL CU/XHHW-2 GND 5°C CONDUIT CASKED IN CONCRETE. CONDUCTORS SHALL HAVE WATER RESISTANT JACKET.

(3-1c) #350 KCMIL SKV CU/XHHW-2 WITH SHIELD, 133% EPR INSULATION, PVC JACKET AND #1950 KCMIL CU/XHHW-2 GND 5°C CONDUIT CASKED IN CONCRETE. CONDUCTORS SHALL HAVE WATER RESISTANT JACKET.

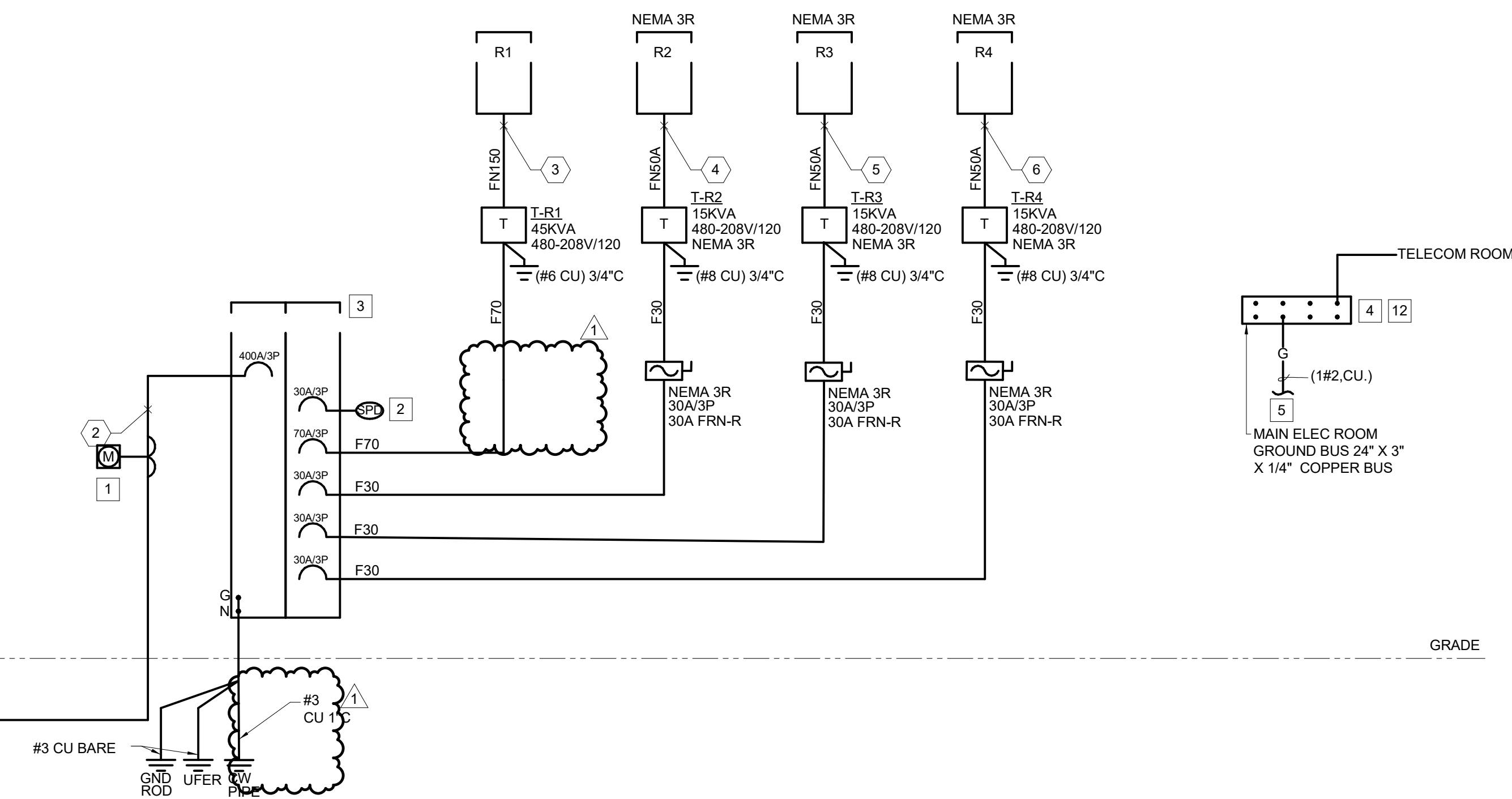
3-/0
CU 1"

PVC 1"
CONC


FAULT CALCULATION SCHEDULE

KEY	AVAILABLE (AMPS)		KEY	AVAILABLE (AMPS)
1	INFINITE		2	63,619
3	2,448		4	716
5	652		6	594

The diagram illustrates a transformer setup. At the top, a box labeled 'T' represents the transformer. To its right, text specifies: 'MV CAMPUS UTILITY SERVICE TRANSFORMER DUAL RATED PRIMARY 15KV/35KV - 480V/277V 250 KVA, 3PH, 4W DELTA-WYE NEMA 3R'. A vertical line connects the transformer to a horizontal line. From this horizontal line, a vertical line goes down to a box labeled '1', which is connected to a horizontal line labeled 'CAMPUS POWER PRIMARY FEEDER PER CAMPUS POWER STANDARDS COORDINATE WITH FPM ELECTRIC SHOP PRIOR TO INSTALLATION AND FOR OUTAGE COORDINATION, ALL SWITCHING TO BE PERFORMED BY UW-ELECTRIC SHOP'. Another vertical line goes up from the horizontal line to a box labeled '11', which is connected to a horizontal line labeled '5KV Cu/AlXHHW-2 WITH SHIELD, 133% EPR INSULATION. 1#350 KCMIL Cu/AlXHHW-2 GND 5°C. CONDUIT CASED IN DUCTORS SHALL HAVE WATER RESISTANT JACKET.'



- ## KEYNOTES:
- 1 UTILITY METER, METER CABLE, CONDUCTOR, RECEPTACLE SPECIFICATION 26 27 13.
 - 2 PROVIDE SURGE PROTECTIVE DEVICE, LINEBITE INTERCEPTOR #51018/20VANCE OR EQUIV. PROVIDE WITH ALARM AND ALARM SOUND AS CLOSE TO MPD AS POSSIBLE. MAXIMUM LEAD LENGTH IS 8' V-VERIFY BREAKER AND FEEDER SIZE WITH INSTALLATION MANUAL.
 - 3 DISTRIBUTION PANEL "MPD" SHALL BE SERVICE ENTRANCE RATED.
 - 4 CONNECT #3 GROUND TO COLD WATER PIPE AT THIS LEVEL. ALL CONDUCTORS SHALL BE IRREVERSIBLE CADWELD.
 - 5 PROVIDE #5 COPPER CONNECTION TO CONCRETE ENCASED ELECTRODE, COLD WATER PIPE AND GROUND RODS.
 - 6 EXISTING UNDERGROUND DUCT/BANK & EXISTING 8KV CONDUCTORS TO REMAIN.
 - 7 EXISTING DUCT/BANK AND MANHOLE TO REMAIN.
 - 8 NEW UNDERGROUND DUCT/BANK AND 8KV CONDUCTORS (350KCMIL, 100' MAX LENGTH) TO PROVIDE 45' CONDUITS FROM MANHOLES TO NEW SWITCHGEAR. CONTRACTOR TO PROVIDE 8KV CONDUCTOR TO DETAIL #7/E8.0
 - 9 CUT AND SPLICE EXISTING 4740 CIRCUIT FOR LOOPED CIRCUITS INCOMING.
 - 10 EXISTING 4740 CIRCUIT TO BE CARRIED TO 4740 MANHOLES 10P02, 10P03, 10P04 & 9P11. IN PHILLIPS HILL, GEAR.
 - 11 UTILITY TRANSFORMER & MEDIUM VOLTAGE SWITCH SHALL BE ENERGIZED AT 4160V
 - 12 REFER TO DETAIL 8.0 ON SHEET E8.0 FOR GROUND BUS BAR DETAIL.
 - 13 COORDINATE WITH FPM8 ELECTRIC SHOP PRIOR TO INSTALLATION AND FOR COORDINATION. ALL SWITCHING TO BE PERFORMED BY UW-ELECTRIC SHOP.
 - 14 PROVIDE GATEWAY AND NETWORK CONNECTION TO VARIOUS SYSTEM FROM MEDIUM VOLTAGE SWITCH.

Near East Play Fields Reconstruction University of Wisconsin - Madison Madison, Wisconsin		The Board of Regents of the University of Wisconsin on behalf of the University of Wisconsin - Madison
		PROJECT ADDRESS: 1810 Observatory Drive Madison, Wisconsin 53706
UWSA PROJ. NO.: A-22-011 UWMD PROJ. NO.: 0629-2220 DFD NO.: 2062R	SHEET TITLE: ELECTRICAL ONE LINE DIAGRAM	

E0.2

UNIVERSITY OF WISCONSIN, MADISON

120/208 Wye
3 Phase, 4 Wire + Gnd, 60Hz.
SC2E

ME Engineers Inc.
BUS: 60 A
MAINS: 80 A - MCB
GROUND BAR: Copper
OPTIONS:

PANEL
R2
ENCLOSURE: NEMA 3R
MOUNTING: SURFACE
FED FROM: T-42
LEVEL: LEVEL 1
LOCATION: 08/14/2023
ISSUE DATE: 08/14/2023

NOTES:
1. PROVIDE HACR BREAKER.

REFER TO DETAILS AND SPECIFICATION SHEET FOR
PANELBOARD LAMINATED PLaque REQUIREMENTS.

N	ID	DESCRIPTION	P	OC	CKT	A	B	C	CKT	OC	P	DESCRIPTION	ID	N			
R		SOUTH FIELD PEDestal CONV RECEPT	1	20	1	720	180		2	20	1	TE-1 ENCLOSURE RECEPT.	R	1			
R		SOUTH FIELD PEDestal CONV RECEPT	1	20	3		360	1758	4	20	1	TE-1 ENCLOSURE AC UNIT	M	1			
--		SPARE	1	20	5				0	0	6	SPARE		--			
--		SPARE	1	20	7	0	0		8	20	1	SPARE		--			
--		SPARE	1	20	9		0	0	10	20	1	SPARE		--			
--		SPARE	1	20	11				0	12	20	SPARE		--			
--		SPARE	1	20	13	0			14	20	1	SPARE		--			
--		SPARE	1	20	15		0	0	16	20	1	SPARE		--			
--		SPARE	1	20	17				0	18	20	SPARE		--			
--		SPARE	1	20	19	0	0		20	20	1	SPARE		--			
LOAD SUMMARY WITH DOWNSTREAM LOADS INCLUDED																	
PER PHASE VA WITH DOWNSTREAM LOADS																	
PHASE	A	B	C	TOTALS	CATEGORY			CONNECTED	FACTOR	CALC. V-A			AMPS @ 120/208 Wye				
CALC	1031	2426	0	3458	LIGHTING												
CMCTD	900	2118	0	3018	RECEPTACLE			1260	100%	1260			3				
DOWNSTREAM FEED THROUGH LUG PANELS								MOTOR	1758	125%	2198			6			
								MISCELLANEOUS									
								KITCHEN									
								ELECTRIC HEAT									
								EXISTING									
CONDUCTOR COLORS (EC TO LABEL IN PANEL)																	
A	208Y/120			680Y/277													
B	BLACK			BROWN													
C	ORANGE			YELLOW													
D	BLUE																
E	WHITE			WHITE/GRAY STRIPE													
F	GREEN																
TOTAL						3018			3458			10					

UNIVERSITY of WISCONSIN, MADISON

120/208 Wye
3 Phase, 4 Wire + Gnd. 60Hz.
SCORE

NOTES:
1. PROVIDE HACR BREAKER.

BUS: 60 A
MANS: 50 A - MCB
GROUND BAR: Copper

OPTIONS:

PANEL: R3
ENCLOSURE: NEMA 3R
MOUNTING: SURFACE
FED FROM: T-43
LEVEL: LEVEL 1
LOCATION: ISSUE DATE: 08/14/2023

REFER TO DETAILS AND SPECIFICATION SECTION FOR
PANELBOARD LAMINATED PLaque REQUIREMENTS.

N	ID	DESCRIPTION	P	OC	CKT	A	B	C	CKT	OC	P	DESCRIPTION	ID	N		
R		NORTH PEDESTAL CONV RECEIPT	1	20	1	360	180		2	20	1	TE-2 ENCLOSURE ACCEPT	R	1		
R		NORTH PEDESTAL CONV RECEIPT	1	20	1		720 1758		4	20	1	TE-2 ENCLOSURE ACCEPT	M	1		
--		EAST SCOREBOARD						250	0	6	20	1	SPARE	--		
--		SPARE	1	20	7	0 0 0			8	20	1	SPARE	--			
--		SPARE	1	20	9		0 0 0		10	20	1	SPARE	--			
--		SPARE	1	20	11			0	0	12	20	1	SPARE	--		
--		SPARE	1	20	13	0 0			14	20	1	SPARE	--			
--		SPARE	1	20	15		0 0 0		16	20	1	SPARE	--			
--		SPARE	1	20	17			0 0 0	18	20	1	SPARE	--			
--		SPARE	1	20	19	0 0			20	20	1	SPARE	--			
PER PHASE VA WITH DOWNSTREAM LOADS													LOAD SUMMARY WITH DOWNSTREAM LOADS INCLUDED			
PHASE		A	B	C	TOTALS		CATEGORY		CONNECTED		FACTOR		CALC. V-A		AMPS @ 120/208 Wye	
CALC		623	2859	288	3770		LIGHTING		250		125%		313		1	
DINCTD		540	2473	250	3266		RECEPTACLE		1250		100%		1260		3	
							MOTOR		1758		125%		2198		6	
							MISCELLANEOUS									
CONDUCTOR COLORS (EC TO LABEL IN PANEL)													ELECTRIC HEAT			
20X12120 480Y/277 A BLACK B BROWN C RED D BLUE E WHITE F WHITE GRAY STRIPE G GREEN													EV CHARGING			
													EXISTING			
													TOTAL			
													3268			
													3770			
													10			

UNIVERSITY of WISCONSIN, MADISON

120/208 Wye
3 Phase, 4 Wire + Gnd, 60Hz.
SCRD:

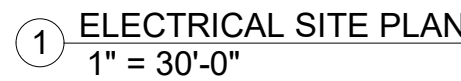
NOTES:

BUS: 60 A
MAINS: 50 A - MCB
GROUND BUS: Copper
OPTIONS:

PANEL: R4
ENCLOSURE: NEMA 3R
MOUNTING: SURFACE
FEED FROM: T-44
LEVEL: LEVEL 1
ISSUE DATE: 08/14/2023

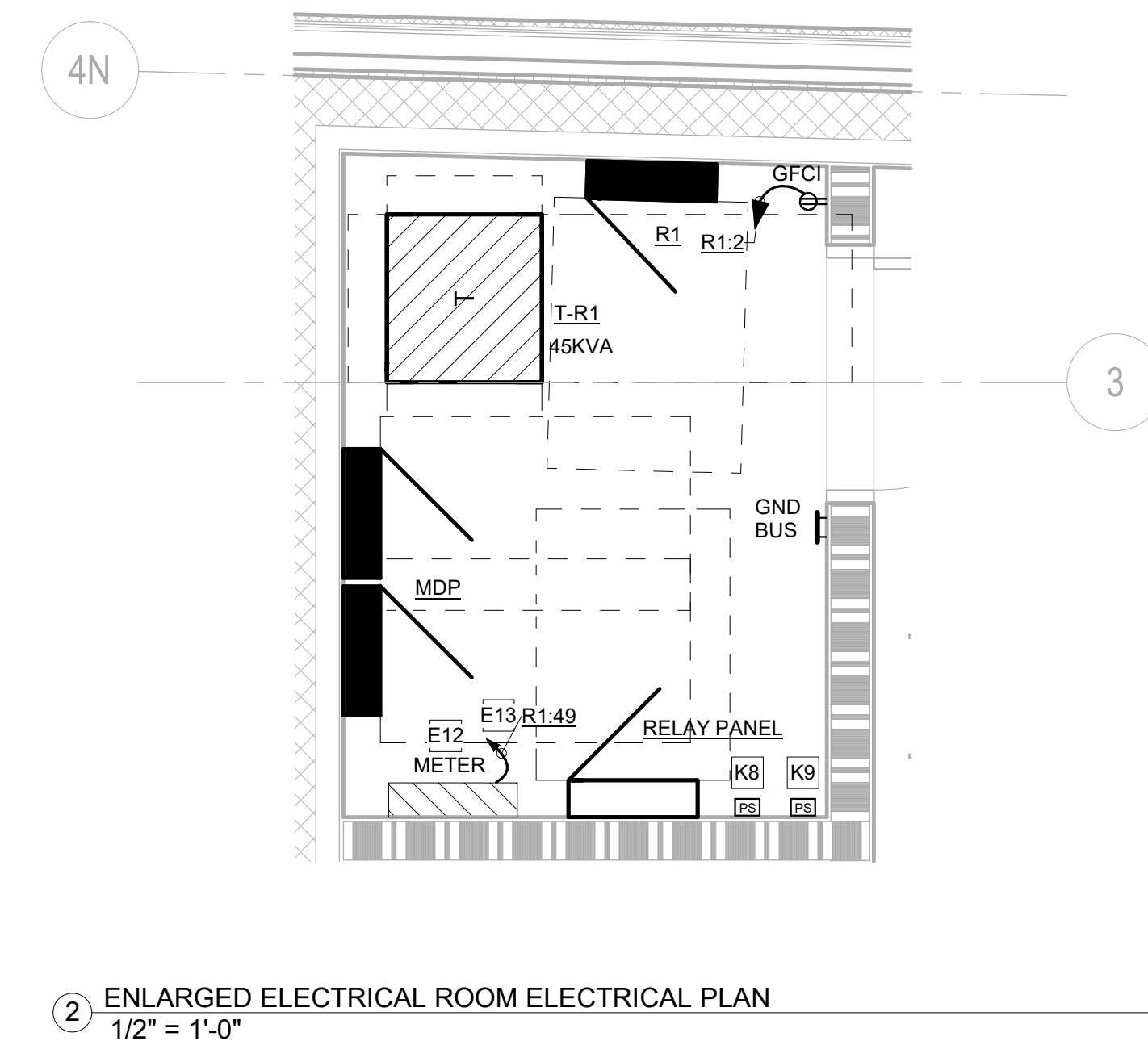
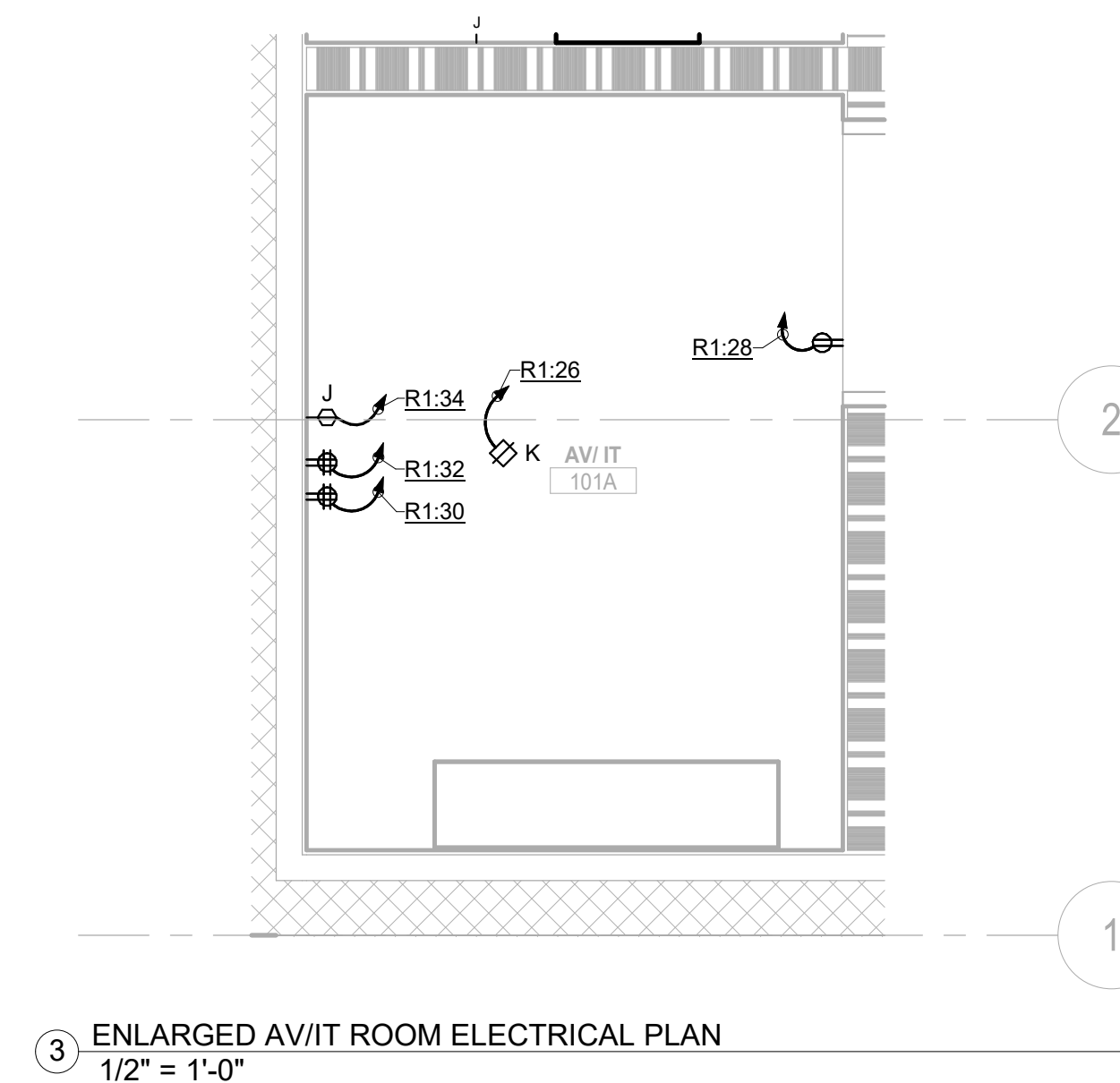
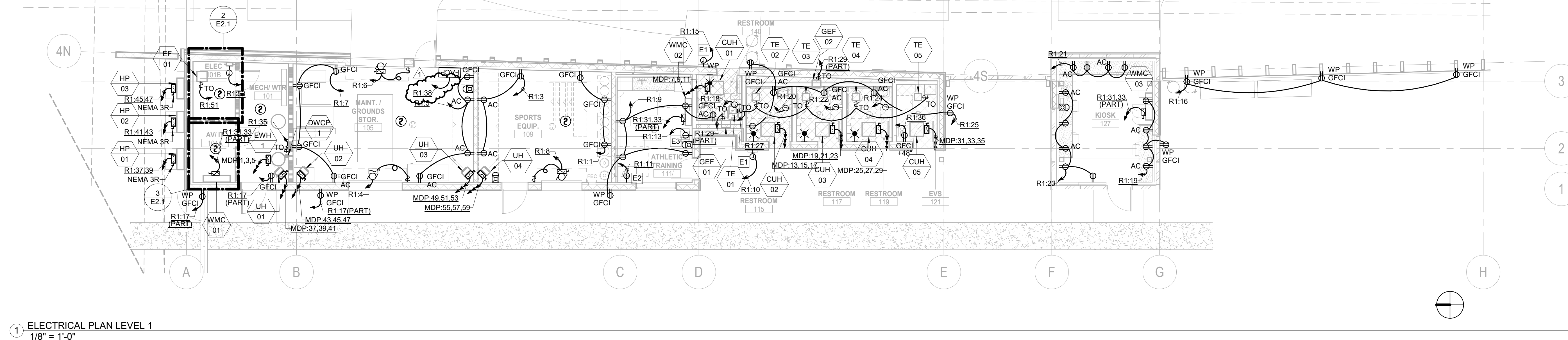
REFER TO DETAILS AND SPECIFICATION SECTION FOR
PANEL BOARD LAMINATED PLACQUE REQUIREMENTS.

N	DESCRIPTION	P	OCP	CKT	A	B	C	OCP	CKT	P	DESCRIPTION	ID	N	
				1	0				2	20	1	SPARE	--	
X	WEST PINKELL POLE AY EQUIP	1	20	3		500	0		4	20	1	SPARE	--	
L	WEST SCOREBOARDS	1	20	5				500	0	6	20	1	SPARE	--
R	SOUTH FIELD PEDESTAL CONV RECEIPT	1	20	7	360	0			8	20	1	SPARE	--	
X	WEST PINKELL POLE AY EQUIP	1	20	9		500	0		10	20	1	SPARE	--	
--	SPARE	1	20	11					0	12	20	1	SPARE	--
--	SPARE	1	20	13	0				14	20	1	SPARE	--	
--	SPARE	1	20	15					16	20	1	SPARE	--	
--	SPARE	1	20	17			0	0	18	20	1	SPARE	--	
--	SPARE	1	20	19	0				20	20	1	SPARE	--	
PER PHASE VA WITH DOWNSTREAM LOADS														
PHASE	A	B	C	TOTALS	LOAD SUMMARY WITH DOWNSTREAM LOADS INCLUDED					FACTORED	CALC. V-A	AMPS @ 120/208 Wye		
CALC	384	1067	534	1985	LIGHTING					360	125%	625	2	
CNCTD	360	1000	500	1860	RECEPTACLE					500	100%	300	1	
DOWNSTREAM FEED THROUGH LOAD PANELS														
					MOTOR									
					MISCELLANEOUS					1000	100%	1000	3	
CONDUCTOR COLORS (EC TO LABEL IN PANEL)														
					KITCHEN									
					ELECTRIC HEAT									
					EV CHARGING									
					EXISTING									
A	20X120			480Y/277										
B	BLACK			BROWN										
C	BLUE			ORANGE										
D	BLUE			YELLOW										
E	WHITE			WHITE/GRAY STRIPE										
F	GREEN			GREEN										
TOTAL					1860					1985		6		



- | KEYNOTES | |
|----------|--|
| E5 | PROVIDE (2) DEDICATED 120V, 20A CIRCUITS TO TE-1 & TE-2 ENCLOSURES FOR RECEPTACLE MOUNTING TO THE WALLS AND ALL CABLES ATTACHED TO ENCLOSURE. CONTRACTOR TO COORDINATE EXACT CONNECTION POINT REQUIREMENTS FOR COMPONENTS. |
| E6 | REMOVE NEW 1/2" CONCRETE SLAB DISCONNECT CIRCUIT TO GROUND. |
| E7 | PROVIDE 120V 20A CIRCUIT TO NEMA 3P 4W RECEPTACLES TO NEW EXISTING 16"X16"X8" CONCRETE APPROX. 16"X16"X8" CONFORM WITH AV CONTRACTOR FOR FINAL PROCURED PRODUCT SPECIFICATIONS. |
| E8 | PROVIDE EXTERIOR ELECTRICAL PEDESTAL WITH (2) GFCI DUPLEX RECEPTACLES. REFER TO DETAIL #2/E8.1 |
| E14 | CONTRACTOR TO COORDINATE ALL ELECTRICAL UNDERGROUND UTILITIES WITH NEW DUCT BANK ROUTING. |
| E5 | REFER TO DETAIL #1/E5.0 FOR |
| E16 | LOCATION FOR GROUND RODS PER DETAIL #4/E16.1. FINAL EXACT LOCATION TO BE COORDINATE WITH EXISTING FOUNDATION CONDITIONS AND BUILDING FOUNDATION. |

E2.0



- GENERAL NOTES:**
1. ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ALL MECHANICAL UNITS WITH MECHANICAL CONTRACTOR.
 2. ALL EXPOSED CONDUIT SHALL BE RIGIDLY PROTECTED, TO BE PARALLEL AND TIGHT TO COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION AND INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ANY ADDITIONAL COST TO OWNER WILL BE ALLOWED FOR OBTAINING CONDUIT DUE TO THE LACK OF COORDINATION WITH ARCHITECT. ALL SURFACE MOUNTED CONDUIT WHERE EXPOSED TO PUBLIC AREAS SHALL BE PAINTED. PAINT COLOR TO BE DETERMINED BY THE ARCHITECT.
 3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS INDICATING ALL PROPOSED CONDUIT ROUTING.
 4. ALL BACK BOXES SHALL BE FLUSH MOUNTED UNLESS NOTED OTHERWISE. ALL VERTICAL SECTIONS OF CONDUIT SHALL BE PROTECTED. CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND BACK BOXES WITH CONCRETE, MASONRY AND GYP. WALLS.
 5. MAXIMUM OF (5) DUPLEX RECEPTACLES PER CIRCUIT.
 6. PROVIDE 120V 20A DUPLEX RECEPTACLE FOR EACH TELEVISION. CONTRACTOR SHALL REFER TO STRUCTURAL DRAWINGS FOR EXACT LOCATIONS. MAXIMUM OF (4) TELEVISIONS PER CIRCUIT. ALL LOCATE ALL T.V. CIRCUITS THROUGH LIGHTING CONTROL SYSTEM.
 7. CALCULATE 120V BRANCH CIRCUITS AS FOLLOWS:
 - a. PROVIDE A DEDICATED CIRCUIT FOR ALL EQUIPMENT INDICATED ON THE STRUCTURE SCHEDULE, INCLUDING REFRIGERATORS, VENDING MACHINES, ETC.
 - b. 20A OF ALL 120V NEMA 5-20R RECEPTACLES SHALL BE ON DEDICATED CIRCUITS.
 7. THIS CONTRACTOR SHALL REFER TO "MEP" SERIES DRAWINGS FOR ALL MECHANICAL EQUIPMENT ELECTRICAL CONNECTIONS.
 8. CIRCUITS TO ALL MECHANICAL EQUIPMENT SHALL BE DEDICATED UNLESS NOTED OTHERWISE.
 9. ALL 277V LIGHTING CIRCUITS SHALL BE CONTROLLED BY LIGHT CONTROL PANELS SHALL HAVE A MINIMUM LENGTH OF 20 FEET BETWEEN LIGHTING CONTROL PANELS AND BRANCH LIGHTING PANEL.

KEYNOTES	
E1	PROVIDE 120V/240 CONNECTION TO WATER CLOSET. PROVIDE WEATHER PROOF JUNCTION BOX AND GFCI TYPE CIRCUIT BREAKER UPSTREAM OF DEVICE. COORDINATION EXACT WITH AIR CONDITIONER ELECTRICAL DRAWINGS PRIOR TO ROUGH IN.
E2	PROVIDE DEDICATED 120V 20A CIRCUIT RECEPTACLE FOR SINK MAKER WITH GFCI TYPE CIRCUIT BREAKER UPSTREAM OF DEVICE.
E3	PROVIDE DEDICATED 120V 20A CIRCUIT RECEPTACLE FOR COMPUTER CABLE.
E12	PROVIDE LOW VOLTAGE 3 CONDUCTOR CABLE FROM METER TO IT ROOM DC COUPLER. PROVIDE SIGNAL CABLE FROM MODBUS TO BACNET GATEWAY.
E4	PROVIDE DEDICATED 120V 20A 1PH CIRCUIT BREAKER FOR THE FOLLOWING CONTRACTOR TO COORDINATE EXACT REQUIREMENTS PRIOR TO ROUGH IN.
K8	PROVIDE IOTA MICRO INVERTER FOR EXTERIOR EMERGENCY LIGHTING ZONE 3. PROVIDE IOTA #15 50 I. EMERGENCY CIRCUIT TO GO THROUGH RELAY PANEL THEN THROUGH INVERTER BEFORE GOING OUT TO FIXTURES.
E9	PROVIDE IOTA INVERTER FOR EXTERIOR EMERGENCY LIGHTING ZONE 4. PROVIDE IOTA #15 50 I. EMERGENCY CIRCUIT TO GO THROUGH RELAY PANEL THEN THROUGH INVERTER BEFORE GOING OUT TO FIXTURES.

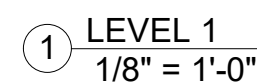
<h1 style="margin: 0;">SMITHGROUP</h1> <p style="margin: 0;">44 E Mifflin St. Suite 500 Madison, WI 53703 608.251.1177 smithgroup.com</p>		
PROJECT NUMBER	14272.000	
SEALS AND SIGNATURES		
CONSULTANT:		
<p style="font-size: 1.2em; margin: 0;">me engineers</p> <p style="margin: 0;">14143 Denver West Pkwy. Suite 300 Golden, CO 80401 +1 303.421.6655 www.me-engineers.com</p>		
 The Board of Regents of the University of Wisconsin on behalf of the University of Wisconsin - Madison	PROJECT ADDRESS: 1810 Observatory Drive Madison, Wisconsin 53706	
<div style="float: left; width: 60%;"> Near East Play Fields Reconstruction University of Wisconsin - Madison, Wisconsin </div> <div style="float: right; width: 35%; text-align: right;"> PROJECT NO.: A-22-011 UWMD PROJ. NO.: 0629-220 DFD NO.: 2062R </div> <div style="clear: both;"></div>		
<div style="float: left; width: 60%;"> SHEET TITLE: ELECTRICAL GROUND LEVEL FLOOR PLAN </div> <div style="clear: both;"></div>		
REVISIONS:		
REV.	DATE	DESCRIPTION
1	09/28/2023	Addendum 2
SCALE		
UWSA NO.		
SET TYPE		
DATE:		
SHEET NO.		

GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ALL MECHANICAL UNITS WITH MECHANICAL CONTRACTOR.
2. ALL EXPOSED CONDUIT SHALL BE RIGIDLY COORDINATED TO BE PARALLEL AND TIGHT TO COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION TO BE COMPLETED IN A NEAT AND CONSISTENT MANNER. NO ADDITIONAL COST TO OWNER WILL BE ALLOWED FOR COORDINATING CONDUIT DUE TO THE LACK OF COORDINATION WITH ARCHITECT. ALL SURFACE MOUNTED CONDUIT WHERE EXPOSED TO PUBLIC AREAS SHALL BE PAINTED. PAINT COLOR TO BE DETERMINED BY THE ARCHITECT.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWINGS INDICATING ALL PROPOSED CONDUIT ROUTING.
4. ALL BACK BOXES SHALL BE FLUSH MOUNTED UNLESS NOTED OTHERWISE. ALL VERTICAL SECTIONS OF CONDUIT SHALL BE RIGIDLY COORDINATED WITH MECHANICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND BACK BOXES TO CONCRETE, MASONRY AND GYP. WALLS.
5. MAXIMUM OF (5) DUPLEX RECEPTACLES PER CIRCUIT.
6. PROVIDE 120V 20A DUPLEX RECEPTACLE FOR EACH TELEVISION. CONTRACTOR SHALL PROVIDE STRUCTURAL DRAWINGS FOR EXACT LOCATIONS. MAXIMUM OF 4 TELEVISIONS PER ROOM. CONTRACTOR SHALL PROVIDE ALL CIRCUITS THROUGH LIGHTING CONTROL SYSTEM.
7. CALCULATE 120V BRANCH CIRCUITS AS FOLLOWS:
 - a. PROVIDE A DEDICATED CIRCUIT FOR ALL EQUIPMENT INDICATED ON THE MECHANICAL DRAWINGS, INCLUDING REFRIGERATORS, VENDING MACHINES, ETC.
 - b. ALL 120V NEMA 20R RECEPTACLES SHALL BE ON DEDICATED CIRCUITS.
8. THIS CONTRACTOR SHALL REFER TO "MEP" SERIES DRAWINGS FOR ALL MECHANICAL EQUIPMENT AND ELECTRICAL CONNECTIONS.
9. CIRCUITS TO ALL MECHANICAL EQUIPMENT SHALL BE DEDICATED UNLESS NOTED OTHERWISE.
10. ALL 277V LIGHTING CIRCUITS TERMINATING AT LIGHTING CONTROL PANELS SHALL HAVE A MINIMUM LENGTH OF 30 FEET BETWEEN LIGHTING CONTROL PANEL AND BRANCH LIGHTING PANEL.

E9	<p>PROVIDE LIGHTNING PROTECTION SYSTEM ALONG ENTIRE ROOF PERIMETER. CONTRACTOR TO ADJUST CABLEING AND AIR TERMINALS FOR VARYING ROOF LEVELS.</p>
E10	<p>PROVIDE LIGHTNING PROTECTION DOWNLEAD ENCASED IN CONCRETE. DOWNLEAD SHALL BE INSTALLED IN CONDUIT IF NOT ENCASED.</p>
E11	<p>PROVIDE AIR TERMINAL ON TOP OF PIXELLOT CAMERA POLE MOUNTED 30'-0" AFF ON TOP OF BUILDING. CONNECT TO LIGHTNING PROTECTION CABLEING ALONG PERIMETER ON ROOF.</p>

E2.2



Refer to lighting plans for identification of EM lights (indicated with EM designation and shading). All power supplies for dimmed luminaires must be coordinated for compatibility with accepted building lighting control system.

NOTES:

- 1 Main Campus Photocell Control
- 2 Lighting to be controlled through BAS system via low voltage relay/lighting contactor in lighting control panel.
- 3 Local override 4-zone with on/off and raise/lower for each zone to be located in Kiosk 101.

- | KEYNOTES | |
|----------|--|
| K1 | PROVIDE LOCAL OVERRIDE SWITCH FOR EXTERIOR SITE LIGHTING. PROVIDE A 6-BUTTON SWITCH FOR ON/OFF, RAISE/LOWER CONTROL OF (4) EXTERIOR ZONES. |
| K5 | PROVIDE SPORTS LIGHTING CONTACT PER DETAIL #3/E4.0. FINAL LOCATION TO BE COORDINATED WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION. |
| K6 | PROVIDE IOTA MICRO INVERTER FOR EMERGENCY LIGHTING IN ROOM. PROVIDE IOTA #50 I. |
| K7 | PROVIDE IOTA INVERTER FOR EMERGENCY LIGHTING IN MECH/WTR ROOM. PROVIDE IOTA #50 I. |

CONSULTANT:

me
engineers

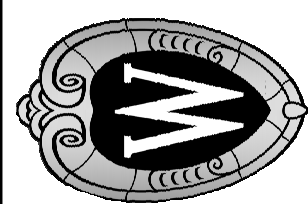
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PROJECT ADDRESS:
1810 Observatory Drive
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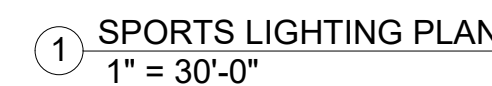
SHEET TITLE: LIGHTING GROUND LEVEL FLOOR PLAN

SCALE	
UWSA NO.	A-22-011
SET TYPE	BID SET
DATE:	31 AUG 23
SHEET NO.	

E3.1

[illegible]

SCALE	
UWSA NO.	A-22-011
SET TYPE	BID SET
DATE:	31 AUG 23



1. THE INPUT OF THE PHOTOMETRIC LAYOUT IS TO PROVIDE DESIGN BASES FOR THE SPORTS LIGHTING. THE FINAL HORIZONTAL VALUE MAY BE GREATER THAN THOSE SHOWN ON THIS DRAWING.

2. THE SPORTS LIGHTING SHALL COMPLY WITH THE FOLLOWING SET OF CRITERIA. ALL MOUNTING HEIGHTS AND GANTRY POSITIONS ARE SUBJECT TO FINAL DRAWINGS AND SETTING OUT FROM THE ARCHITECT AND THE CONTRACTOR.
 - 2.1. GLARE RATING ≤ 40 GR.
 - 2.2. MAINTENANCE FACTOR ≥ 0.9
 - 2.3. THE USE OF MULTI-ZONED AIMING STRATEGIES IS REQUIRED.
 - 2.4. THE DESIGN MUST FULLY COMPLY WITH LOCAL AUTHORITY LIGHT SPILL REQUIREMENTS.
 - 2.5. FINAL LUMINAIRE COUNT DEPENDANT UPON INDIVIDUAL MANUFACTURER MEETING THE PERFORMANCE LIGHTING DESIGN CRITERIA.
3. GLARE CONTROL SHIELDS ARE REQUIRED ON ALL FIXTURES DURING FINAL COMMISSIONING.

SL1 - SPORTS LIGHT, LED (1200W) = 32

SL1 - SPORTS LIGHT, LED (1200W) = 32

MUSCO
PLANLED (GIGATERA)
CAROLINA HIGH MAST
EPHESUS

1. THE INTENT OF THIS DRAWING IS TO REPRESENT THE SPORTS LIGHTING QUANTITY OF FIXTURES AND OVERALL SPORTS LIGHTING DESIGN FOR THE FIELD.

2. FINAL POLE LAYOUT MUST COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DESIGN. LOCATION MUST BE COORDINATED WITH OTHER TRADES.
3. MANUFACTURER TO CARRY FULL WARRANTY INCLUDING GUARANTEE OF LIGHT LEVELS FOR A PERIOD OF NO LESS THAN 25 YEARS FROM THE DATE OF FINAL COMMISSIONING.

NCAA INTRAMURAK CRITERIA					
	HORIZONTAL ILLUMINANCE			PROPERTIES OF LAMPS	
	EH	AVG	UNIFORMITY	COLOR TEMPERATURE	COLOR RENDERING
CALCULATION	FC		AVG:MIN	TK	RA
FIELDS	30				
BOUNDARY AREA	20	2:1	1.5:1	> 5700	≥ 75



1. THIS CONTRACTOR SHALL FURNISH AND INSTALL CONTACTOR AND FEEDER CONDUCTORS AND SHALL MAKE FINAL CONNECTIONS. OTHER WORK SHOWN IS BY SPORTS LIGHTING CONTRACTOR.
2. NUMBER OF LIGHT FIXTURES PER SCHEDULE, EXACT CONFIGURATION TO BE DETERMINED PER LIGHTING DESIGN PLANS.
3. STRUCTURAL DESIGN OF POLE BASE SHOULD MEET AASHTO REQUIREMENTS.
4. DEPTH AND SIZE OF CONCRETE BASE SHALL BE BASED ON APPROVED POLE BASE SUBMITTAL.
5. ALL CONDUIT SHALL BE SCHEDULE 40 P/V/C WITH RIGID ELBOWS.
6. SEE SIZE LOAD SCHEDULE FOR DISCONNECT AND CONTRACTOR SIZE.
7. ALL CONDUIT/ENTRIES INTO THE POLES TO BE SEALED TIGHT TO PREVENT CRITTER ACCESS.
8. LOW VOLTAGE POWER IN POLE TO BE RAN IN SEPARATE CONDUIT ON SEPARATE SIDE OF POLE FROM LINE VOLTAGE POWER.

A. POLE BASE HEIGHT ABOVE GRADE TO BE 4" MINIMUM.

- B. CONTRACTOR SHALL VERIFY ALL FOUNDATION DIMENSIONS WITH MANUFACTURER. CONTRACTOR SHALL

② $\frac{\text{SPORTS L}}{1/8'' = 1'-0''}$

