Ventura County Community College District

PURCHASING DEPARTMENT

DATE: August 11, 2023
TO: All Bidders
FROM: David Cienfuegos, Interim Purchasing Specialist
SUBJECT: Addendum 1 – Bid 656, Moorpark College Sand Volleyball Project

This addendum is hereby made part of the Contract Documents to the same extent as though it was originally included therein and takes precedence over the original documents. The outdated pages must be replaced with any updated and/or changed pages when submitting your bid. ***Acknowledge receipt of all addenda on the Bid Form****.*

The bid opening remains on **Wednesday, August 16th, 2023**. Bids must be received no later than **3:00 p.m**. at 761 E Daily Drive, Suite 200, Camarillo, CA 93010. Properly mark the outside of the exterior envelope on your submitted bid with the Bid Number and Name according to the requirements stated in the bid packet directions.

If you choose not to participate in this particular bid, please sign the Bid Proposal stating "no bid" and email or fax it back to me at 805-652-7700.

It is the responsibility of the Bidder to verify that their proposal has been received by the VCCCD Purchasing Department prior to the opening date. Verification of receipt can be made through the listed Purchasing Specialist.

Attached to this addendum please find updated technical specification drawings and geotechnical report.

The following information is in answer to questions that were asked at the job walk and via email request. The deadline for questions was Tuesday August 8th, 2023. No further questions will be accepted.

1. Specifications for this project reference a Geotechnical Invitation (update) for Volleyball Courts Light Standards, Moorpark College, by Geotechniques, Jan 31 2023. Can this report be made available to the bidders?
    a. See provided geotechnical investigation.

2. On the Specification File, Table of Contents, it shows that there is a Planting Spec Section (32 90 00) included. Please confirm if this is part of the bid or not, and if so, please provide information.
    a. Omit Planting Spec Section from Table of Context. No planting scope is part of this bid.

3. Detail 1 of Sheet C3-02 shows the cross section of the volleyball field. Please provide what type of Geotextile Fabric we should use under the volleyball court.
    a. Provide non-woven filter fabric in accordance with 2.7 of Specification 33 40 00.

4. On Sheet C3-01, Surfacing Keynote #10, It shows unreadable characters on the notes - Please provide a more clearer description of Keynote #10.
    a. Keynote #10 reads as follows: “REPAIR EXISTING CHAIN LINK, GATES POSTS, AND RAILS AS NEEDED, AND ADJUST TO NEW BOTTOM RAIL ELEVATION. INSTALL NEW VINYL CLAD CHAIN LINK FABRIC AND WINDSCREEN TO REPLACE EXISTING, PER DETAIL 8 ON SHEET C3-02”.

5. Please clarify at which Pay Item the Parking Lot ADA Improvements will be paid under?
    a. Concrete & Paving.

6. Please clarify if Keynote 14 - "Install Electrical Gear Pad" on Sheet C3-01 will be paid under "Electrical and Communication Utilities" or "Concrete & Paving"?
    a. Electrical and Communication Utilities.

7. Please clarify if Drinking Fountain will be paid under “Potable Water” or “Sports Equipment & Site Furnishings”
    a. Drinking Fountain to be included under Potable Water.

8. Sheet E300, Key Note 1, states that the 6 Musco Poles are provided by others. Are the other components, like the LSS precast base and fixtures also provided by others? Also, are these components already on campus or are they offsite? And will the contractor be responsible for transporting the poles to the volleyball courts?
    a. Sports lighting is the responsibility of the contractor. All equipment for the light poles, including the other components, LSS precast base, and fixtures, will be provided and installed by the contractor. No components are currently on campus.

9. Is the district purchasing all the Musco gear including light poles and fixtures that the contractor will be installing? Or should the contractor include the purchase price of Musco equipment into their bid price?
    a. The contractor is providing and installing all electrical and lighting gear, including the light pole, gear, and fixtures.

10. Article 6 of the General Conditions states Builder's Risk at 110% of contract value is required, can you confirm if this is needed for this project?
    a. Yes, this is needed for this project.

11. Demolition Keynote 2.1 on Sheet C2-02 states to remove and salvage the existing court light poles, fixtures, etc. Does the District want the light fixtures AND poles to be returned to them? Or just the fixtures returned and poles disposed of?
    a. Salvage and return the light fixtures. Poles shall be properly disposed of.

12. Is it acceptable for the spacing of the expansion joints on the south and west side concrete walkways to match that of the north side. Referencing sheet C3-01.
    a. No, the south side shall be spaced as shown on plan C3-01.

13. Do the light poles have asphalt footing?
    a. No, they do not.

14. Is the windscreen to be saved?
    a. No, existing windscreen shall be properly disposed of.

15. Will this project have any additional noise restrictions?
    a. No, noise restrictions are to follow city code.

16. Are spoils to be disposed of on campus?
    a. No, spoils are to be taken off campus for disposal.

17. When is the start date?
    a. When NTP is issued from the district

End of Section

GEOTECHNIQUES
1645 Donlon Street, Ste. 107
Ventura, California 93003
(805) 456-9585, (805) 658-8952

January 23, 2023
Project No. 1003.046

Moorpark College
Facilities, Maintenance & Operations
7075 Campus Road
Moorpark, California 93021

Attention: Mr. John Sinutko, Director of Facilities, Maintenance & Operations

Subject: Geotechnical Update, Volleyball Court Light Standards, Moorpark College, Moorpark, California

Dear Mr. Sinutko:

This letter report serves as an update to the original geotechnical study[1] and grading report[2] to provide recommendations for the design of foundation support for Musco lights planned around the perimeter of the proposed volleyball courts at Moorpark College. For this update, we have reviewed pertinent boring logs and laboratory data from the original study and the original grading plan and compaction test data to provide recommendations for foundation design for the new light standards.

PROPOSED PROJECT

The existing six tennis courts located south of the gymnasium will be converted to sand volleyball courts. The proposed Musco lights are anticipated to be up to about 60 feet high and will be located at or near the four corners and at regular intervals along both sides of the long axis of the court pad area perimeter. The Musco lights will be supported by drilled pier foundations. The asphalt concrete surface of the tennis courts will be removed to be replaced by a sand substrate for the 'beach' volleyball courts. The layout of the Musco lights relative to the volleyball courts is shown on Plate 1 – Site Layout Plan.

SITE CONDITIONS

The existing tennis courts are constructed on a level, graded fill pad with between about 8 and 16 feet of fill from the north to the south, respectively, according to the original grading plan (1965) which has been superimposed as the gray background on Plate 1.

Onsite sandy clay to clayey sand was used as fill during original grading and this material was to be compacted to a minimum of 90 percent of the maximum dry density[1]. Compaction test data from the grading report[2] is consistent with the recommendations of the original geotechnical report[1].

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[1] LeRoy Crandall and Associates (1965), "Report of Foundation Investigation, Proposed Moorpark College, Portions of Sections 36 and 36, T3N, R19W, for the Ventura County Junior College District," LCA Job No. A-65001, dated May 24.

Subsurface Conditions at Athletic Field

Earth materials encountered in the borings from the geotechnical study for the adjacent parking structure advanced in the immediate vicinity of the proposed volleyball courts[3] consist of sandy clay (CL) to clayey sand (SC). The logs of boring nos. 1 and 2 are included in the Appendix herein as Plates 2.1 through 2.4, and the approximate locations of those borings relative to the proposed volleyball courts are shown on Plate 1. The depth of fill approximated on the boring logs is consistent with fill depths shown on the original grading plan (1965) on Plate 1, and is noted thereon.

A direct shear test on a remolded sample of clayey sand fill taken from a backhoe trench ("T-2" on Plate 1) excavated adjacent to the easterly end of the courts for the parking structure site had an ultimate friction angle of 35 degrees. The results of that test are summarized on Plate 3.

ASCE 7-22 / 2022 CALIFORNIA BUILDING CODE SEISMIC PARAMETERS

Seismic design parameters for the west campus area were generated using site coordinates 34.2989° N, -118.8372° W, and in accordance with 2022 CBC and ASCE 7-22 Soil conditions are consistent with Site Class D, characterized by undrained shear strengths typically between about 1,000 and 2,000 pounds per square foot (psf) and average (uncorrected) blow counts between 15 and 50 (in accordance with Table 20.3-1 in Chapter 20 of ASCE 7-22 and Section 1613.2.2 of the 2022 CBC).

The following seismic parameters are recommended for design for Risk Category II for Site Class "D" soil profile:

Seismic Parameter[1]	Value (g)	CBC Source (or Other)
Mapped Spectral Response Acceleration		
S_s	2.25	Figure 1613.2.1 (1)
S_1	0.76	Figure 1613.2.1 (2)
S_{MS}	2.27	Equation 16-20
S_{M1}	1.71	Equation 16-21
Design Spectral Response Acceleration		
S_{DS}	1.51	Equation 16-22
S_{D1}	1.14	Equation 16-23
PGA (MCE_G)	0.87	(ASCE 7)

Because the mapped spectral response acceleration parameter at 1-second period, S_1, is greater than 0.75g, Seismic Design Category E is appropriate for Risk Category II structures.

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[2] LeRoy Crandall and Associates (1966), "Control of Compacted Fill, Proposed Moorpark College, Portions of Sections 35 and 36, T3N, and R19W, Ventura County, California," LCA Job No. B-65216, dated September 21

[3] Geotechniques (2011), "Geotechnical Study, Parking Structure, Moorpark College, Moorpark, California," Project No. 1003.026, February 25.

FOUNDATION RECOMMENDATIONS

Drilled cast-in-place concrete piers that embed the light base should be designed to derive all lateral support from compacted fill and/or native soil encountered below a design embedment starting 2 feet below the adjacent grade[4]. Light foundations should be set back a minimum horizontal distance of 5 feet from the top of the descending slope along the south/southeast side of the court pad area. Drilled shafts should be observed by the geotechnical representative during excavation at each foundation location to confirm design assumptions.

Passive and Frictional Resistance. An allowable passive resistance of 300 pounds per square foot per foot of depth (psf/ft), below the upper 2 feet, may be used when designing relatively short concrete drilled pier foundations, with a maximum value limited to 4,500 psf. A coefficient of friction of 0.4 may be combined with the passive resistance without reduction in the total resistance.

Allowable Bearing. An allowable bearing capacity of 2,500 psf is recommended for end-bearing on clayey sand fill and native materials. A one-third increase is allowed for transient loading conditions.

Drilled Shaft Construction Considerations. Drilled shafts for light foundations should be excavated to the minimum design embedment depth determined by others. The bottom of the drilled shaft should consist of clayey sand/sandy clay soil that is not disturbed by the drilling auger. This should be achieved by using a bucket auger and clean-out bucket for excavating and cleaning the final 18 inches of undisturbed materials from the shaft excavation bottom. Note that backspinning of flight auger is not an acceptable alternative to use of a bucket auger/clean-out bucket. The drilling operation should be observed by Geotechniques.

All loose slough and disturbed materials and any water accumulated on the shaft bottom should be removed prior to setting pole base and/or reinforcement and prior to concrete placement. Pole base/reinforcement should be centered securely in shaft prior to concrete placement.

Drilled shafts should be concreted the same day as excavation and **should not be left open overnight**. Drilled pier construction should be performed in accordance with the latest edition of ACI 336.1, "Standard Specifications for Construction of Drilled Piles."

ON-GRADE CONCRETE OR PAVEMENT

The upper 1 foot of soil subgrade in areas to receive new on-grade concrete or pavement should be compacted to a minimum of 95 percent of the maximum dry density determined by ASTM D1557. The subgrade should be scarified or removed, as necessary, and processed to pea-sized consistency or finer at between 0 and 2 percent above optimum moisture content prior to compaction. The aggregate base course beneath on-grade concrete should have a minimum as-compacted thickness of 4 inches. Aggregate base should be compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D1557. Subgrade and base course in pavement areas should be firm and unyielding when proof-rolled with a full water truck.

[4] The upper 2 feet of embedment (with respect to lowest adjacent finish grade) should be neglected for lateral resistance.

UTILITY TRENCHES

Grass and root mat along utility trench alignment should be stripped and wasted offsite prior to excavating trench. Trench excavations should be braced or sloped in accordance with the requirements of (Cal) OSHA.

Bedding sand should, at a minimum, have an as-compacted thickness of 4 inches below the pipe invert, and pipe zone sand should have an as-compacted thickness of 12 inches over the top of pipe. Bedding and pipe zone sand should have a minimum Sand Equivalent of 30.

Trench backfill consisting of onsite excavated clayey sand should be moisture conditioned (or aerated, as needed) between 0 and 3 percent over optimum moisture content prior to placing in trench. Backfill should be compacted to a minimum of 90 percent relative compaction as determined from ASTM D1557, and 95 percent in the upper 1 foot of subgrade in concrete and pavement areas.

Rock larger than 3 inches in maximum dimension should be excluded from backfill. Jetting of trench backfill materials should not be permitted.

CLOSURE

The recommendations in this letter are specific to the scope of the proposed volleyball court area presented herein. Additionally, data, evaluations, and recommendations by Geotetchniques[3] in the referenced original study not specifically presented herein should be considered applicable to the subject site and should be considered to constitute the baseline geotechnical study for and applicable to this project.

We appreciate the opportunity to be of service to Moorpark College and the Ventura County Community College District. Please call if you have any questions concerning this letter.

Sincerely,

Geotechniques

PROFESSIONAL CIVIL ENGINEER
CAROLE A. WOCKNER
EXP. 09-30-23
No. 74,407
STATE OF CALIFORNIA

Carole Wockner, P.E.
Associate Engineer
R.C. E. No. 74407, exp 09/30/23

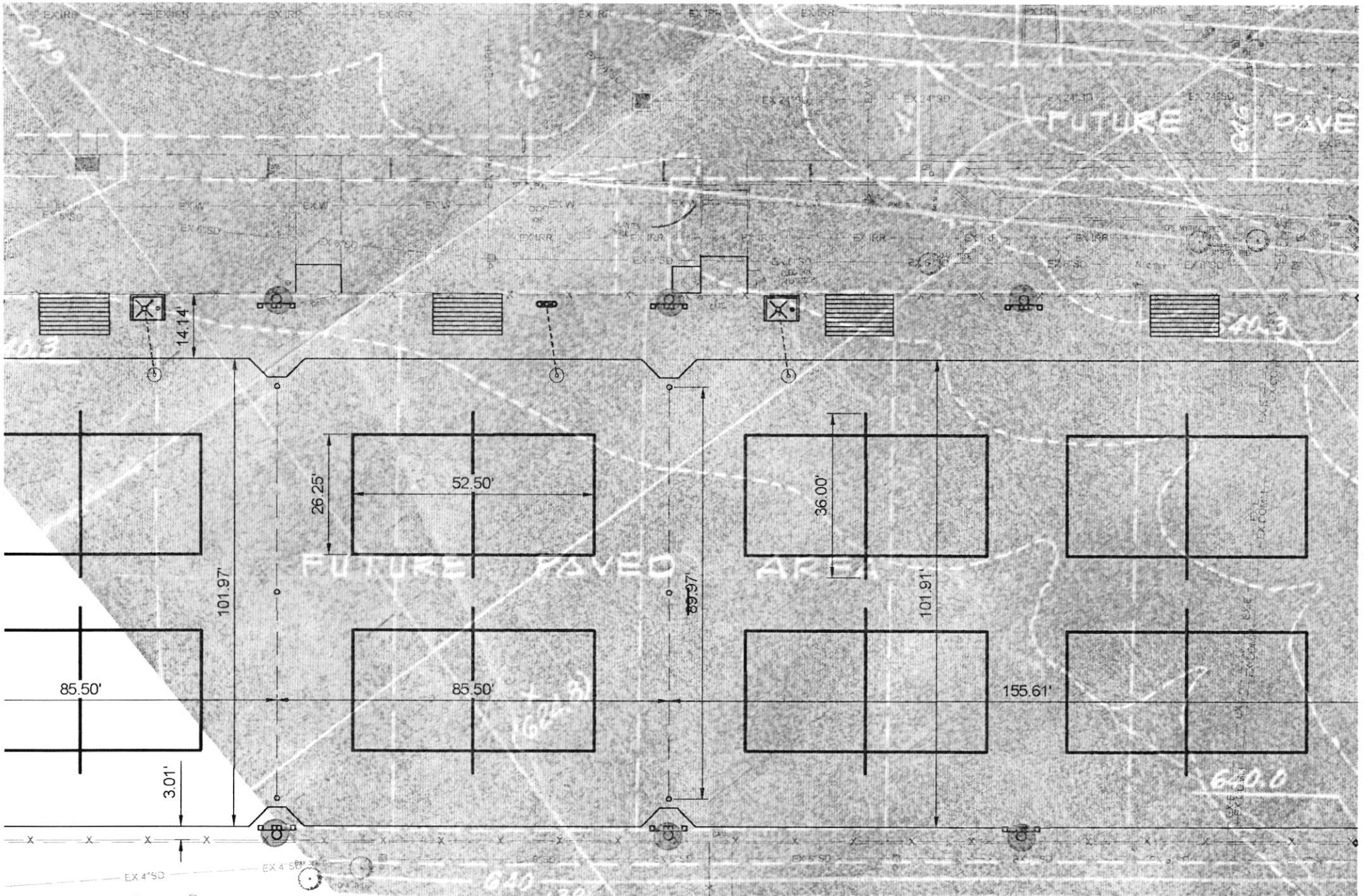
REGISTERED PROFESSIONAL ENGINEER
BRIAN D. SKYERS
No. 2627
EXP. 12-31-24
GEOTECHNICAL
STATE OF CALIFORNIA

Brian D. Skyers, G.E.
Geotechnical Engineer
R.G.E. 2627, exp 12/31/24

Encl: Appendix

Plate 1 - Site Layout Plan
Plates 2.1- 2.4 - Logs of Borings B-1 and B-2 from Parking Structure Study[3]
Plate 3 - Direct Shear Test

APPENDIX



riginal grading plan from 1965, showing then-existing (dashed lines) elevation contours
cal datum. (Current 1988 ["NAVD"] vertical datum is 2.6 feet higher.)

GEOTECHNIQUES
LOG OF EXPLORATORY BORING

PROJECT NO.:	1003.026	**DRILLER:**	Martini Drilling	**LOGGED BY:**	CW
PROJECT NAME:	Parking Structure	**DRILL METHOD:**	8-inch Hollow Stem Auger	**OPERATOR:**	Gene/Brandon
LOCATION:	South Campus, Moorpark College	**HAMMER:**	140 pound auto-trip	**RIG TYPE:**	CME 75
ELEVATION:	642 feet (approx.)			**DATE:**	11/12/2010

BORING NO.: B-1

Depth (ft)	SAMPLES: Sample Type	Blows/ 6"	SPT N-value	Sample Number	Graphical Log	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Dry Density (pcf)	% Finer #200 Sieve/ Atterberg Limits
5		10 15 25	40	1		SC:	**ARTIFICIAL FILL (Qaf):** Very clayey SAND (SC): Medium red-brown, very dense, moist - mottled black, brown, orange-brown in sampler nose, at 6'	9	111.6	EI = 2
10		3 4 7	11	2		CL	**OLDER ALLUVIUM (Qoa):** Fine sandy lean CLAY (CL): Medium brown, stiff, moist - dark red-brown in sampler nose, at 11'	12	102	
15		4 5 8	13	3			- medium red-brown, medium stiff, at 15'	13	112	20/ LL ~ 26 PI ~ 10
20		3 3 2	5	4			- cuttings color change to medium brown, at 21'			
25		6 10 19	29	5		SC	Clayey fine SAND (SC): Medium brown, dense, moist	9	113	
							- drilling difficulty encountered, at 26'			
						SM	Very silty fine SAND (SM): Medium red-brown, very dense, with gravel, moist, occasional clay pods			

Legend: -Ring; -Disturbed Ring; - SPT; -- Bulk; - No Recovery; - Groundwater

check: cw 01/03/11

PLATE 2.1

GEOTECHNIQUES
LOG OF EXPLORATORY BORING

PROJECT NO.:	1003.026	**DRILLER:**	Martini Drilling	**LOGGED BY:**	CW
PROJECT NAME:	Parking Structure	**DRILL METHOD:**	8-inch Hollow Stem Auger	**OPERATOR:**	Gene/Brandon
LOCATION:	South Campus, Moorpark College	**HAMMER:**	140 pound auto-trip	**RIG TYPE:**	CME 75
ELEVATION:	642 feet (approx.)			**DATE:**	11/12/2010

Depth (ft)	SAMPLES: Sample Type	Blows/ 6"	N-value	Sample Number	Graphical Log	USCS Symbol	BORING NO.: B-1 (continued) / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Dry Density (pcf)	Others
30	▨ ☒	3 13 16	29	6		SM	Very silty fine SAND (SM): Medium red-brown, very dense, with angular gravel, moist, occasional clay pods			
35	▨	18 18 51	69	7			- light red-brown to pink, very dense, slightly cemented, $CaCO_3$ and clay pods, at 35'	24	102	
40	▨ ☒	9 15 27	42	8			- very dense, at 40'			
45	▨	12 29 38	67	9			- very dense, at 45'	23	108	
50	☒	25 51		10			- pink to tan, very dense, cemented, with fine to medium gravel-sized shards, at 45'			
55							**TOTAL DEPTH 50.5 FEET** **GROUNDWATER NOT ENCOUNTERED** BORING BACKFILLED WITH CUTTINGS UPON COMPLETION.			

Legend: ▨ -Ring ▨ ' - Disturbed Ring ☒ '-Bulk ☐ -No Recovery ▽ -Groundwater

check: cw 01/03/11

PLATE 2.2

GEOTECHNIQUES
LOG OF EXPLORATORY BORING

PROJECT NO.:	1003.026	**DRILLER:**	Martini Drilling	**LOGGED BY:**	CW
PROJECT NAME:	Parking Structure	**DRILL METHOD:**	8-inch Hollow Stem Auger	**OPERATOR:**	Gene/Brandon
LOCATION:	South Campus, Moorpark College	**HAMMER:**	140 pound auto-trip	**RIG TYPE:**	CME 75
ELEVATION:	639 feet (approx.)			**DATE:**	11/12/2010

BORING NO.: B-2

Depth (ft)	SAMPLES: Sample Type	Blows/ 6"	SPT N-value	Sample Number	Graphical Log	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Dry Density (pcf)	% Passing #200 Sieve
5		8 16 36	52	11		CL	**ARTIFICIAL FILL (Qaf):** Fine sandy lean CLAY (CL): Mottled medium - brown, light tan, and black , very dense, very moist	18	115	
10		7 6 13	19	12			- mottled dark brown and black, at 10'	17	114	
15		4 7 10	17	13		SC	**OLDER ALLUVIUM (Qoa):** Clayey fine SAND (SC): Medium to dark red brown, medium dense, moist	14	--	16
20		6 11 12	23	14		SC/ SM	Fine SAND with silt and clay (SC/SM): Medium orange-brown, dense, moist	12	113	
25		7 30 19	49	15		SP	- drilling chatter from gravel, at ~22.5 - ~23.5' Fine to medium SAND with gravel and cobbles (SP): Medium light brown, very dense, moist - with clay and fine gravel in nose, at 26' - drilling chatter, between ~26' and ~29'			

Legend: -Ring; -Disturbed Ring; - SPT; -- Bulk; - No Recovery; - Groundwater

check: cw 01/03/11

PLATE 2.3

GEOTECHNIQUES
LOG OF EXPLORATORY BORING

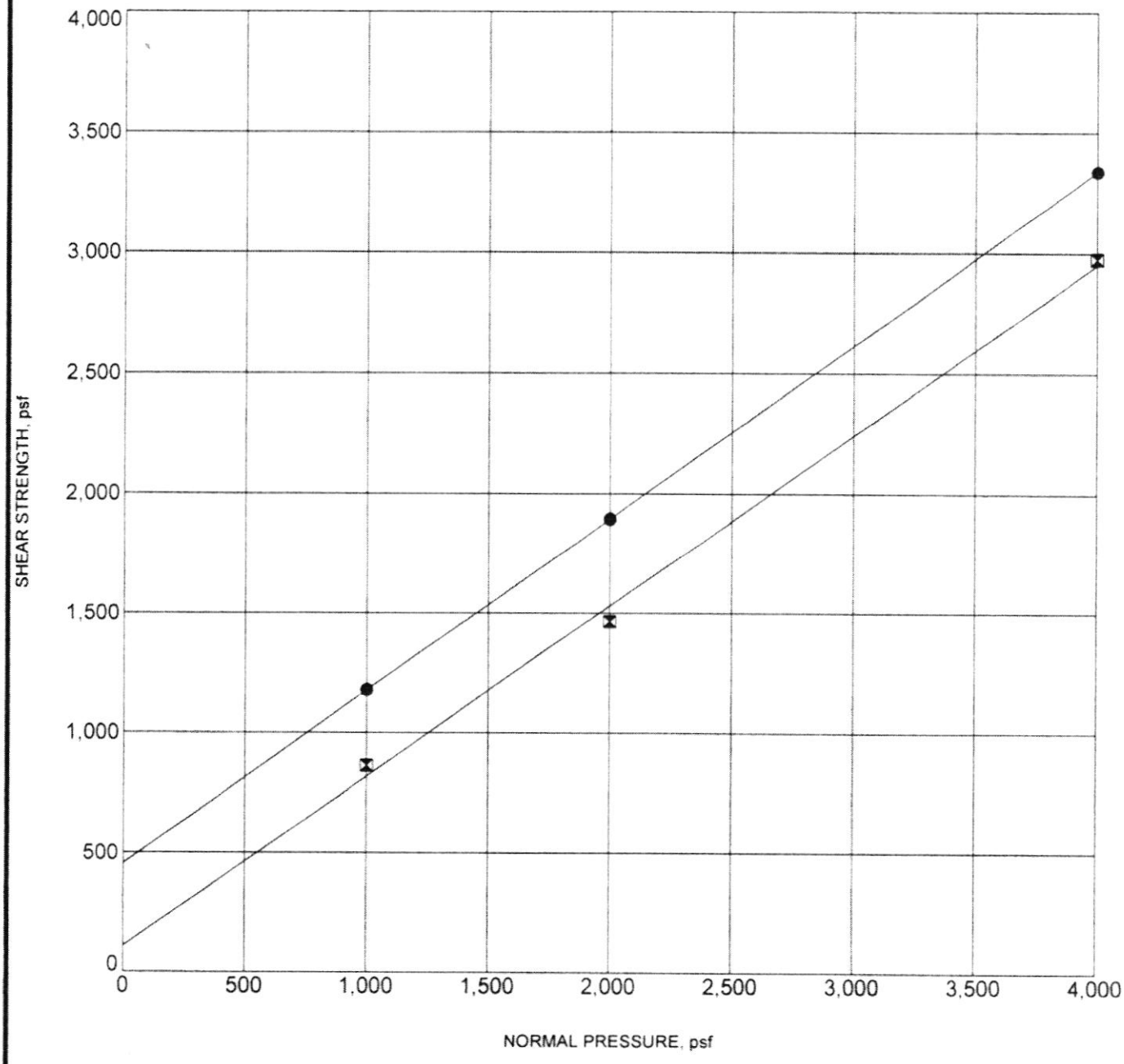
PROJECT NO.:	1003.026	**DRILLER:**	Martini Drilling	**LOGGED BY:**	CW
PROJECT NAME:	Parking Structure	**DRILL METHOD:**	8-inch Hollow Stem Auger	**OPERATOR:**	Gene/Brandon
LOCATION:	South Campus, Moorpark College	**HAMMER:**	140 pound auto-trip	**RIG TYPE:**	CME 75
ELEVATION:	639 feet (approx.)			**DATE:**	11/12/2010

Depth (ft)	SAMPLES: Sample Type	Blows/ 6"	N-value	Sample Number	Graphical Log	USCS Symbol	BORING NO.: B-2 (continued) / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Dry Density (pcf)	% Finer #200 Sieve/ Atterberg Limits
30		9				SP	Fine to medium SAND with gravel and cobbles (SP): Medium light brown, very dense, moist			
		4								
	☒	2	6	16		CL	Fine sandy lean CLAY (CL): Light yellow-brown, medium stiff, very moist	20	--	33/ LL ~ 27 PI ~ 11
35		14				SM	Silty fine SAND (SM): Light yellow brown, very dense, trace fine gravel, moist			
		17								
	☒	25	42	17						
40		10								
		30					-with fine to medium rounded gravel, at 40'			
	☒	37	67	18						
	☒	>50		19			Fine SAND with clay (SC): Red-brown, very dense, moist			
45							- Refusal, at 45'			
							TOTAL DEPTH 45 FEET			
							GROUNDWATER NOT ENCOUNTERED			
							BORING BACKFILLED WITH CUTTINGS UPON COMPLETION			
50										
55										

Legend: ▪ -Ring ▨ ' - Disturbed Ring ▪ ☒ '-Bulk ☐ -No Recovery ▽ -Groundwater

check: cw 01/03/11

PLATE 2.4



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	455	110
Friction Angle, Ø (deg):	36	35

Sample No.: 2
Sample Location: east trench at Parking Structure
Sample Description: Sandy CLAY with silt (CL)
Strain Rate (in./min): 0.005
Dry Density (pcf): 116.8

Initial Moisture (%): 13.3
Final Moisture (%): 13.9

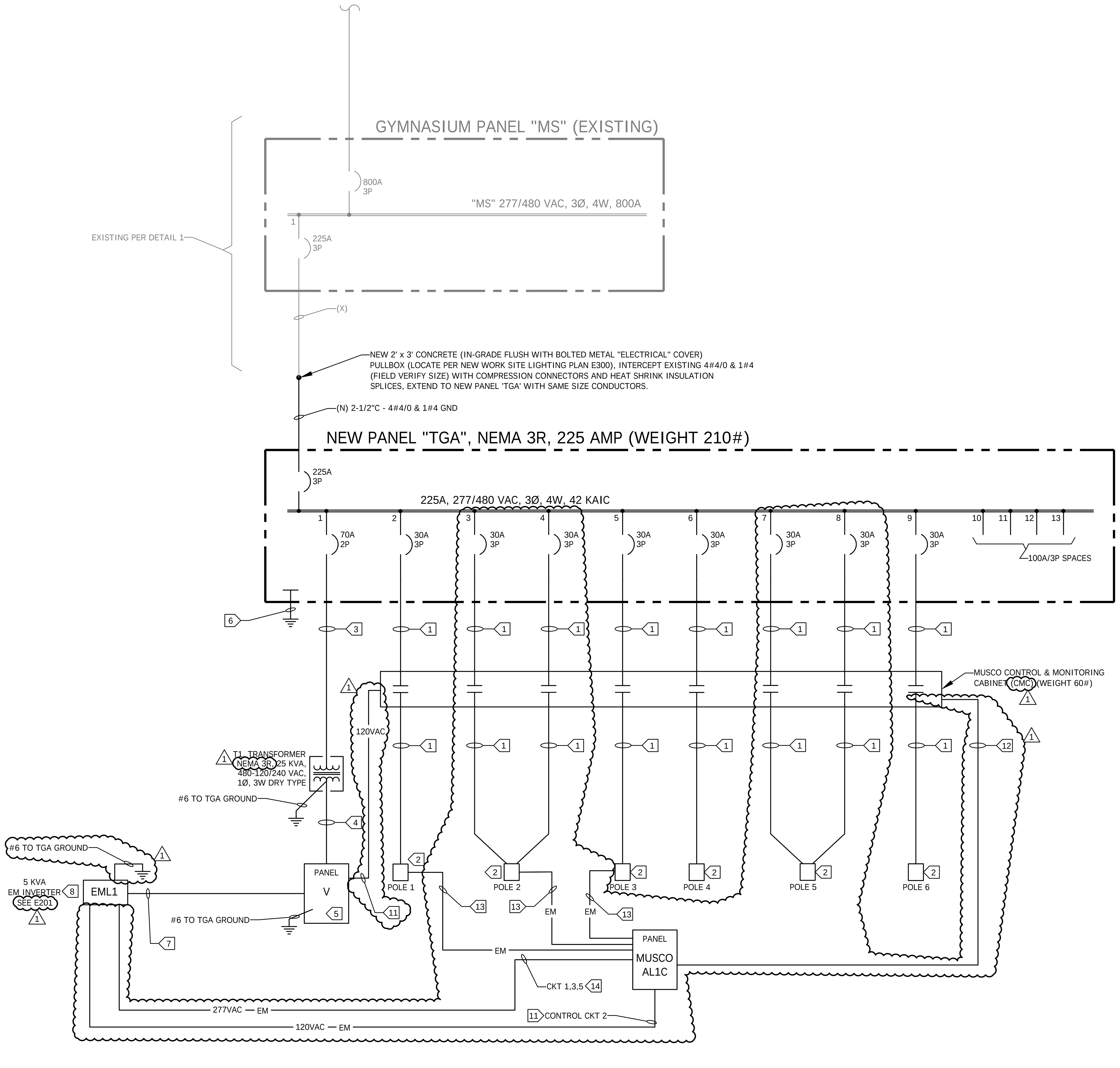
GEOTECHNIQUES

DIRECT SHEAR TEST

Moorpark College Parking Structure
Moorpark, California

Project No. 1003.026	REPORT DATE November 2012	PLATE 3

ELECTRICAL ENGINEER HAS VERIFIED EXISTING POWER SOURCE IS SUFFICIENT FOR NEW PROJECT ELECTRICAL LOADS



REVISED ELECTRICAL SINGLE LINE DIAGRAM

2 - E200

SCALE: NONE

SAND VOLLYBALL COURTS

KEY NOTES:

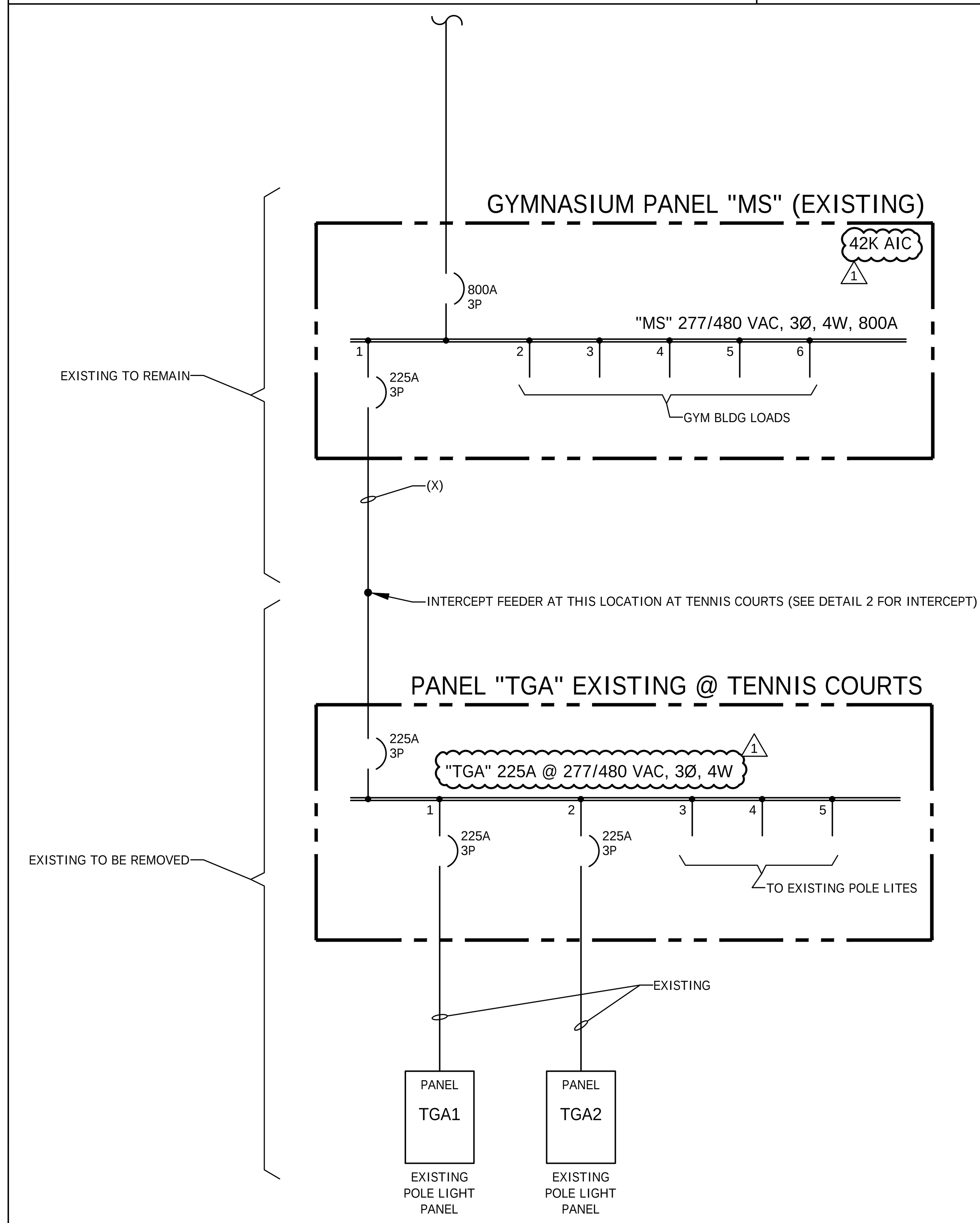
1. 1"C 4#6 & 1#10 GND.
2. MUSCO ELECTRICAL COMPONENTS ENCLOSURE MOUNTED ON POLE AT APPROXIMATELY 10'-0" AFF, FEEDER SHALL BE ROUTED INTERNAL TO POLE VIA UNDERGROUND CONDUIT ENTRY.
3. 1"C - 2#4 & 1#6 GND.
4. 1-1/2"C - 3#2/0 & 1#6 GND.
5. SEE PANEL SCHEDULE PER E201.
6. #2 UFER & 1#2 WITH 3/4" x 10'-0" GROUND ROD.
7. 1"C - 2#4 & 1#10 GND.
8. SEE MANUFACTURER SPEC SHEET E201 FOR TECHNICAL REQUIREMENTS/WEIGHT .
9. 1"C - 2#10 & 1#10 GROUND TO EML1 VIA CONTACTORS IN MUSCO CONTROL & MONITORING CABINET.
10. 1"C-2#6 & 1#10 GROUND.
11. 1"C-2#12 & 1#12 GROUND.
12. MULTIPLE CONDUITS:
    - 'S' 120VAC SIGNAL FROM EM TO E1 (NO CONTACTS) - 1"C-2#12 & 1#12 GROUND.
    - 'E1' 'NORMAL' POWER INPUT RELAY (120VAC NORMAL CONTROL POWER TO E1 COIL) - 1"C-2#12 & 1#12 GROUND.
    - 'E2' 'ZONE TRIGGER RELAY' 1"C-6#12 & 1#12 GROUND.
    - 'E6' 'CONTROL ON OFF RELAY' 1"C-6#12 & 1#12 GROUND.
13. 1"C-2#10 & 1#10 GROUND.
14. 1"C-6#10 & 1#10 GROUND.

MS LOAD SUMMARY CALCULATIONS

PANEL/LOAD	LOAD
MS =	220 KVA
MS x 25% =	55 KVA
VOLLEYBALL =	40 KVA
TOTAL PROJECT LOAD (277/480 VAC) =	315 KVA
IN AMPS AT 277/480 VAC, 3Ø, 4W =	380 AMPS

SHEET NOTES:

1. VERIFY LOCATION OF ALL BUILDINGS AND APPENDITURES ON ARCHITECTURAL AND CIVIL PLANS.
2. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID. ROUGH-IN & INSTALLATION.
3. FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO TRENCHING. SCHEDULE AND COORDINATE ALL SITE WORK WITH OWNER PRIOR TO ANY TRENCHING.
4. SEE MUSCO PLANS FOR EQUIPMENT CONNECTIONS, EQUIPMENT PROVIDED, INSTALLATION, & PROGRAMMING REQUIREMENTS



EXISTING ELECTRICAL SINGLE LINE DIAGRAM

1 - E200

SCALE: NONE

TENNIS COURTS

LLOYD SPORTS + ENGINEERING
7349 N. VIA PASEO DEL SUR
SUITE 515-324
SCOTTSDALE, ARIZONA 85258
PH 602.635.4226

LUCCI & ASSOCIATES INC.
CONSULTING ELECTRICAL ENGINEERS
3251 CORTE MALPASO, #511
CAMARILLO, CA 93012-8094
(805) 389-6520 FAX (805) 389-6519

DSA SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E13340 Exp. 09/30/2024 ELECTRICAL STATE OF CALIFORNIA

REV.
1 ADDENDUM 1 6/9/23

MOORPARK COLLEGE BEACH VOLLEYBALL COURTS

MOORPARK, CA

DESIGNED:	KL
DATE:	APRIL 4, 2023
DRAWN:	LK / DS
PROJ.	22-537
SCALE:	AS NOTED

SHEET TITLE

ELECTRICAL SINGLE LINE AND PANEL SCHEDULES

DWG. NO.

E200

G:\22\537\EL\Sheets\22-537E200.dwg 6/9/2023 4:07 PM

 L.A.I.# 22-537 PAPER SIZE 36"x24"

DRAFTER: CM01 DRAWING FILENAME: 22-537E200 PATHNAME: G:\22\537\EL\Sheets DATE: 9 June 2023 TIME: 4:07 pm

Drafter: CM01: G:\22\537\EL\Sheets\22-537E200.dwg: DATE: JUN 09, 2023 TIME: 2:26 PM

ORDERING GUIDE

Example Model Number:
1-CR-4-S-BA2007-F-T-S-2YW

2 | CR | 5 | G | | B A 20 6 / B D 20 6 (1) | | 5YT TR

VOLTAGE INPUT/OUTPUT [1]
- **1** - 120 - 120
- **2** - 120 - 120/277
- **3** - 208 - 120
- **4** - 240 - 120
- **5** - 277 - 120
- **6** - 277 - 277
- **7** - 277 - 277/120
- **Z** - Other Voltages[3]

SYSTEM TYPE
- **CR** - Illuminator CR

KVA / KW [2]
- **3** - 3.0
- **4** - 4.0
- **5** - 5.0
- **6** - 6.5
- **7** - 8.0

BATTERY TYPE
- **S** - Standard (VRLA)
- **G** - Long Life (10-YR)

RUNTIME[4]
(Other Than 90 Minutes)
- **R120** - 120 Minutes

OUTPUT BREAKERS[5, 6]

EXAMPLE
B A 20 07

Output
- **B** - Normally On
- **N** - Normally Off[5]

Pole
- **A** - 120, 1-Pole
- **B** - 208, 2-Pole
- **C** - 240, 2-Pole
- **D** - 277, 1-Pole

Amp Rating (Distribution Breakers)[6]
10, 16, 20, 25, 32, 40, 50, 63

QTY
01-14[6]

OPTIONS
- **A** - Remote Summary Alarm Panel
- **C** - Status Monitoring Dry Form C Contacts
- **F** - Fast Charge (12-hr)
- **H** - Heater (Battery)
- **I** - Inverter on Dry Form C Contacts
- **O** - Output Transfer Delay (Factory set at 3 seconds; adjustable 0-7.5 seconds)
- **P** - Remote Status Panel (Status Alarms, Requires C Option)
- **R** - Remote Meter Panel
- **SEA** - Serial to Ethernet Adapter
- **SS** - Stainless Steel Cabinet
- **T** - Output Trip (Supervised) Alarm[6]
- **V** - Variable Time Delay 15 Minutes (Requires Normally Off Circuit)

Pick 1
- **BAC** - BACnet Communications (MSTP)
- **BIP** - BACnet IP
- **IOT** - IoT Inverter Connect Cloud Software
- **MIP** - Modbus TCP/IP
- **MOD** - Modbus RTU

WARRANTY[7]
- **2YW** - Start Up & Same Day Training
- **2YWT** - Start Up, Same Day Training and Full Run Test
- **5YP** - 5-Year Preventative Maintenance Plan
- **5YW** - 5-Year Extended Electronics Warranty
- **TR** - Training If Required On Day Other Than Start Up

☐ = Required feature for part number.
■ = Optional feature. Not required for part number. Contact factory.

1. Only single phase voltages available.
2. KVA= KW
3. Requires external NEMA 3R transformer cabinet.
4. Standard battery run time is 90 minutes. Optional 120-minute run time is not available on 8.0 kVA system.
5. Normally off load systems cannot exceed 20% of total kVA rating with any combination of HID loads.
6. Maximum output breakers available: 14 unsupervised (1-pole), 8 supervised (1-pole). A 2-pole breaker occupies 2 positions, and a 3-pole breaker occupies 3 positions. Breakers provided are 20 Amps unless specified otherwise. List all breaker requirements separately -- ex: BA2007-NA1001.
7. One-year warranty is standard.

DIMENSIONS

Model Reference	Electronics Module: Power Rating (kW / kVA)	# of Phases	Efficiency @ Full Load (Typical)	Audible Noise (dBA @ 1m)	Heat Loss (BTU)	Cabinet Dimensions: Width in/cm	Height in/cm	Depth in/cm	Weight lbs/kg	Batteries: Weight lbs/kg	Number of Batteries	Voltage (VDC)	Current (Amperes)	Run Time (mins)
CR-3	3.0	1	98	45	255	54/137	76/193	30/76	805/365	740/335	10	120	37	90
CR-4	4.0	1	98	45	340	54/137	76/193	30/76	805/365	888/403	12	144	40	90
CR-5	5.0	1	98	45	408	54/137	76/193	30/76	805/365	1184/538	15	180	40	90
CR-6	6.5	1	98	45	544	54/137	76/193	30/76	805/365	1480/672	20	240	39	90
CR-7	8.0	1	98	45	680	54/137	76/193	30/76	805/365	1776/806	24	144	82	90

MYERS
EMERGENCY POWER SYSTEMS

Illuminator CR
Outdoor-Rated Emergency Lighting Inverter System

Single Phase Systems 3KVA/KW to 8KVA/KW

SEE E401 FOR EQUIPMENT LOCATION

STANDARD FEATURES
- UL 924 Listed for Operating Temperatures 10° to 40°C (50° to 104°F)
- NEMA 3R Enclosure with Extra Variable Speed Temperature Controlled Fans for Forced Air Cooling.
- White, Exterior Grade, Baked Powder Coat Painted Steel Enclosure
- Conformal Coat all Printed Circuit Boards
- Maintenance Bypass (Internal) - **Make Before Break**
- Summary Dry Form C Contacts
- Seismic Bracing
- CORBIN - Corbin CAT60 Locks; 3-Point Lock

OPTIONAL FEATURES
- Enhanced Communications
  Expanded Building Management Protocols
  BACnet or Modbus Communications Interface
  NEW IoT Connect Cloud Software
- Remote Meter Panel
- Output Circuit Breakers
- Extended Factory Warranty
- Factory Startup and Training
- Normally Off Output
- Output Trip Alarms
- Stainless Steel Cabinet
- Microprocessor-Controlled Convection Heater

SPECIFICATIONS
- Output Load Power Factor .5 Lag to .5 Lead
- Output Distortion Less Than 3% THD for Linear Loads
- Generator Compatibility
- 90 Minute Runtime Standard
- Compatible with Electronic and Magnetic Ballasts and LED Drivers
- Custom Voltages Available: 1-Phase Input 120V or 277V 2W+ Ground
- Output Load Power Factor .5 Lead to .5 Lag
- Temperature Controlled Forced Air Cooling, No Filters Required

EM INVERTER (2) - E201
SCALE: NONE

PANEL NUMBER EML1 (120VAC) VOLTAGE 120 PHASE 1 WIRE 3
SOURCE INVERTER (PNL V - CIRCUIT 1) (1) A.I.C. 10,000 (1)
PANEL LOCATION VOLLEY BALL ELECTRICAL PAD BUS AMPERE RATING 100
■ NEMA 3R ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER PER MFG
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A		BRKR POLE	BRKR AMP	CKT	PHASE A	CKT	BRKR AMP	BRKR POLE	LOAD (VA) A		CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				SPARE (1)	·		1	20	1		2	20	1	100		AL1C (EM)				
					·				3		4			·		SPARE				
					·				5		6			·						
				TOTALS	·									100		TOTALS				

L.C.L. VOLT AMPS: . PHASE A .
TOTAL VOLT AMPS: 100 PHASE A 100 (1)
TOTAL AMPS: .8 PHASE A .8

(1)

PANEL NUMBER EML1 (277VAC) VOLTAGE 277 PHASE 1 WIRE 3
SOURCE INVERTER (PNL V-1) A.I.C. 10,000
PANEL LOCATION VOLLEY BALL ELECTRICAL PAD BUS AMPERE RATING 100
■ NEMA 3R ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER PER MFG
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A		BRKR POLE	BRKR AMP	CKT	PHASE A	CKT	BRKR AMP	BRKR POLE	LOAD (VA) A		CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				POLE LIGHTS	550		1	20	1		2	20	1	·		SPARE				
				POLE LIGHTS	550				3		4			·		SPARE				
				POLE LIGHTS	550				5		6			·		SPARE				
				TOTALS	1650									·		TOTALS				

L.C.L. VOLT AMPS: . PHASE A .
TOTAL VOLT AMPS: 1650 PHASE A 1650
TOTAL AMPS: 6 PHASE A 6

PANEL SCHEDULE EML1 INVERTER (3) - E201
SCALE: NONE

NEW PANEL

PANEL NUMBER V VOLTAGE 120/240 PHASE 1 WIRE 3
SOURCE T1 A.I.C. 10,000
PANEL LOCATION VOLLEYBALL BUS AMPERE RATING 200
■ NEMA 3R ■ ALUMINUM BUSS
■ MAIN CIRCUIT BREAKER 150
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD(VA) A	LOAD(VA) B	BRKR POLE	BRKR AMP	CKT	PHASE A B	CKT	BRKR AMP	BRKR POLE	LOAD(VA) A	LOAD(VA) B	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				EML1 (EM)	3500		1	70 (1)	1		2	20	1	·		SPARE				
				RECEPTACLE		180	1	20	3		4	20	1		120	CONTROL POWER				
				SPARE	·		1	20	5		6	20	1	·		SPARE				
				RECEPTACLE		180	1	20	7		8	20	1		180	RECEPTACLE				
				SPARE	·		1	20	9		10	20	1	·		SPARE				
				RECEPTACLE		180	1	20	11		12	20	1		180	RECEPTACLE				
				SPARE	·		1	20	13		14	30		·		SPARE				
				RECEPTACLE		180	1	20	15		16		2		·					
				SPARE	·		1	20	17		18	30		·						
				RECEPTACLE		180	1	20	19		20		2		·					
				SPARE	·		1	20	21		22	20	1	·						
				RECEPTACLE		180	1	20	23		24	20	1		·					
				RECEPTACLE	180		1	20	25		26	20	1	300		IDF POWER				
				RECEPTACLE		180	1	20	27		28	20	1		180	RECEPTACLE				
				RECEPTACLE	180		1	20	29		30	20	1	180		RECEPTACLE				
				TOTALS	3860	1260								480	660	TOTALS				

L.C.L. VOLT AMPS: . PHASE A . PHASE B . .
TOTAL VOLT AMPS: 6260 PHASE A 4340 PHASE B 1920 .
TOTAL AMPS: 26 PHASE A 36 PHASE B 16 .

PANEL SCHEDULE 'V' (1) - E201
SCALE: NONE

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DSA SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 13449 Exp. 09/30/2024 ELECTRICAL STATE OF CALIFORNIA

REV.
(1) ADDENDUM 1 6/9/23

MOORPARK COLLEGE BEACH VOLLEYBALL COURTS
MOORPARK, CA

DESIGNED:	KL
DATE:	APRIL 4, 2023
DRAWN:	LK / DS
PROJ.	22-537
SCALE:	AS NOTED

SHEET TITLE
ELECTRICAL PANEL SCHEDULE AND EM INVERTER

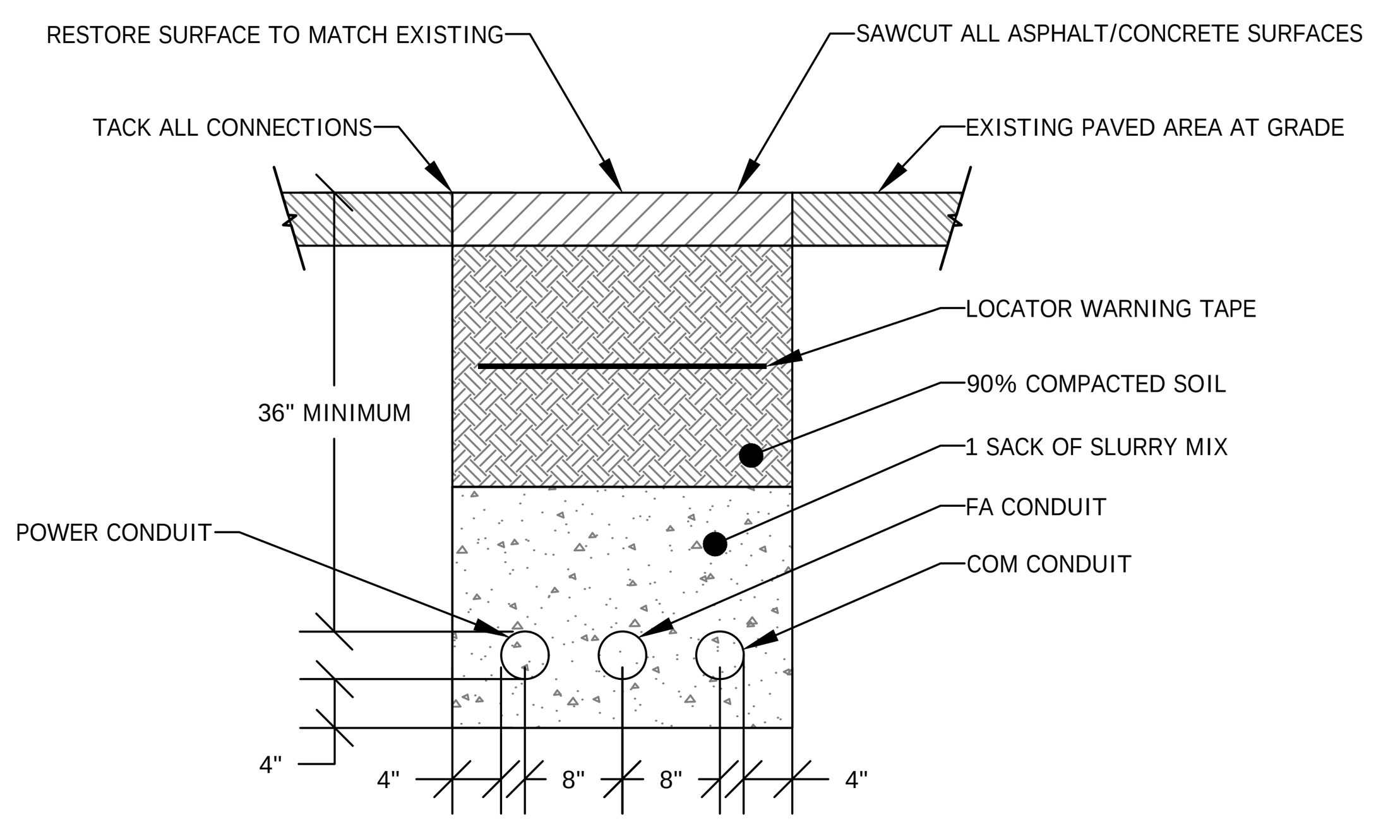
DWG. NO.
E201

TIME: 4:07 pm
DATE: 9 June 2023
PATHNAME: G:\22\537\EL\Sheets
DRAWING FILENAME: 22-537E201
DRAFTER: CM01

L.A.I.# 22-537 PAPER SIZE 36"x24"

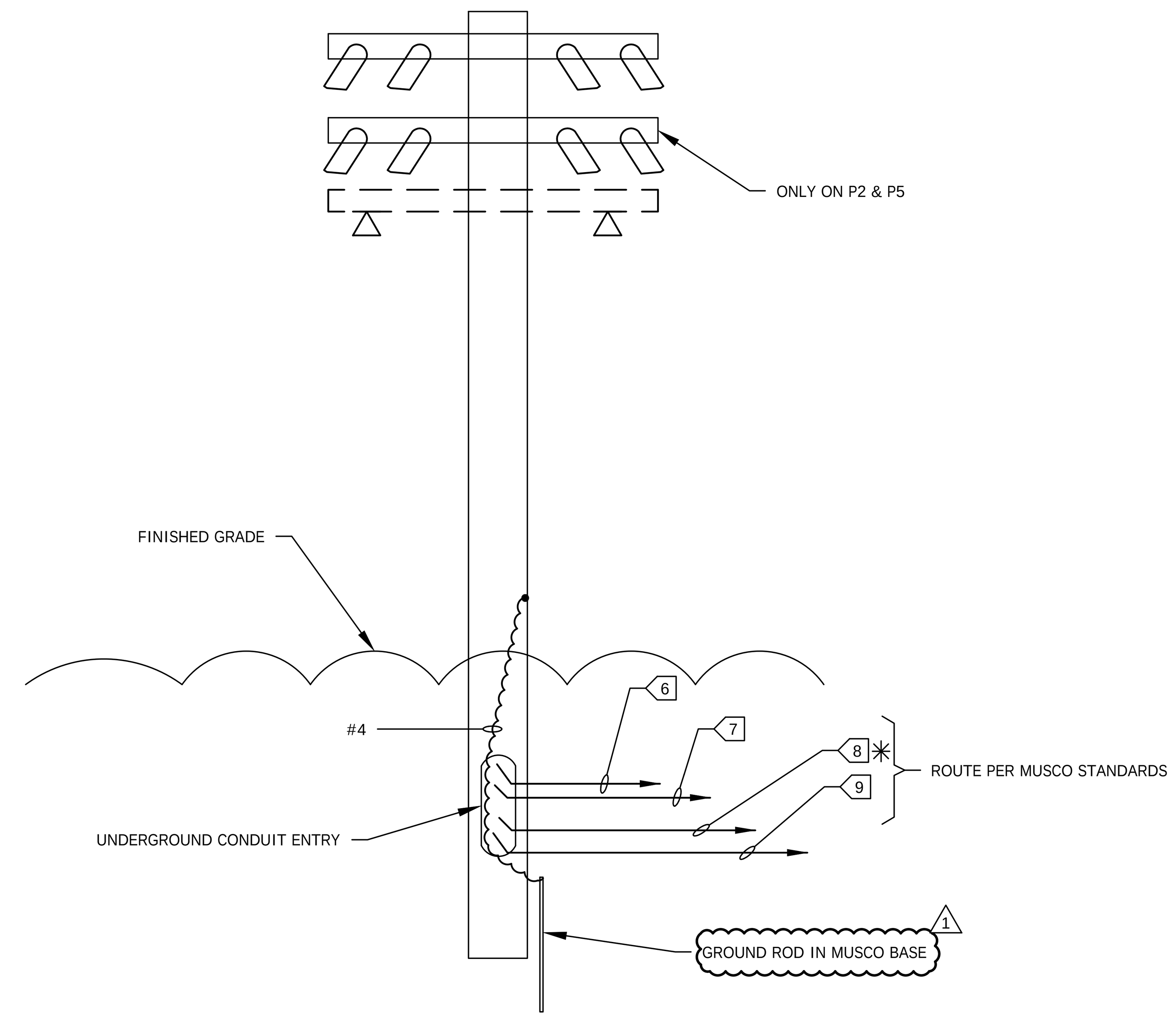
DETAIL NOTES:

1. ALL CONDUITS TO BE PROVIDED WITH METERED PULLWIRES THEIR ENTIRE LENGTH.
2. ALL CONDUITS BENDS SHALL BE FACTORY BENDS WITH MINIMUM 12 TIMES DIAMETER. BEND RADIUS.
3. ALL CONCRETE TO BE 5 SACK MIX OR 2000psi
4. ALL FEEDERS TO BE PER ELECTRICAL SINGLE LINE SHEET E200.



DUCTBANK SECTION 3

SCALE: NONE E300



P1, P2, P3 LIGHT POLES

(✳P2 & P5 HAVE (2) SET OF COURT FIXTURES WHICH EQUALES (2) SETS OF 8) 2

SCALE: NONE IDENTICAL TO P4, P5,P6 EXCEPT FOR 7 NOT PRESENT 7 ONLY PRESENT ON P1, P2, P3 E300

SHEET NOTES:

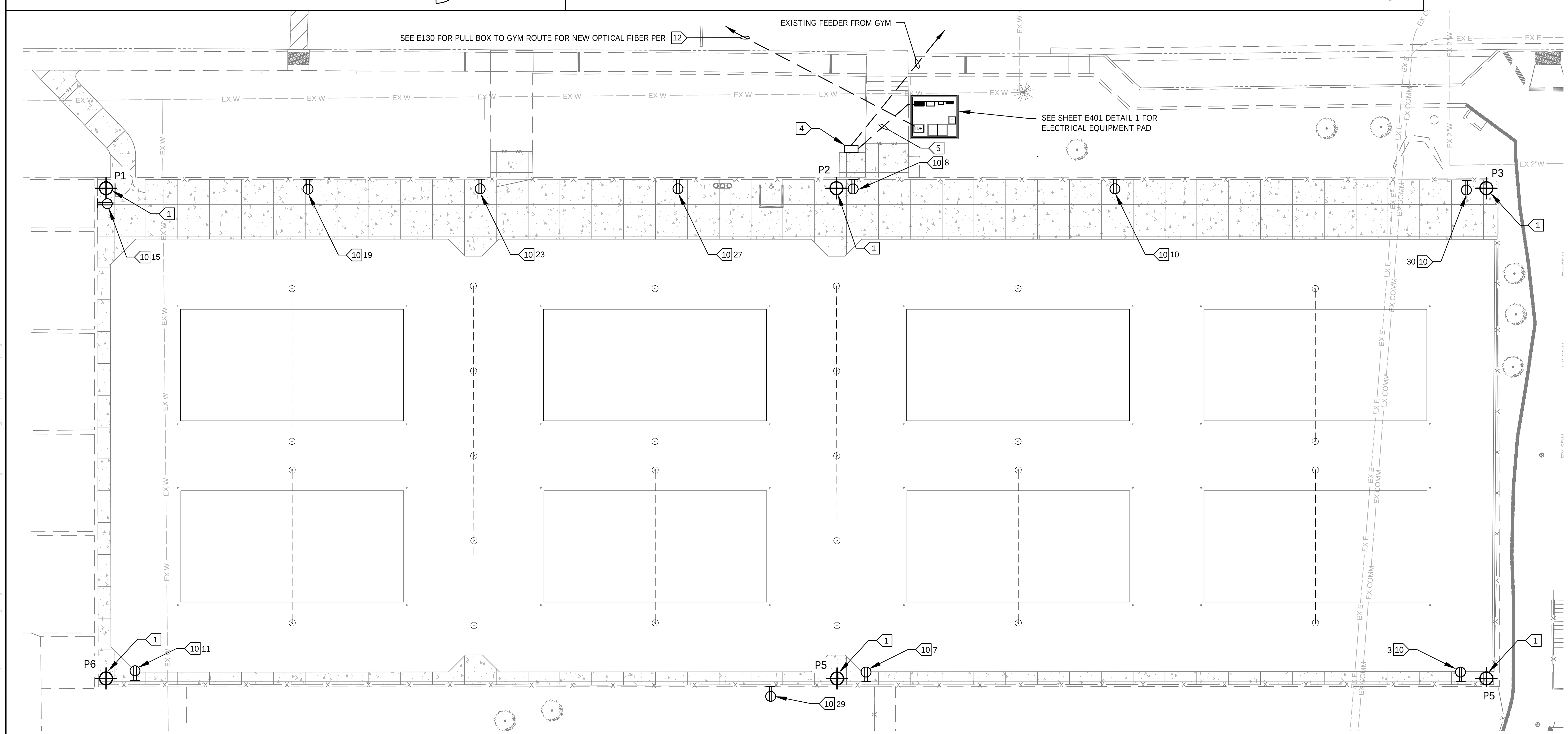
1. CONTRACTOR SHALL VERIFY LOCATION, TRIM, AND REQUIREMENTS OF ALL LIGHT FIXTURES AND CONTROL PRIOR TO BID PROPOSAL, ROUGH-IN, AND FINISH INSTALLATION.
2. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM UNLESS OTHERWISE NOTED, 1"C MINIMUM UNDERGROUND.

KEY NOTES:

1. MUSCO POLE (PROVIDED BY OTHERS) LOCATION: CONTRACTOR INSTALLED & CONNECTED PER MUSCO STANDARDS, SEE DETAIL 2 FOR CONNECTIONS
2. BLEACHERS.
3. NEW ELECTRICAL EQUIPMENT PAD BY CONTRACTOR. CONTRACTOR TO CONNECT ALL EQUIPMENT. CONTRACTOR TO PROVIDE AND CONNECT ALL EQUIPMENT, EXCEPT MUSCO WILL PROVIDE AL1C AND CONTROL AND MONITORING CABINET BUT CONTRACTOR TO INSTALL AND TERMINATE THESE ITEMS PER MUSCO STANDARDS.
4. INTERCEPT PULL BOX PER E200 DETAIL 2.
5. NEW FEEDER PER E200.
6. 1"C-2 CAT6 WET LOCATION FOR FROM CAMERA TO IDF.
7. 1"C-2#10 & 1#10 GROUND TO EML1 VIA AL1C CONTROLS FOR EM FIXTURE, ONE CIRCUIT PER EACH POLE PER E201 PANEL SCHEDULE
8. POWER TO POLE VIA E200 1"C-4#6 & 1#10 GROUND.
9. 1"C.O. SPARE TO ELECTRICAL EQUIPMENT PAD.
10. WP GFCI HOME RUN TO PANEL 'V', 1"C-2#10 & 1#10 GROUND (CIRCUIT AS NOTED).
11. 1"C.O. SPARE TO PANEL 'V' FROM 12"x18" LANDSCAPE BOX. PROVIDE PULL STRING.
12. 1"C-6 STRAND MULTI MODE WET LOCATION OPTICAL FIBER TO GYM MDF. TERMINATE PER COLLEGE STANDARDS AT GYM MDF & VOLLEYBALL IDF. VOLLEYBALL IDF SHALL PROVIDED WITH 24 PORT SWITCH, FAN, POWER DISTRIBUTION, GROUND BUS.

P1, P2, & P3 HAVE EM LIGHTING

SEE E600 FOR DUCT BANK SECTION FOR ALL UNDERGROUND CONDUITS SYSTEMS



POWER & LIGHTING PLAN 1

SCALE: 1"=15'-0" E300

N

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DSA SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E-20349 Exp. 09/30/2024 ELECTRICAL STATE OF CALIFORNIA

REV.		
1	ADDENDUM 1	6/9/23

MOORPARK COLLEGE BEACH VOLLEYBALL COURTS

MOORPARK, CA

DESIGNED:	KL
DATE:	APRIL 4, 2023
DRAWN:	LK / DS
PROJ.	22-537
SCALE:	AS NOTED

SHEET TITLE

POWER & LIGHTING PLAN

DWG. NO.

E300

TIME: 4:07 pm DATE: 9 June 2023 PATHNAME: G:\22\537\EL\Sheets DRAWING FILENAME: 22-537E300 DRAFTER: CM01

G:\22\537\EL\Sheets\22-537E300.dwg 6/9/2023 4:07 PM

 L.A.I.# 22-537 PAPER SIZE 36"x24"

Control System Summary

Moorpark College Beach Volleyball / 224335 - 224335C
Moorpark College Volleyball - Page 3 of 4

SWITCHING SCHEDULE

Field/Zone Description	Zones
Volleyball 1-4	1
Volleyball 5-8	2
Egress	3

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 1960.0
	SEALED: 208.0

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
P1	Volleyball 1-4	4	4	**7.2**	30	C1	1
P2	Volleyball 1-4	4	4	**7.8**	30	C2	1
P5	Volleyball 1-4	4	4	**7.2**	30	C3	1
P6	Volleyball 1-4	4	4	**7.2**	30	C4	1
P2	Volleyball 5-8	4	4	**7.2**	30	C5	2
P3	Volleyball 5-8	4	4	**7.2**	30	C6	2
P4	Volleyball 5-8	4	4	**7.2**	30	C7	2
P5	Volleyball 5-8	4	4	**7.8**	30	C8	2

*Full Load Amps based on amps per driver.

277VAC
1

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Control System Summary

Project Specific Notes:

Moorpark College Beach Volleyball - 480V/3P, LED C&M, Powerline Comm, Single contactor per pole

Egress fixtures are controlled through Musco provided ALIC unit. Each fixture has a full load amp value of 1.2A.

Project Information

Project #:	224335
Project Name:	Moorpark College Beach Volleyball
Date:	01/27/23
Project Engineer:	Chris Hensley
Sales Representative:	Nicholas Cobb
Control System Type:	Control-Link™ Control and Monitoring System
Communication Type:	PowerLine-ST
Scan:	224335C
Document ID:	224335P1V1-0127153720
Distribution Panel Location or ID:	Moorpark College Volleyball
Total # of Distribution Panel Locations for Project:	1
Design Voltage/Hertz/Phase:	480/60/3
Control Voltage:	120

Equipment Listing

DESCRIPTION	APPROXIMATE SIZE
1.Control and Monitoring Cabinet	24 X 72

	QTY	SIZE (AMPS)
Total Contactors	8	30 AMP
Total Off/On/Auto Switches:	3	

Preliminary Plans: Confirm all Details - voltage, # of distribution panels, etc.

Materials Checklist

Contractor/Customer Supplied:

- ❑ A dedicated control circuit must be supplied per distribution panel location
  - — If the control voltage is NOT available, a control transformer is required
- ❑ Electrical distribution panel to provide overcurrent protection for circuits
  - — HID rated or D-curve circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- ❑ Wiring
  - — See chart on page 2 for wiring requirements
  - — Equipment grounding conductor and splices must be insulated (per circuit)
  - — Lightning ground protection (per pole), if not Musco supplied
- ❑ Electrical conduit wireway system
  - — Entrance hubs rated NEMA 4, must be die-cast zinc, PVC, or copper-free die-cast aluminum
- ❑ Mounting hardware for cabinets
- ❑ Breaker lock-on device to prevent unauthorized power interruption to control power and powerline connection (if present)
- ❑ Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.

Note: Activation may take up to 1 1/2 hours.

IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.

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Control System Summary

Moorpark College Beach Volleyball / 224335 - 224335C
Moorpark College Volleyball - Page 4 of 4

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID	CIRCUIT BREAKER POSITION
1	1	C1	Pole P1	7.18	TGA	2
1	1	C2	Pole P2	7.79		3
1	1	C3	Pole P5	7.18		7
1	1	C4	Pole P6	7.18		9
1	1	C5	Pole P2	7.18		4
1	1	C6	Pole P3	7.18		5
1	1	C7	Pole P4	7.18		6
1	1	C8	Pole P5	7.79		8

277VAC
1

ZONE SCHEDULE

ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION POLE ID	CIRCUIT DESCRIPTION CONTACTOR ID
Zone 1	1	Volleyball 1-4	P1	C1
			P2	C2
			P5	C3
			P6	C4
Zone 2	2	Volleyball 5-8	P2	C5
			P3	C6
			P4	C7
			P5	C8
Zone 3	3	Egress Grid (EM)	P1	
			P2	
			P3	

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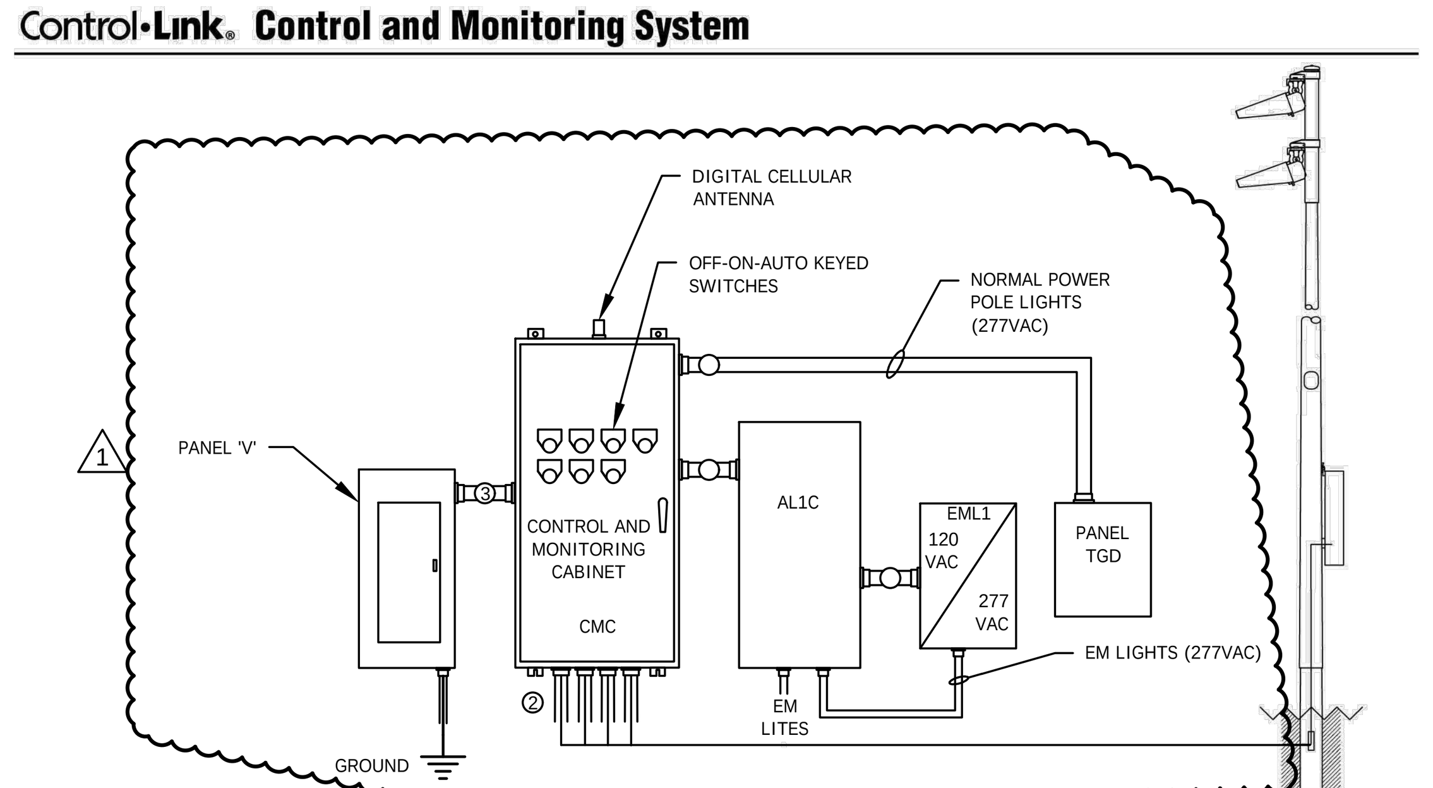
Control System Summary

Moorpark College Beach Volleyball / 224335 - 224335C
Moorpark College Volleyball - Page 2 of 4

Control•Link® Control and Monitoring System



Conduit ID	Description	# of Wires	Wire (AWG)	Conduit (in)	Max. Wire Length (ft)	MUSCO Supplied	Notes
1	Line power to contactors, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
2	Load power to lighting circuits, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
3	Control power (dedicated, 20A)	3	12	*C	N/A	No	C,E

R60-100-00_B

* Notes:
A. See voltage and phasing per the notes on cover page.
B. Calculate per load and voltage drop.
C. All conduit diameters should be per code unless otherwise specified to allow for connector size.
D. Equipment grounding conductor and any splices must be insulated.
E. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.

IMPORTANT: Control wires (3) must be in separate conduit from line and load power wires (1, 2).

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DSA SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 6340 Exp. 09/30/2024 ELECTRICAL STATE OF CALIFORNIA

REV.		
1	ADDENDUM 1	6/9/23

MOORPARK COLLEGE BEACH VOLLEYBALL COURTS

MOORPARK, CA

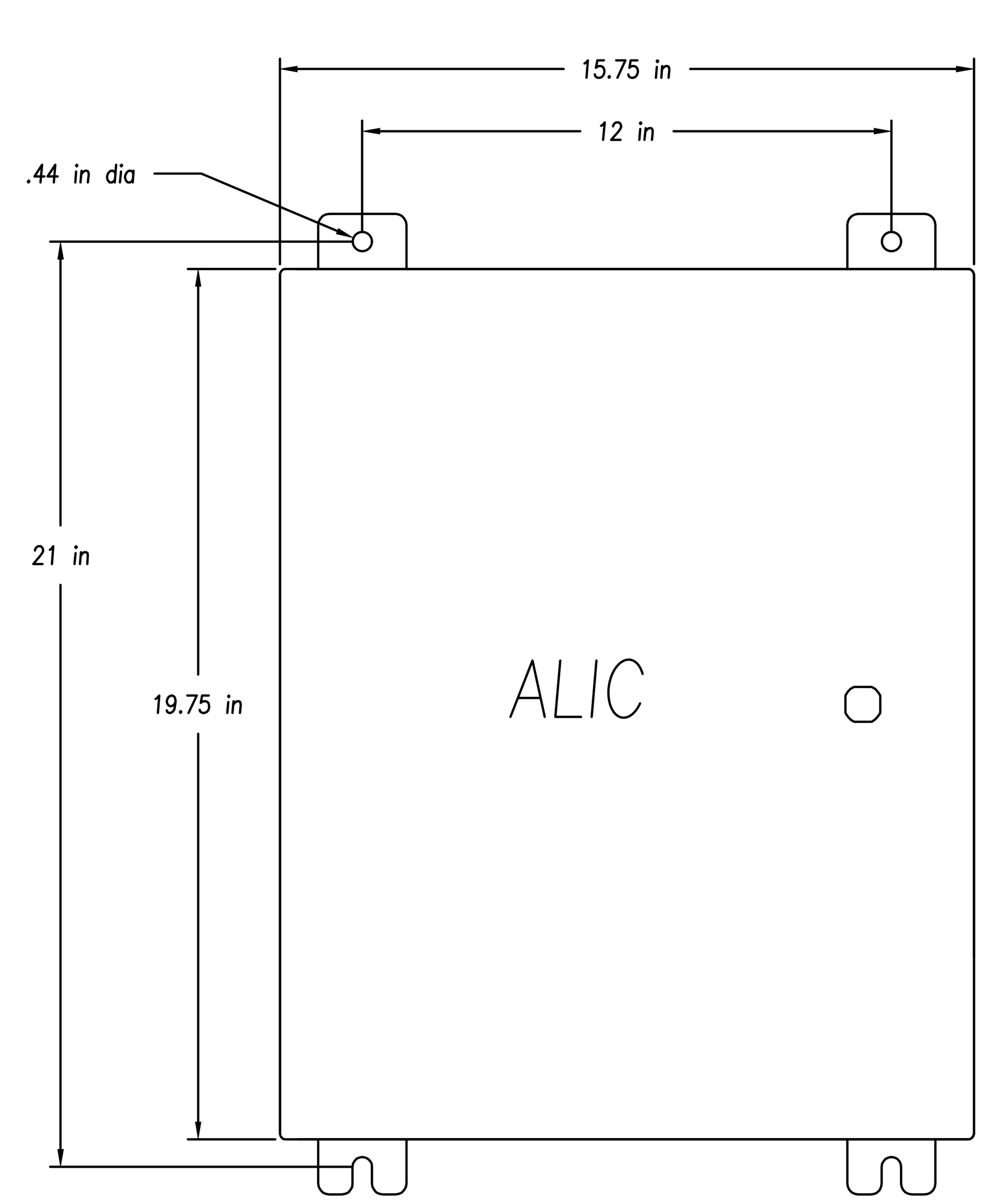
DESIGNED:	KL
DATE:	APRIL 4, 2023
DRAWN:	LK / DS
PROJ.	22-537
SCALE:	AS NOTED

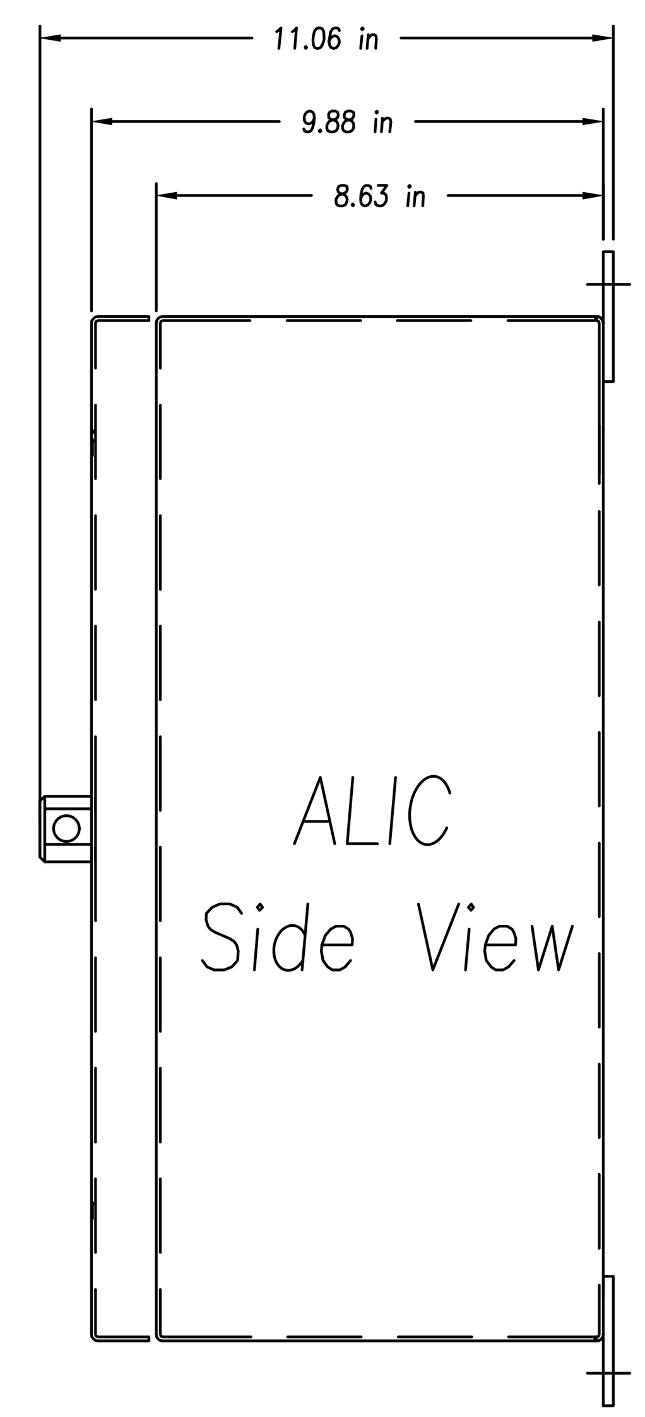
SHEET TITLE

MUSCO LIGHTING CONTROL SYSTEM SUMMARY

DWG. NO.

E301





MUSCO:

Auxiliary Lighting Interface Cabinet (ALIC)
Standard Operation and Functionality

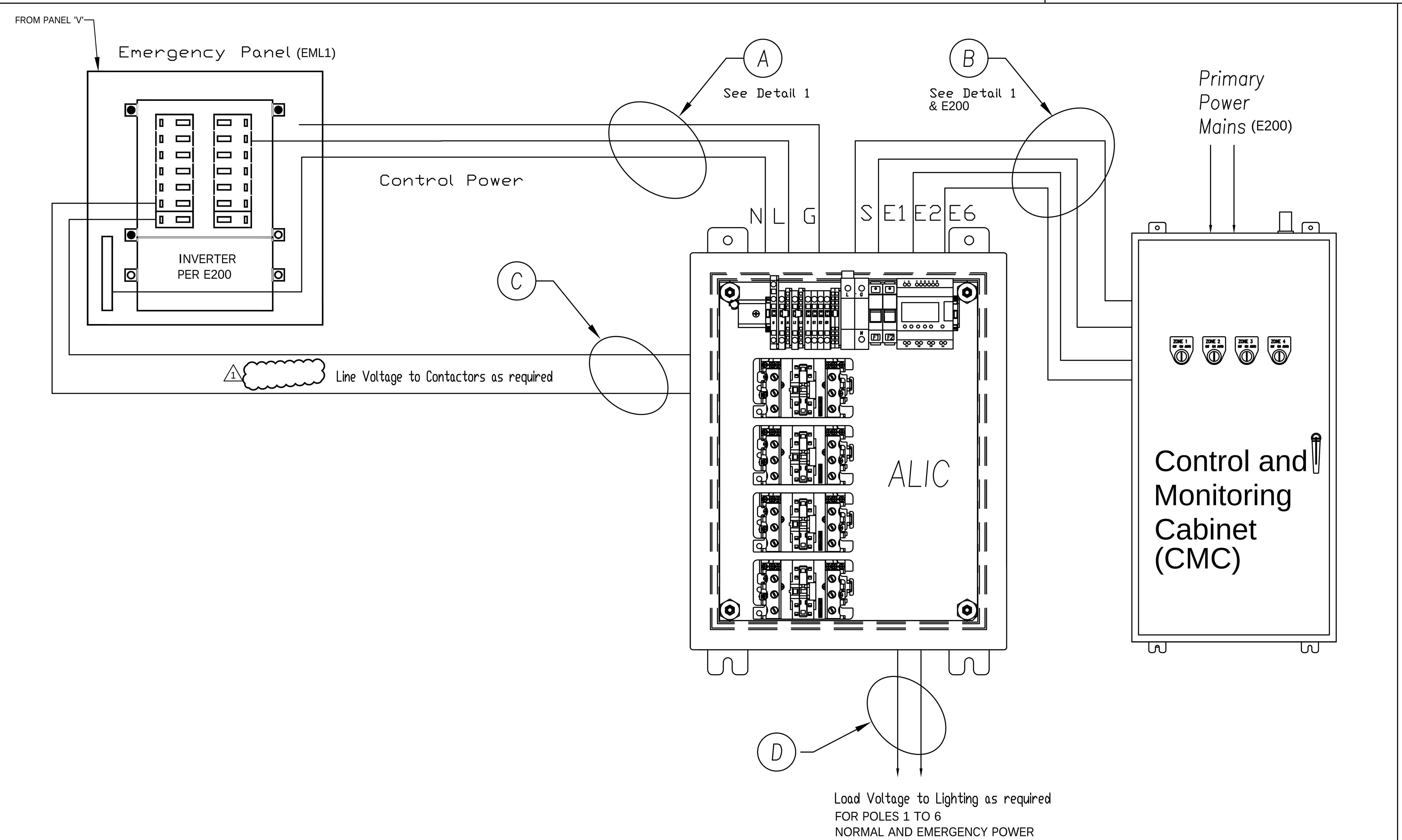
Functionality

The ALIC (UL924) provides monitoring of Controls and Monitoring Cabinet zones and primary 120V power. For the ALIC to work correctly, it and the emergency lighting fixtures will need to be powered from an Emergency Distribution Panel. This Emergency Distribution Panel is assumed to be powered from a UPS or automatic transfer switch, whose operation is to control the power source, either the generator or the mains.

IMPORTANT: The 120 volt power (wire E1) from the Controls Monitoring Cabinet is being monitored as the mains or normal power. For best operation, the Controls and Monitoring Cabinet should be powered from the field lighting distribution panel or what is to be considered the main distribution panel.

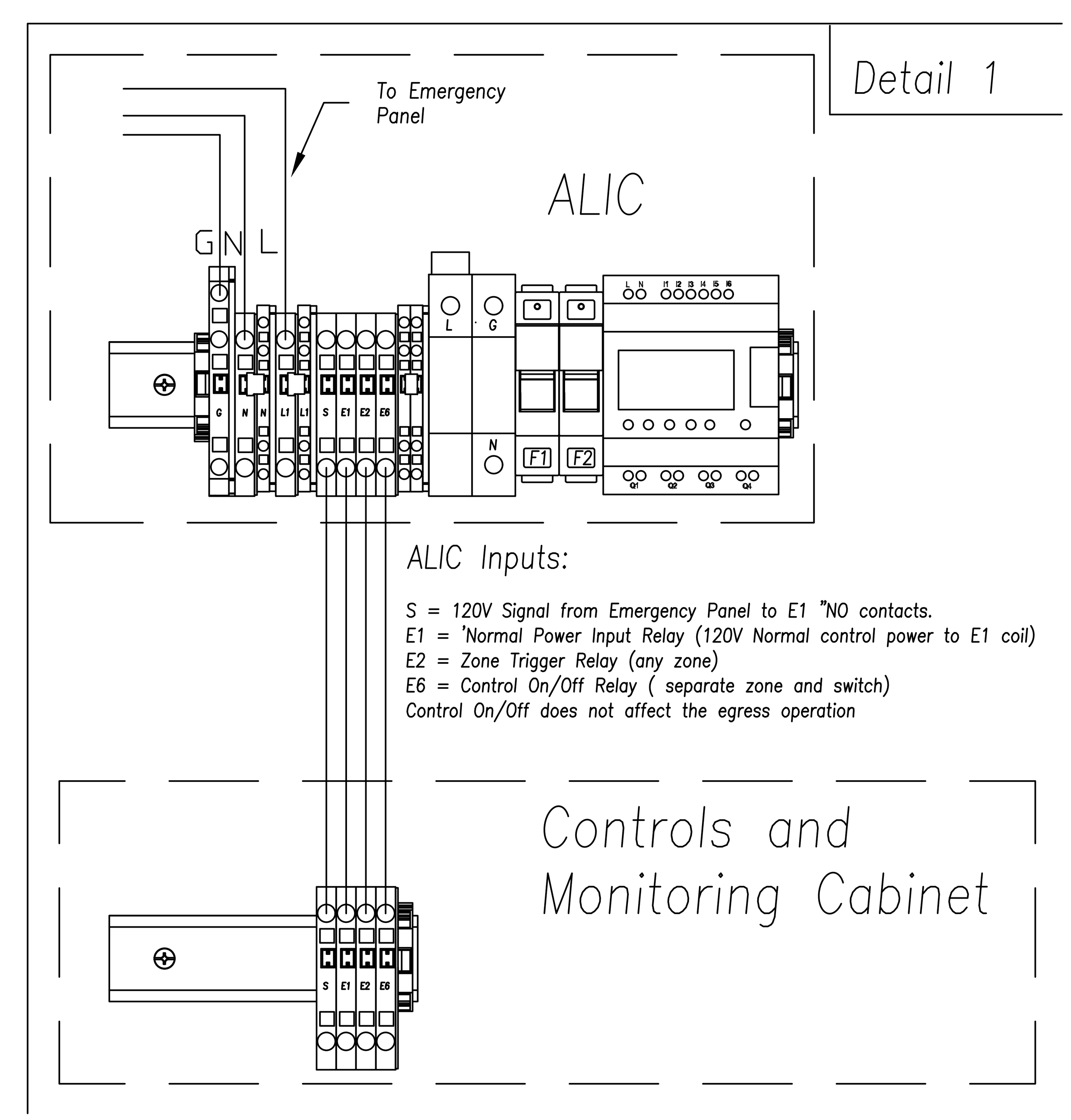
Standard sequence of egress operation

1) The ALIC sends 120V over the S wire to the normally open (N.O.) contacts of the E1, E2 and E6 (if present) relays in the CMC.
   a) E1 is connected to the control circuit of the CMC to monitor Normal Power.
   b) E2 is connected to the monitored zone(s) to monitor when the zone(s) is on
   c) E6 is connected to the override zone if present. This zone can manually turn on or schedule the egress fixture. The manually override does not affect the egress operation
2) Normal power (the mains) has an interruption, either sustained or momentary.
3) E1 opens it's contacts cutting the monitored normal power input from the ALIC.
4) The ALIC checks the monitored zone input from E2.
   a) If the input was present the ALIC will output for egress. The ALIC will continue to output as long as the backup system provides power. Once normal power is restored and the ALIC receives an input from E1 the ALIC will delay off the egress output for 20min.
   b) If the input was not present the ALIC will not output for egress



Contractor Notes:

Contractor is responsible for providing (A,B,C,D) cables and installation of cables from emergency panel to ALIC and from ALIC to Controls and Monitoring Cabinet.



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DSA
SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI Exp. 09/30/2024 ELECTRICAL STATE OF CALIFORNIA

REV.		
1	ADDENDUM 1	6/9/23

MOORPARK COLLEGE
BEACH VOLLEYBALL
COURTS

MOORPARK, CA

DESIGNED:	KL
DATE:	APRIL 4, 2023
DRAWN:	LK / DS
PROJ.	22-537
SCALE:	AS NOTED

SHEET TITLE
MUSCO CONTROL
SYSTEM SUMMARY

DWG. NO.
E302

DRAFTER: CM01 DRAWING FILENAME: 22-537E302 PATHNAME: G:\22\537\EL\Sheets DATE: 9 June 2023 TIME: 4:08 pm

G:\22\537\EL\Sheets\22-537E302.dwg 6/9/2023 4:08 PM

L.A.I.# 22-537 PAPER SIZE 36"x24"