



CITY OF GRAND JUNCTION, COLORADO

CONTRACT

This CONTRACT made and entered into this 20th day of May, 2021 by and between the **City of Grand Junction, Colorado**, a government entity in the County of Mesa, State of Colorado, hereinafter in the Contract Documents referred to as the "Owner" and **Berwick Electric Co.** hereinafter in the Contract Documents referred to as the "Contractor."

WITNESSETH:

WHEREAS, the Owner advertised that sealed Responses would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the Project described by the Contract Documents and known as **Design/Build Canyon View Lighting Replacement Project RFP-4864-21-DH**.

WHEREAS, the Contract has been awarded to the above named Contractor by the Owner, and said Contractor is now ready, willing and able to perform the Work specified in accordance with the Contract Documents;

NOW, THEREFORE, in consideration of the compensation to be paid the Contractor, the mutual covenants hereinafter set forth and subject to the terms hereinafter stated, it is mutually covenanted and agreed as follows:

ARTICLE 1

Contract Documents: It is agreed by the parties hereto that the following list of instruments, drawings, and documents which are attached hereto, bound herewith, or incorporated herein by reference constitute and shall be referred to either as the "Contract Documents" or the "Contract", and all of said instruments, drawings, and documents taken together as a whole constitute the Contract between the parties hereto, and they are fully a part of this agreement as if they were set out verbatim and in full herein:

The order of contract document governance shall be as follows:

- a. The body of this contract agreement
- b. Negotiated Terms and Conditions/Scope of Work, Pricing, etc., Dated 5/7/21 – Final Negotiated Pricing-Scope Proposal;
- c. Solicitation Documents for the Project; **Design/Build Canyon View Lighting Replacement Project;**
- d. Notice of Award

- e. Contractors Response to the Solicitation
- f. Work Change Requests (directing that changed work be performed);
- g. Field Orders
- h. Change Orders.

ARTICLE 2

Definitions: The clauses provided in the Solicitation apply to the terms used in the Contract and all the Contract Documents.

ARTICLE 3

Contract Work: The Contractor agrees to furnish all labor, tools, supplies, equipment, materials, and all that is necessary and required to complete the tasks associated with the Work described, set forth, shown, and included in the Contract Documents as indicated in the Solicitation Document.

ARTICLE 4

Contract Time and Liquidated Damages: Time is of the essence with respect to this Contract. The Contractor hereby agrees to commence Work under the Contract on or before the date specified in the Solicitation from the Owner, and to achieve Substantial Completion and Final Completion of the Work within the time or times specified in the Solicitation. In the event the Work is not completed in the times set forth and as agreed upon, the Contractor further agrees to pay Liquidated Damages to the Owner as set forth in the Solicitation. The Contractor acknowledges and recognizes the delays, expenses and difficulties involved in proving in a legal proceeding the actual losses suffered by the Owner if the work is not completed on time. Accordingly, instead of requiring any such proof, the Owner and the Contractor agree that as Liquidated Damages for delay, but not as a penalty, the Contractor shall pay to the Owner the amounts specified in the Solicitation.

ARTICLE 5

Contract Price and Payment Procedures: The Contractor shall accept as full and complete compensation for the performance and completion of all of the Work specified in the Contract Documents, the Guaranteed Maximum Price (GMP) of **One Million Ninety Five Thousand Four Hundred Eighty Five and 00/100 Dollars (\$1,095,485.00)**. **This GMP includes the add/alternate options of \$25,000.00 for Anticipated landscaping damage repair budget for revised Scope of Work (SOW), and \$13,500.00 for Rotary brush and treat (27) existing pole bases anchor bolts with Cold Galvanizing solution.** If this Contract contains unit price pay items, the Contract Price shall be adjusted in accordance with the actual quantities of items completed and accepted by the Owner at the unit prices quoted in the Solicitation Response. The amount of the Contract Price is and has heretofore been appropriated by the Grand Junction City Council for the use and benefit of this Project. The Contract Price shall not be modified except by Change Order or other written directive of the Owner. The Owner shall not issue a Change Order or other written directive which requires additional work to be performed, which work causes the aggregate amount payable under this Contract to exceed the amount appropriated for

this Project, unless and until the Owner provides Contractor written assurance that lawful appropriations to cover the costs of the additional work have been made.

Unless otherwise provided in the Solicitation, monthly partial payments shall be made as the Work progresses. Applications for partial and Final Payment shall be prepared by the Contractor and approved by the Owner in accordance with the Solicitation.

Upon Final Completion of the Work under the Contract and before the Contractor shall receive final payment, the Owner shall publish at least twice in a newspaper of general circulation published in the County a notice that: 1. the Owner has accepted such Work as completed according to the Contract Documents; 2. the Contractor is entitled to final payment therefore; 3. thirty days after the first publication, specifying the exact date, the Owner shall pay the full balance due under the Contract; and 4. persons having claims for labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by the Contractor or a subcontractor shall file a verified statement of the amount due and unpaid on account of such claim prior to the date specified for such payment. Nothing herein shall be construed as relieving the Contractor and the Sureties on the Contractor's Bonds from any claim or claims for work or labor done or materials or supplies furnished in the execution of the Contract.

ARTICLE 6

Bonds: The Contractor shall furnish currently herewith the Bonds required by the Contract Documents, such Bonds being attached hereto. The Performance Bond shall be in an amount not less than one hundred percent (100%) of the Contract Price set forth in Article 5. The Payment Bond shall be in an amount not less than one hundred (100%) of the Contract Price set forth in Article 5.

ARTICLE 7

Contract Binding: The Owner and the Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contract Documents constitute the entire agreement between the Owner and Contractor and may only be altered, amended or repealed by a duly executed written instrument. Neither the Owner nor the Contractor shall, without the prior written consent of the other, assign or sublet in whole or in part its interest under any of the Contract Documents and specifically, the Contractor shall not assign any moneys due or to become due without the prior written consent of the Owner.

ARTICLE 8

Severability: If any part, portion or provision of the Contract shall be found or declared null, void or unenforceable for any reason whatsoever by any court of competent jurisdiction or any governmental agency having the authority thereover, only such part, portion or provision shall be effected thereby and all other parts, portions and provisions of the Contract shall remain in full force and effect.

IN WITNESS WHEREOF, City of Grand Junction, Colorado, has caused this Contract to be subscribed and sealed and attested in its behalf; and the Contractor has signed this Contract the day and the year first mentioned herein.

The Contract is executed in two counterparts.

CITY OF GRAND JUNCTION, COLORADO

DocuSigned by:
By: Duane Hoff Jr., Senior Buyer - City of Grand Junction 5/21/2021 | 09:52 MDT
Duane Hoff Jr., Senior Buyer Date

Berwick Electric Co.

DocuSigned by:
By: Doug Berwick, President - Berwick Electric Co. 5/21/2021 | 14:00 PDT
Doug Berwick, President - Berwick Electric Co. Date



REVISED PRICING





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5/7/2021

Mr. Duane Hoff Jr.
Senior Buyer
City of Grand Junction Purchasing Division
333 West Ave. Building C
Grand Junction, Colorado 81501

Re: Design/Build Canyon View Lighting Replacement Project **RFP-4864-21-DH**

Dear Mr. Hoff,

This is intended to be the requested final pricing breakdown assuming that all the existing concrete foundations and anchor bolts can be reused as you have directed me to base this pricing on. It would be critical for us to plan to mobilize to be on site by Monday 5/24/2021 as shown in the attached revised schedule to try to expedite the previously very tight schedule; I have adjusted this schedule proportional to the delay in award. The following week would be the Memorial Day weekend and could further delay the schedule if we cannot mobilize for the critical path planning required of Berwick by Musco. I have also included a preliminary lighting design intent submittal provided to me by Musco that uses the existing foundation locations. If we can get preliminary approval on the attached Musco design, this will help to expedite the production process within Musco's manufacturing, which is the major factor that will drive when we can attempt to complete the project installation.

If we can get approval of the design intent with a hold for release upon an NTP being issued, this will be helpful for Musco to get the project in their production queue.

We will do our absolute best to accomplish an early completion, however without product in hand my hands are tied. I cannot promise an exact completion date at this time, other than what Musco can tell me at this time for shipping and reflected in the attached schedule.

\$ 1,574,800.00 - Original GMP submitted by Berwick Electric
\$ 30,000.00 – Deduct to eliminate show controller on softball fields that was part of our proposal price. If this feature is desired at the softball fields, please include in contract amount.
\$ 348,815.00 – Deduct to re-use all existing bases should engineering prove they are fit to be reused.
\$ 139,000.00 – Landscape Repair Deduct (mostly associated with repairs for new base installation)
\$ 1,056,985.00 – Possible revised SOW GMP (Total potential savings of \$ 517,815.00)

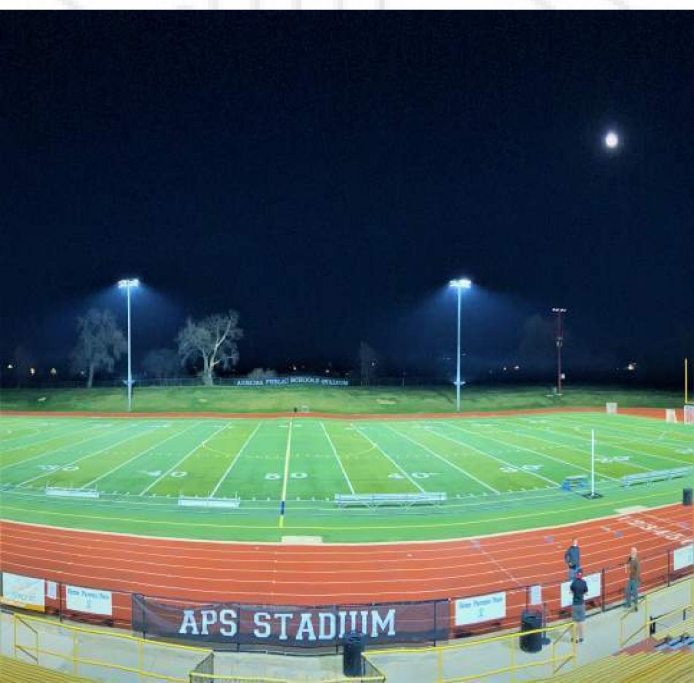
\$ 25,000.00 – Anticipated damage repair budget for revised SOW plan.
\$ 13,500.00 – Anticipated adder as requested to rotary brush and treat (27) existing pole bases anchor bolts with Cold Galvanizing solution. *All new poles provided for this project by Musco will be galvanized.*

Please utilize the options listed to adjust the anticipated cost-plus contract based on the originally proposed fixed fee percentage.

I sincerely look forward to working with the City of Grand Junction on this time, money, and safety sensitive project and am committed to its absolute success!

Respectfully,

Mark Norman



DESIGN INTENT



Canyon View Park Softball

Grand Junction, CO

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1-A2	60'	60'	2	TLC-LED-1500	2.86 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
A3-A4	60'	60'	2	TLC-LED-1500	2.86 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
A5-A6	60'	60'	2	TLC-LED-1500	2.86 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
A7-A8	60'	60'	2	TLC-LED-1500	2.86 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
B1-B2	70'	70'	1	TLC-LED-1200	1.17 kW	A
		70'	6	TLC-LED-1500	8.58 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
B3-B4	70'	70'	1	TLC-LED-1200	1.17 kW	B
		70'	6	TLC-LED-1500	8.58 kW	B
		16'	2	TLC-BT-575	1.15 kW	B
B5-B6	70'	70'	1	TLC-LED-1200	1.17 kW	C
		70'	6	TLC-LED-1500	8.58 kW	C
		16'	2	TLC-BT-575	1.15 kW	C
B7-B8	70'	70'	1	TLC-LED-1200	1.17 kW	D
		70'	6	TLC-LED-1500	8.58 kW	D
		16'	2	TLC-BT-575	1.15 kW	D
C1-C2	70'	70'	2	TLC-LED-1500	2.86 kW	A
		70'	2	TLC-LED-900	1.78 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
C3-C4	70'	70'	2	TLC-LED-1500	2.86 kW	B
		70'	2	TLC-LED-900	1.78 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
C5-C6	70'	70'	2	TLC-LED-1500	2.86 kW	C
		70'	2	TLC-LED-900	1.78 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
C7-C8	70'	70'	2	TLC-LED-1500	2.86 kW	D
		70'	2	TLC-LED-900	1.78 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
S1-S4	70'	70'	5	TLC-LED-1500	7.15 kW	A
		70'	1	TLC-LED-900	0.89 kW	A
28			160		188.56 kW	

From Hometown to Professional



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ENGINEERED DESIGN By: Nathan Brown · File #192421D · 28-Apr-21

PROJECT SUMMARY

Canyon View Park Softball

Grand Junction, CO

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Liberty Cap Field	71.26 kW	58
B	Bookcliff Field	39.1 kW	34
C	Mt. Garfield Field	39.1 kW	34
D	Thunder Mountain Field	39.1 kW	34

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	32
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	100
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	8
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	20

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Bookcliff Field (Infield)	Horizontal Illuminance	52	37	64	1.73	1.41	B	34
Bookcliff Field (Outfield)	Horizontal Illuminance	30.4	20	51	2.48	1.52	B	34
Complex Spill	Horizontal	0	0	0.01	0.00		A,B,C,D	160
Complex Spill	Max Candela (by Fixture)	285	29.8	1055	35.42	9.58	A,B,C,D	160
Complex Spill	Max Vertical Illuminance Metric	0.01	0	0.03	91.12		A,B,C,D	160
Liberty Cap Field (Infield)	Horizontal Illuminance	53.4	39	68	1.73	1.37	A	58
Liberty Cap Field (Outfield)	Horizontal Illuminance	30.2	20	48	2.46	1.51	A	58
Mt Garfield Field (Infield)	Horizontal Illuminance	51.7	41	67	1.64	1.26	C	34
Mt Garfield Field (Outfield)	Horizontal Illuminance	30.7	19	45	2.37	1.61	C	34
Soccer Spill	Horizontal Illuminance	0.01	0	0.02	0.00		A	58
Soccer Spill	Max Candela Metric	913	1.05	3599	3442.06	869.27	A	58
Soccer Spill	Max Vertical Illuminance Metric	0.02	0	0.07	0.00		A	58
Soccer	Horizontal Illuminance	31.7	20	39	1.95	1.58	A	58
Thunder Mountain Field (Infield)	Horizontal Illuminance	51.1	41	65	1.59	1.25	D	34
Thunder Mountain Field (Outfield)	Horizontal Illuminance	30.3	21	51	2.47	1.44	D	34

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A1	60'	5.54'	21'	TLC-BT-575	1	1	0
				65.54'	TLC-LED-1500	2	2	0
1	A2	60'	4'	19.54'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	B1-B2	70'	0'	70'	TLC-LED-1500	6	6	0
				15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
2	C1-C2	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
4	S1-S4	70'	0'	70'	TLC-LED-1500	2	2	0
				70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
10	TOTALS					58	58	0

Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Liberty Cap Field
Size: 315'/315'/315' - basepath 70'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	53.35	30.15
Maximum:	68	48
Minimum:	39	20
Avg / Min:	1.37	1.54
Guaranteed Max / Min:	2	2.5
Max / Min:	1.73	2.46
UG (adjacent pts):	1.34	1.45
CU:	0.40	
No. of Points:	25	203

LUMINAIRE INFORMATION

Applied Circuits: A
No. of Luminaires: 58
Total Load: 71.26 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

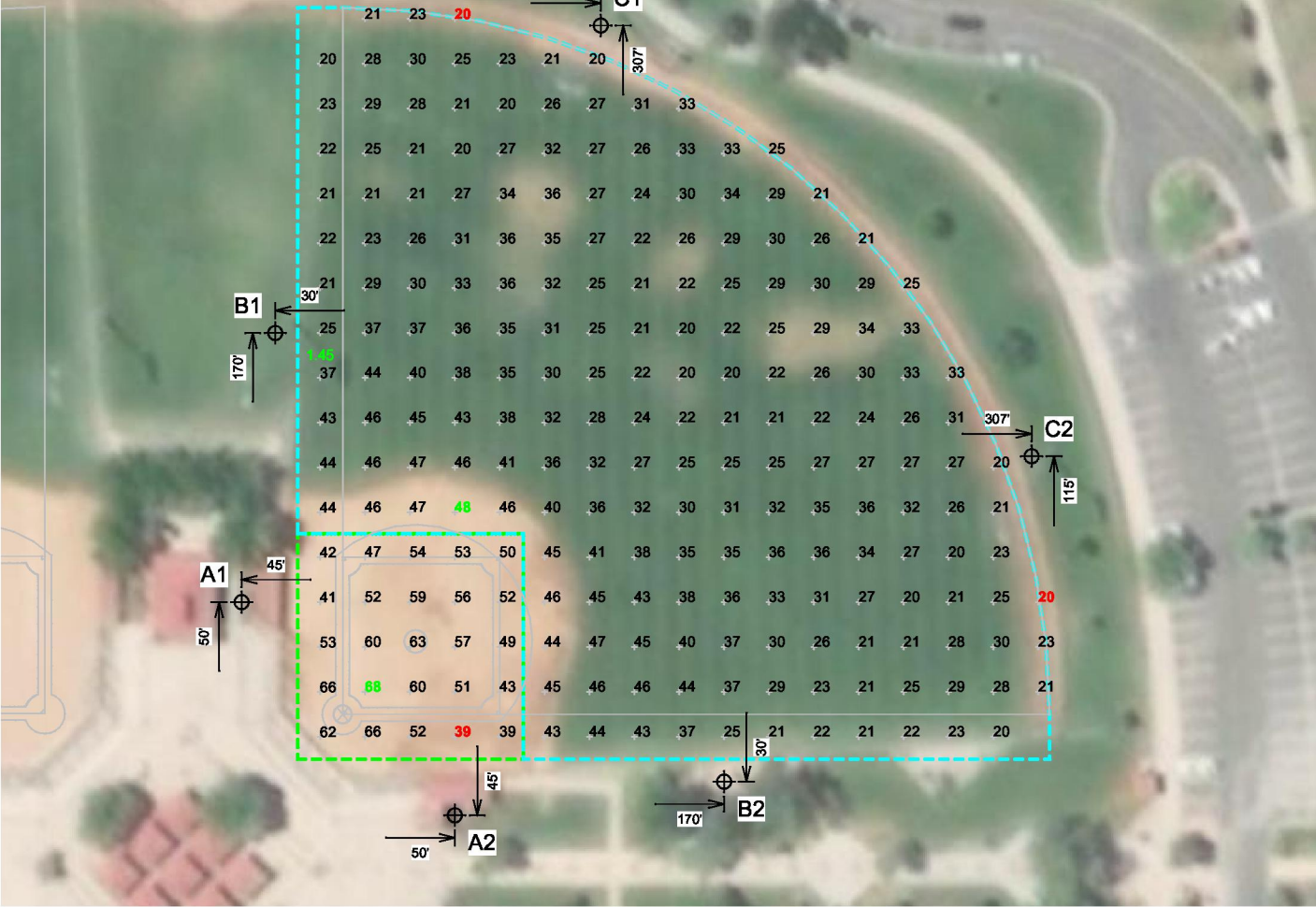
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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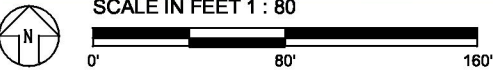
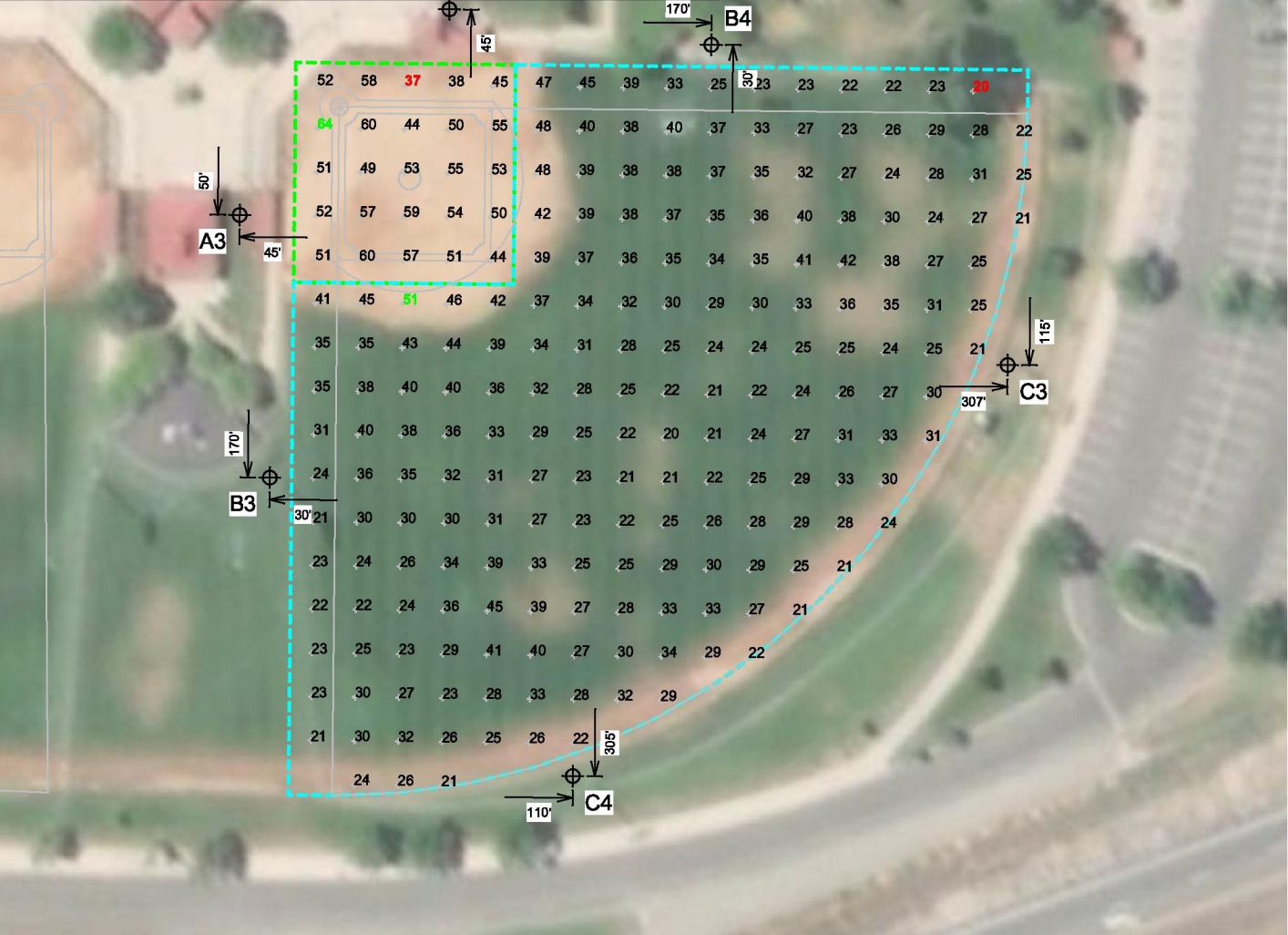


SCALE IN FEET 1 : 80
0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A3	60'	5.56'	21.06'	TLC-BT-575	1	1	0
				65.56'	TLC-LED-1500	2	2	0
1	A4	60'	4.06'	19.56'	TLC-BT-575	1	1	0
				64.06'	TLC-LED-1500	2	2	0
2	B3-B4	70'	.06'	70.06'	TLC-LED-1500	6	6	0
				15.56'	TLC-BT-575	2	2	0
				70.06'	TLC-LED-1200	1	1	0
2	C3-C4	70'	.06'	70.06'	TLC-LED-900	2	2	0
				15.56'	TLC-BT-575	1	1	0
				70.06'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0



ENGINEERED DESIGN By: Nathan Brown · File #192421D · 28-Apr-21

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY	
Name:	Bookcliff Field
Size:	315'/315'/315' - basepath 70'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY		
MAINTAINED HORIZONTAL FOOTCANDLES		
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	52.00	30.39
Maximum:	64	51
Minimum:	37	20
Avg / Min:	1.40	1.49
Guaranteed Max / Min:	2	2.5
Max / Min:	1.73	2.48
UG (adjacent pts):	1.58	1.50
CU:	0.74	
No. of Points:	25	203
LUMINAIRE INFORMATION		
Applied Circuits:	B	
No. of Luminaires:	34	
Total Load:	39.1 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



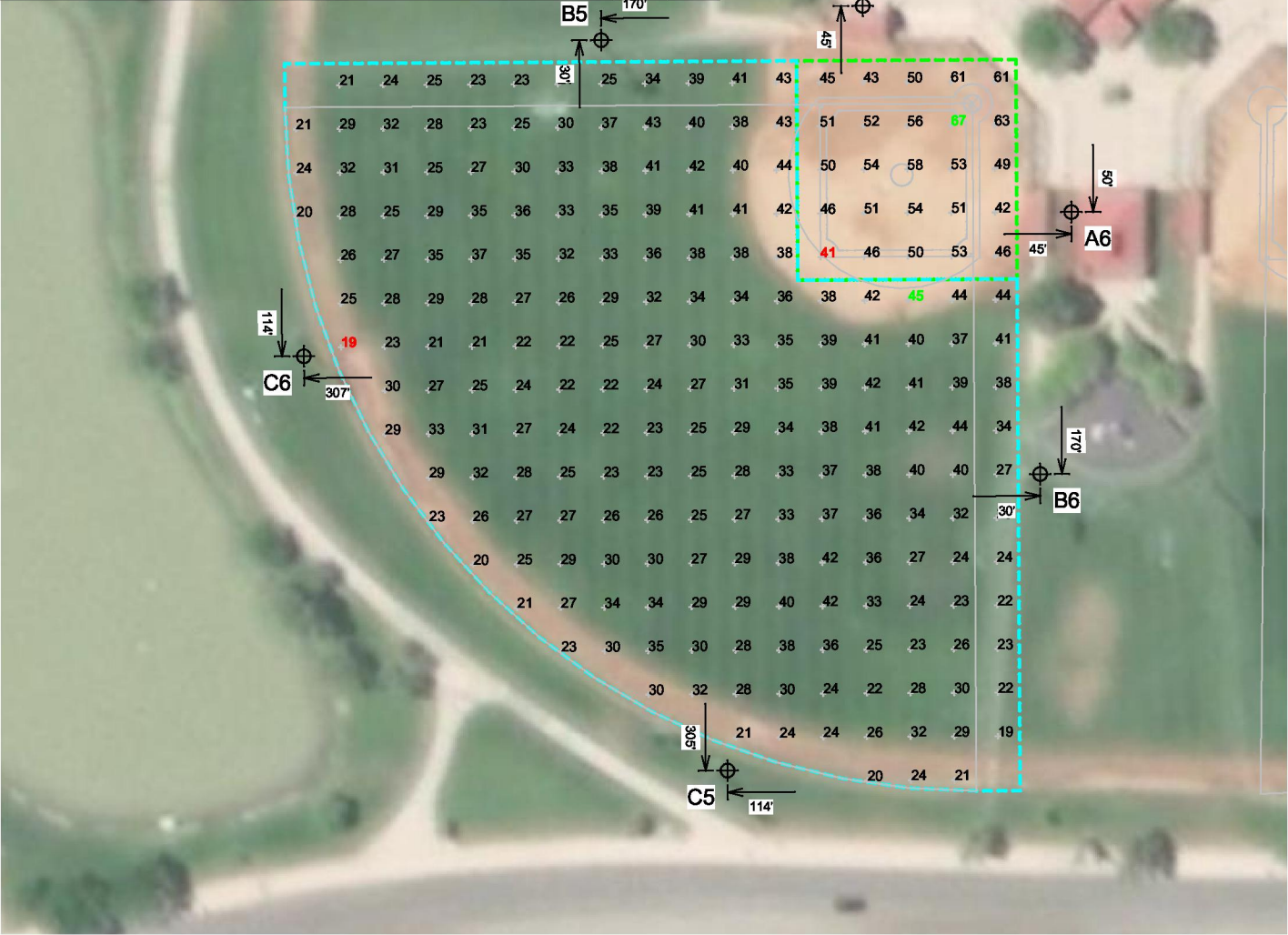
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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A5	60'	5'	20.5'	TLC-BT-575	1	1	0
				65'	TLC-LED-1500	2	2	0
1	A6	60'	5.5'	21'	TLC-BT-575	1	1	0
				65.5'	TLC-LED-1500	2	2	0
2	B5-B6	70'	-	70'	TLC-LED-1500	6	6	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
2	C5-C6	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0



Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name:	Mt Garfield Field
Size:	315'/315'/315' - basepath 70'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES		
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	51.73	30.68
Maximum:	67	45
Minimum:	41	19
Avg / Min:	1.26	1.60
Guaranteed Max / Min:	2	2.5
Max / Min:	1.64	2.37
UG (adjacent pts):	1.28	1.51
CU:	0.74	
No. of Points:	25	203
LUMINAIRE INFORMATION		
Applied Circuits:	C	
No. of Luminaires:	34	
Total Load:	39.1 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume $\pm 3\%$ nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY



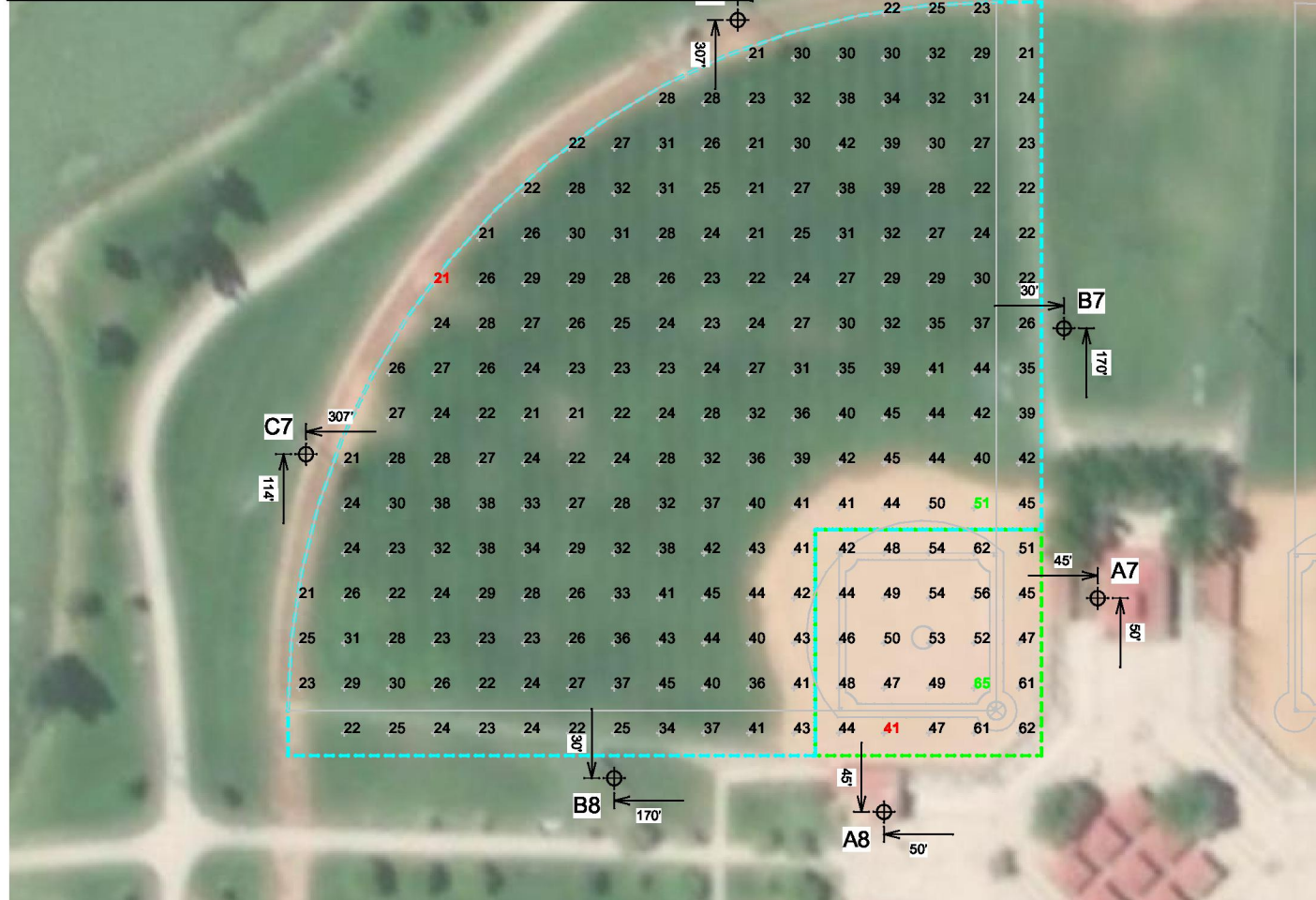
SCALE IN FEET 1 : 80



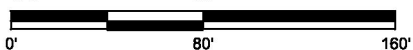
Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A7	60'	5'	20.52'	TLC-BT-575	1	1	0
				65'	TLC-LED-1500	2	2	0
1	A8	60'	5.52'	21'	TLC-BT-575	1	1	0
				65.52'	TLC-LED-1500	2	2	0
2	B7-B8	70'	0'	70'	TLC-LED-1500	6	6	0
				15.52'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
1	C7	70'	0'	70'	TLC-LED-900	2	2	0
				15.52'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	0'	70'	TLC-LED-900	2	2	0
				15.52'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0



SCALE IN FEET 1 : 80



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Thunder Mountain Field
Size: 315'/315'/315' - basepath 70'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	51.14	30.31
Maximum:	65	51
Minimum:	41	21
Avg / Min:	1.26	1.47
Guaranteed Max / Min:	2	2.5
Max / Min:	1.59	2.47
UG (adjacent pts):	1.31	1.46
CU:	0.73	
No. of Points:	25	203

LUMINAIRE INFORMATION

Applied Circuits: D
No. of Luminaires: 34
 Total Load: 39.1 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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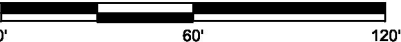
ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A1	60'	5.5'	21'	TLC-BT-575	1	1	0
				65.5'	TLC-LED-1500	2	2	0
1	A2	60'	4'	19.5'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	B1-B2	70'	-	70'	TLC-LED-1500	6	6	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
2	C1-C2	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
10	TOTALS					58	58	0



SCALE IN FEET 1 : 60



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY

Name: Soccer
Size: 360' x 225'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

Entire Grid
Guaranteed Average: 30
Scan Average: 31.69
Maximum: 39
Minimum: 20
Avg / Min: 1.57
Guaranteed Max / Min: 3
Max / Min: 1.95
UG (adjacent pts): 1.52
CU: 0.37
No. of Points: 96

LUMINAIRE INFORMATION

Applied Circuits: A
No. of Luminaires: 58
Total Load: 71.26 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

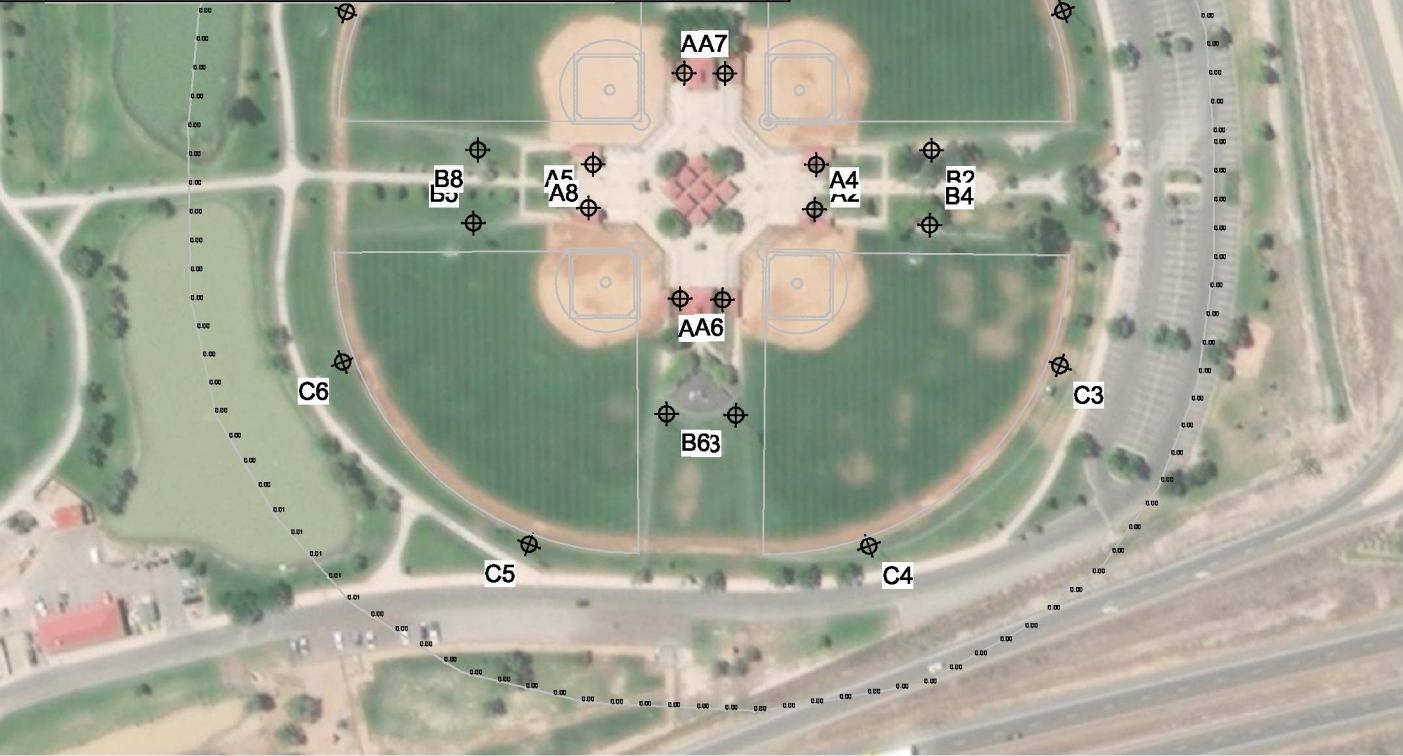
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	A1, A3, A6 A8	60'	5.54'	65.54'	TLC-LED-1500	2	2	0
				21'	TLC-BT-575	1	1	0
2	A2, A4	60'	4'	19.54'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	A5, A7	60'	5'	20.54'	TLC-BT-575	1	1	0
				65'	TLC-LED-1500	2	2	0
6	B1-B2 B5-B8	70'	0'	15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-1500	6	6	0
2	B3-B4	70'	0'	70'	TLC-LED-1500	6	6	0
				15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
5	C1-C2 C5-C7	70'	0'	15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
				70'	TLC-LED-900	2	2	0
2	C3-C4	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	0'	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
28	TOTALS					160	160	0



SCALE IN FEET 1 : 200



Pole location(s) ⚡ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY

Name: Complex Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

Entire Grid
Scan Average: 0.0019
Maximum: 0.01
Minimum: 0.00
No. of Points: 117

LUMINAIRE INFORMATION

Applied Circuits: A, B, C, D
No. of Luminaires: 160
Total Load: 188.56 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



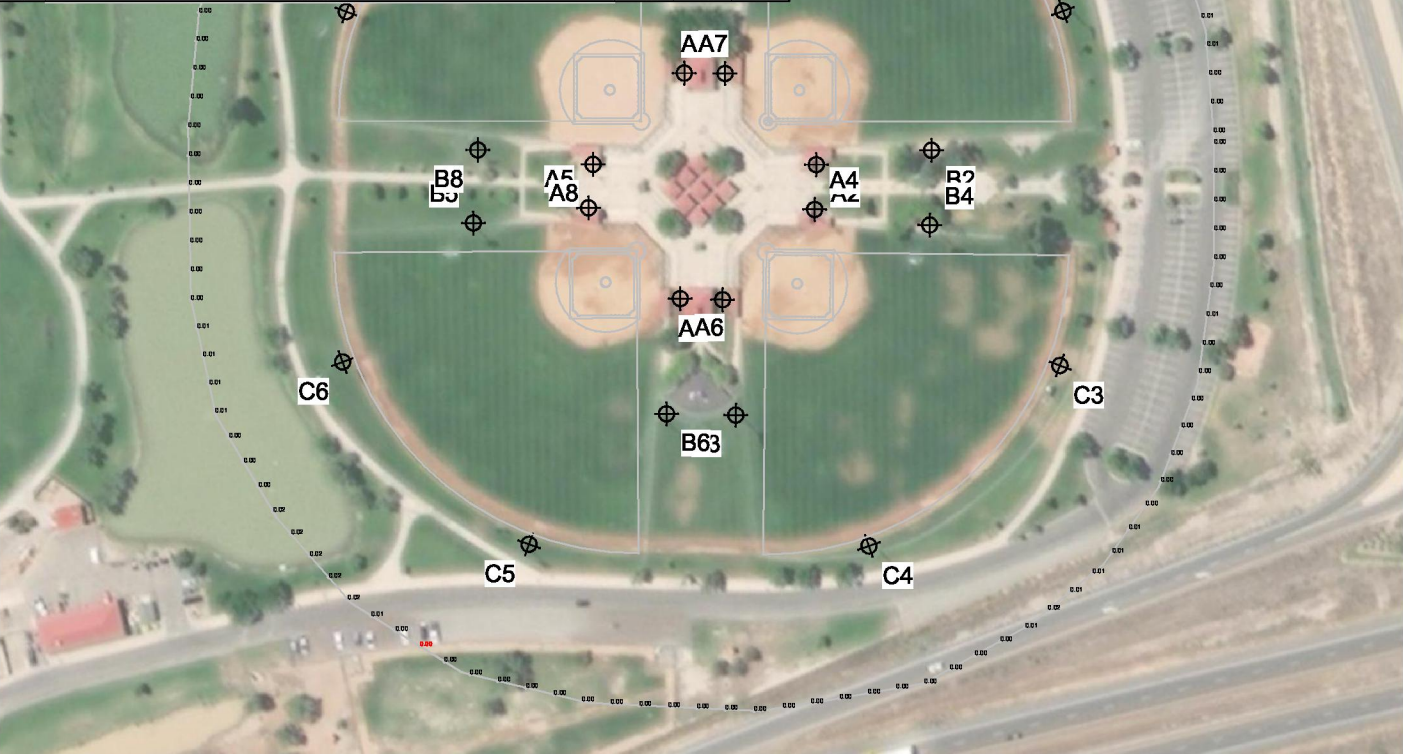
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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	A1, A3, A6 A8	60'	5.54'	65.54'	TLC-LED-1500	2	2	0
				21'	TLC-BT-575	1	1	0
2	A2, A4	60'	4'	19.54'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	A5, A7	60'	5'	20.54'	TLC-BT-575	1	1	0
				65'	TLC-LED-1500	2	2	0
6	B1-B2 B5-B8	70'	0'	15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-1500	6	6	0
2	B3-B4	70'	0'	70'	TLC-LED-1500	6	6	0
				15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
5	C1-C2 C5-C7	70'	0'	15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
				70'	TLC-LED-900	2	2	0
2	C3-C4	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	0'	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
28	TOTALS					160	160	0



Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY	
Name:	Complex Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Entire Grid	
Scan Average:	0.0062
Maximum:	0.03
Minimum:	0.00
No. of Points:	117
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D
No. of Luminaires:	160
Total Load:	188.56 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

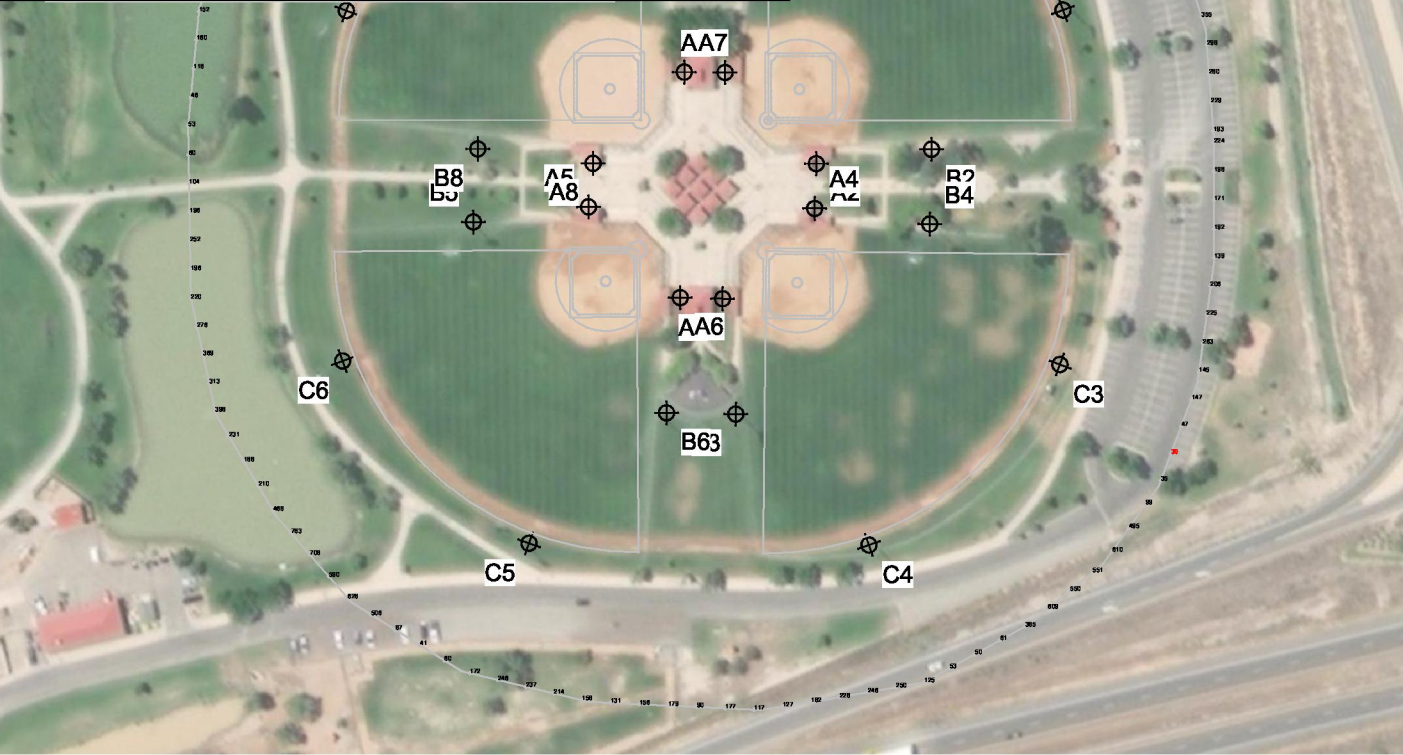


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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	A1, A3, A6 A8	60'	5.54'	65.54'	TLC-LED-1500	2	2	0
				21'	TLC-BT-575	1	1	0
2	A2, A4	60'	4'	19.54'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	A5, A7	60'	5'	20.54'	TLC-BT-575	1	1	0
				65'	TLC-LED-1500	2	2	0
6	B1-B2 B5-B8	70'	0'	15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-1500	6	6	0
2	B3-B4	70'	0'	70'	TLC-LED-1500	6	6	0
				15.54'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
5	C1-C2 C5-C7	70'	0'	15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
				70'	TLC-LED-900	2	2	0
2	C3-C4	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	0'	70'	TLC-LED-900	2	2	0
				15.54'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	0'	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
28	TOTALS					160	160	0



SCALE IN FEET 1 : 200



Pole location(s) ⚡ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY

Name: Complex Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)
Entire Grid
Scan Average: 285.3832
Maximum: 1055.41
Minimum: 29.80
No. of Points: 117
LUMINAIRE INFORMATION
Applied Circuits: A, B, C, D
No. of Luminaires: 160
Total Load: 188.56 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A1	60'	5.5'	21'	TLC-BT-575	1	1	0
				65.5'	TLC-LED-1500	2	2	0
1	A2	60'	4'	19.5'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	B1-B2	70'	-	70'	TLC-LED-1500	6	6	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
2	C1-C2	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
10	TOTALS					58	58	0

Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Soccer Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

Entire Grid
Scan Average: 0.0059
Maximum: 0.02
Minimum: 0.00
No. of Points: 71

LUMINAIRE INFORMATION

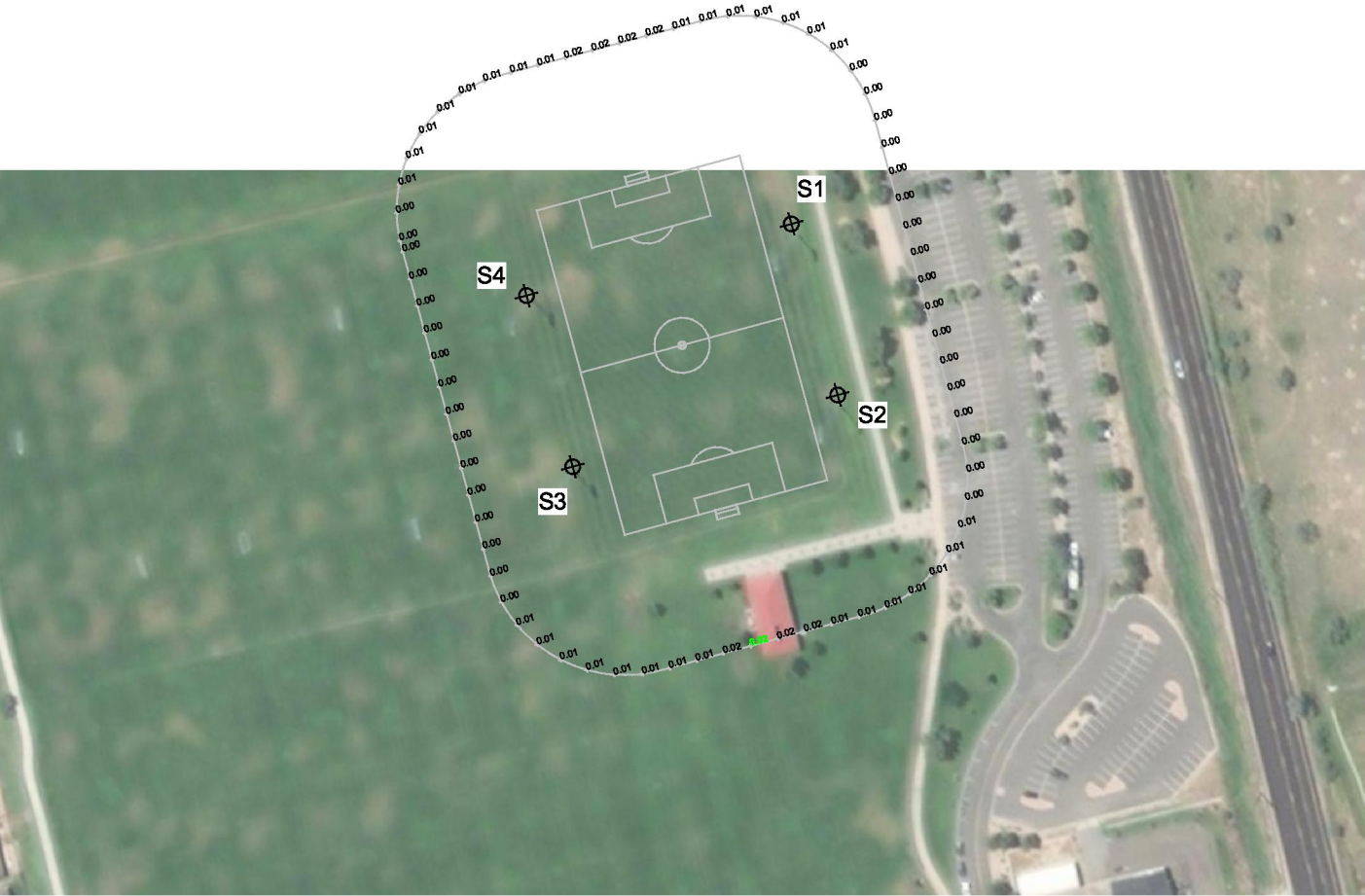
Applied Circuits: A
No. of Luminaires: 58
Total Load: 71.26 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200



Pole location(s) ⦿ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A1	60'	5.5'	21'	TLC-BT-575	1	1	0
				65.5'	TLC-LED-1500	2	2	0
1	A2	60'	4'	19.5'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	B1-B2	70'	-	70'	TLC-LED-1500	6	6	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
2	C1-C2	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
10	TOTALS					58	58	0

Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Soccer Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

Entire Grid
Scan Average: 0.0197
Maximum: 0.07
Minimum: 0.00
No. of Points: 71

LUMINAIRE INFORMATION

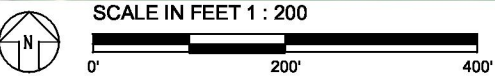
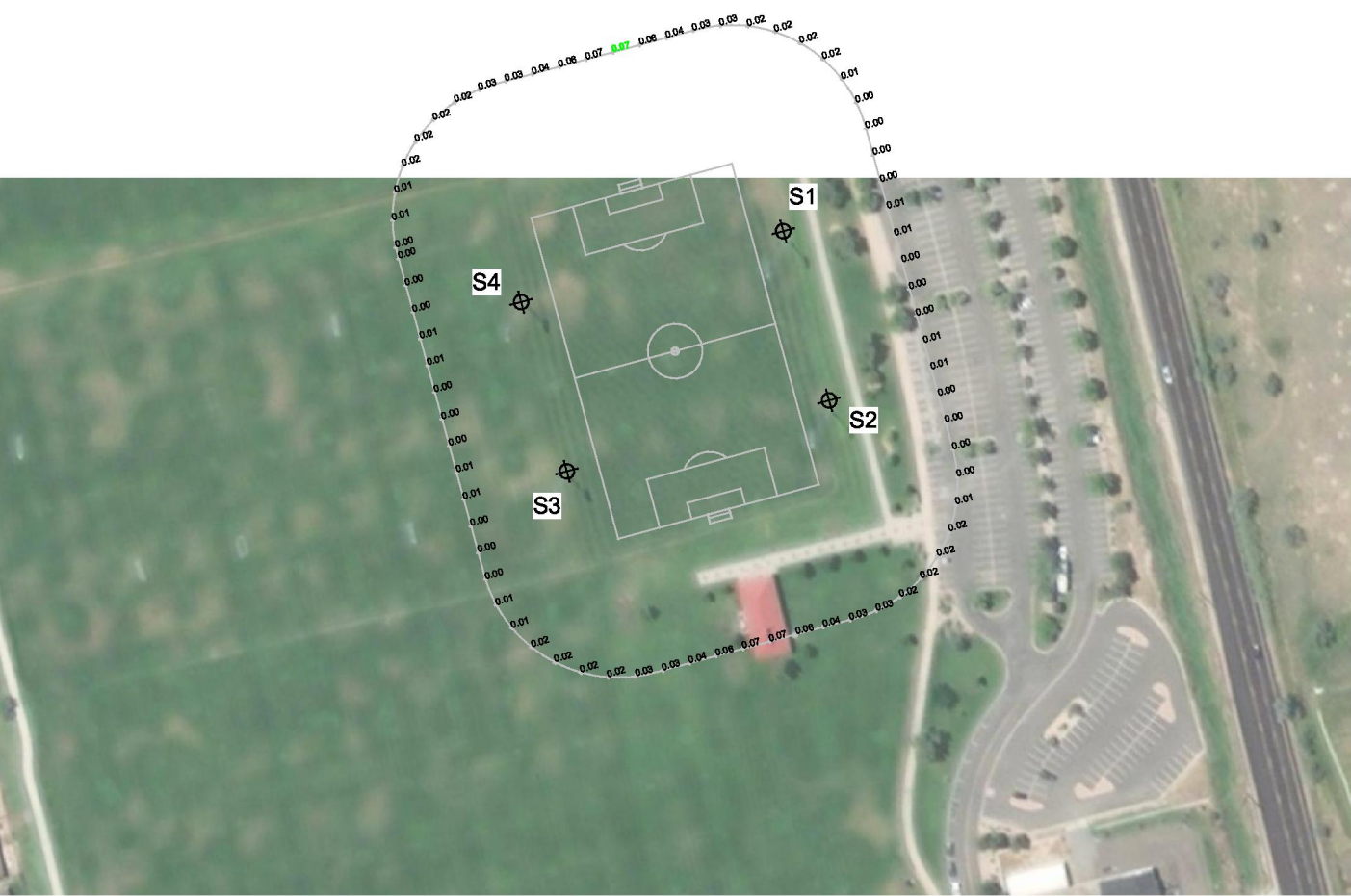
Applied Circuits: A
No. of Luminaires: 58
Total Load: 71.26 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A1	60'	5.5'	21'	TLC-BT-575	1	1	0
				65.5'	TLC-LED-1500	2	2	0
1	A2	60'	4'	19.5'	TLC-BT-575	1	1	0
				64'	TLC-LED-1500	2	2	0
2	B1-B2	70'	-	70'	TLC-LED-1500	6	6	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1200	1	1	0
2	C1-C2	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
10	TOTALS					58	58	0

Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Soccer Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)
Entire Grid
Scan Average: 912.7297
Maximum: 3598.97
Minimum: 1.05
No. of Points: 71

LUMINAIRE INFORMATION

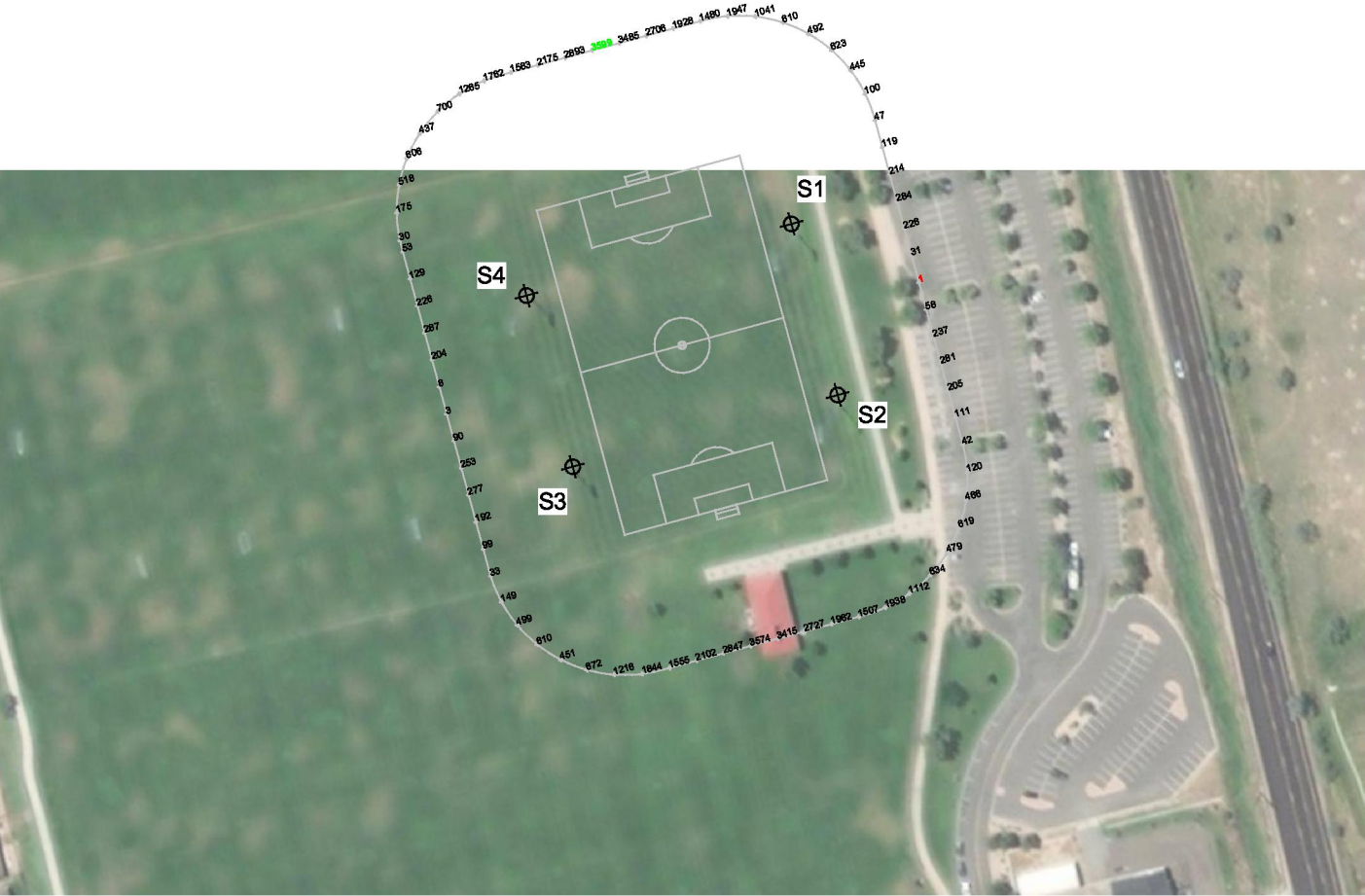
Applied Circuits: A
No. of Luminaires: 58
Total Load: 71.26 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



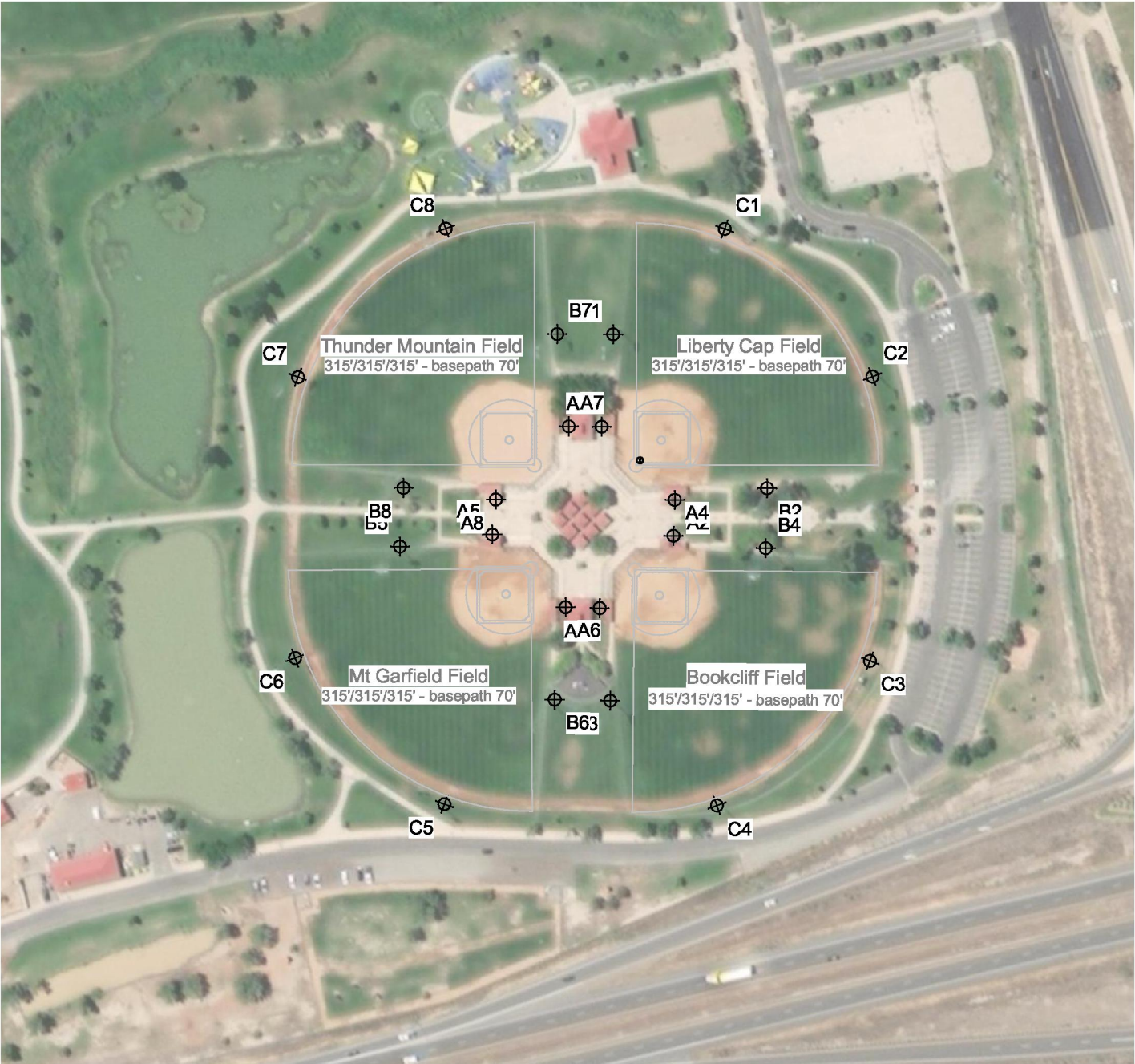
ENGINEERED DESIGN By: Nathan Brown · File #192421D · 28-Apr-21



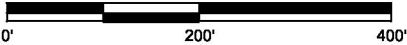
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ILLUMINATION SUMMARY



SCALE IN FEET 1 : 200



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball

Grand Junction, CO

EQUIPMENT LAYOUT

INCLUDES:

- Bookcliff Field
- Liberty Cap Field
- Mt Garfield Field
- Soccer
- Thunder Mountain Field

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

QTY	Pole			Luminaires		
	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	A1	60'	5.54'	21' 65.54'	TLC-BT-575 TLC-LED-1500	1 2
1	A2	60'	4'	19.54' 64'	TLC-BT-575 TLC-LED-1500	1 2
1	A3	60'	5.56'	21.06' 65.56'	TLC-BT-575 TLC-LED-1500	1 2
1	A4	60'	4.06'	19.56' 64.06'	TLC-BT-575 TLC-LED-1500	1 2
1	A5	60'	5'	20.5' 65'	TLC-BT-575 TLC-LED-1500	1 2
1	A6	60'	5.5'	21' 65.5'	TLC-BT-575 TLC-LED-1500	1 2
1	A7	60'	5'	20.52' 65'	TLC-BT-575 TLC-LED-1500	1 2
1	A8	60'	5.52'	21' 65.52'	TLC-BT-575 TLC-LED-1500	1 2
2	B1-B2	70'	0'	70' 15.54' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	6 2 1
2	B3-B4	70'	.06'	70.06' 15.56' 70.06'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	6 2 1
2	B5-B6	70'	-	70' 15.5' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	6 2 1
2	B7-B8	70'	0'	70' 15.52' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	6 2 1
2	C1-C2	70'	0'	70' 15.54' 70'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	2 1 2
2	C3-C4	70'	.06'	70.06' 15.56' 70.06'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	2 1 2
2	C5-C6	70'	-	70' 15.5' 70'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	2 1 2
1	C7	70'	0'	70' 15.52' 70'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	2 1 2
1	C8	70'	0'	70' 15.52' 70'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	2 1 2
4	S1-S4	70'	-	70' 70'	TLC-LED-900 TLC-LED-1500	1 5
28	TOTALS					160

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications Line Amperage Per Luminaire

Canyon View Park Softball
Grand Junction, CO

EQUIPMENT LAYOUT

INCLUDES:

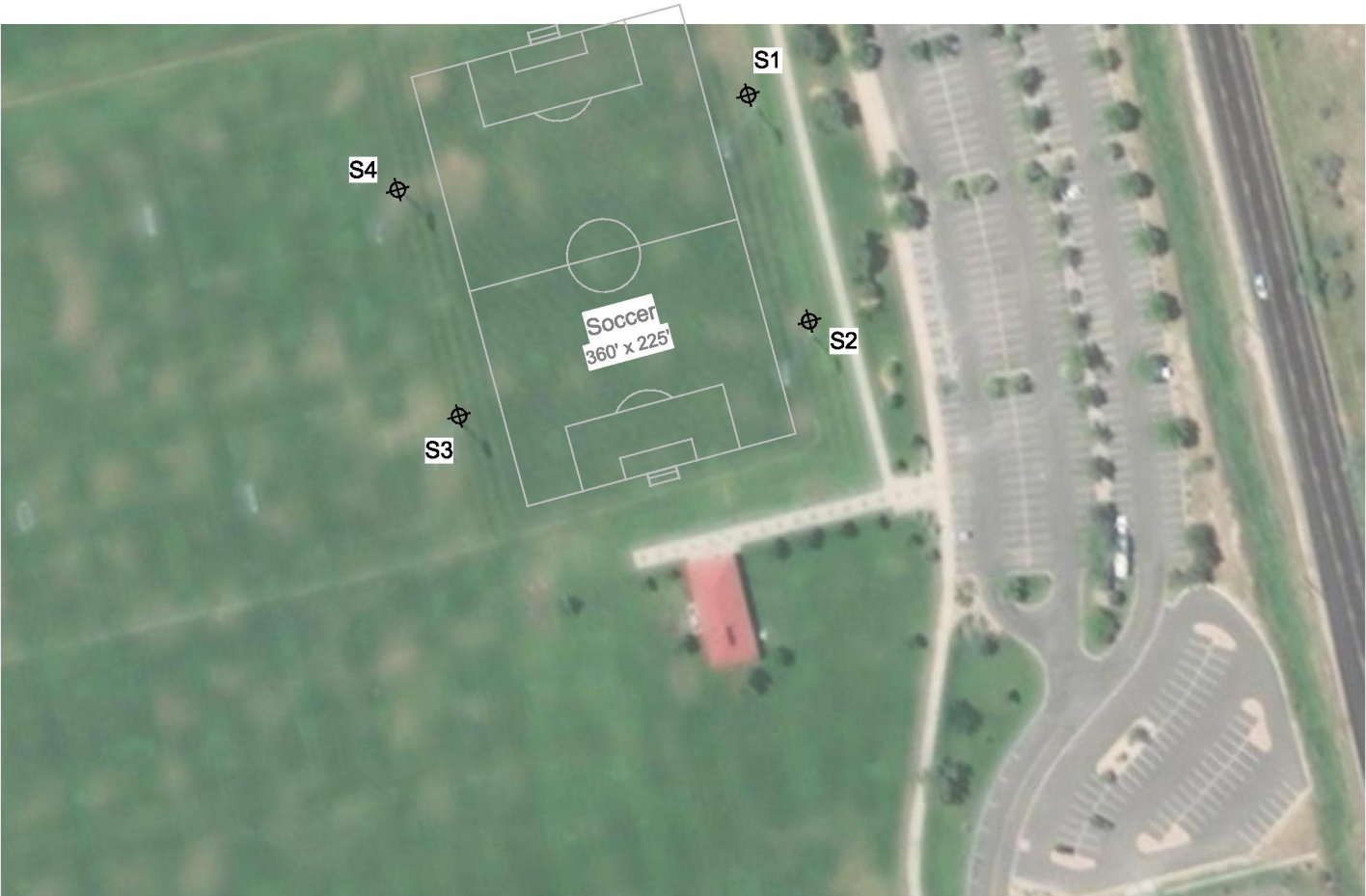
- Bookcliff Field
- Liberty Cap Field
- Mt Garfield Field
- Soccer
- Thunder Mountain Field

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

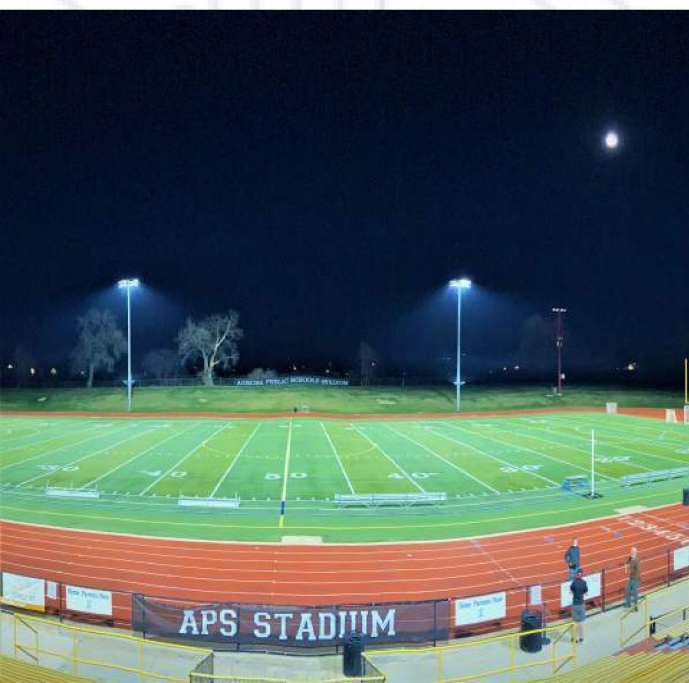
Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	A1	60'	5.54'	21' 65.54'	TLC-BT-575 TLC-LED-1500	1 2
1	A2	60'	4'	19.54' 64'	TLC-BT-575 TLC-LED-1500	1 2
1	A3	60'	5.56'	21.06' 65.56'	TLC-BT-575 TLC-LED-1500	1 2
1	A4	60'	4.06'	19.56' 64.06'	TLC-BT-575 TLC-LED-1500	1 2
1	A5	60'	5'	20.5' 65'	TLC-BT-575 TLC-LED-1500	1 2
1	A6	60'	5.5'	21' 65.5'	TLC-BT-575 TLC-LED-1500	1 2
1	A7	60'	5'	20.52' 65'	TLC-BT-575 TLC-LED-1500	1 2
1	A8	60'	5.52'	21' 65.52'	TLC-BT-575 TLC-LED-1500	1 2
2	B1-B2	70'	0'	70' 15.54'	TLC-LED-1500 TLC-BT-575	6 2
				70'	TLC-LED-1200	1
2	B3-B4	70'	.06'	70.06' 15.56'	TLC-LED-1500 TLC-BT-575	6 2
				70.06'	TLC-LED-1200	1
2	B5-B6	70'	-	70' 15.5'	TLC-LED-1500 TLC-BT-575	6 2
				70'	TLC-LED-1200	1
2	B7-B8	70'	0'	70' 15.52'	TLC-LED-1500 TLC-BT-575	6 2
				70'	TLC-LED-1200	1
2	C1-C2	70'	0'	70' 15.54'	TLC-LED-900 TLC-BT-575	2 1
				70'	TLC-LED-1500	2
2	C3-C4	70'	.06'	70.06' 15.56'	TLC-LED-900 TLC-BT-575	2 1
				70.06'	TLC-LED-1500	2
2	C5-C6	70'	-	70' 15.5'	TLC-LED-900 TLC-BT-575	2 1
				70'	TLC-LED-1500	2
1	C7	70'	0'	70' 15.52'	TLC-LED-900 TLC-BT-575	2 1
				70'	TLC-LED-1500	2
1	C8	70'	0'	70' 15.52'	TLC-LED-900 TLC-BT-575	2 1
				70'	TLC-LED-1500	2
4	S1-S4	70'	-	70' 70'	TLC-LED-900 TLC-LED-1500	1 5
28	TOTALS					160



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

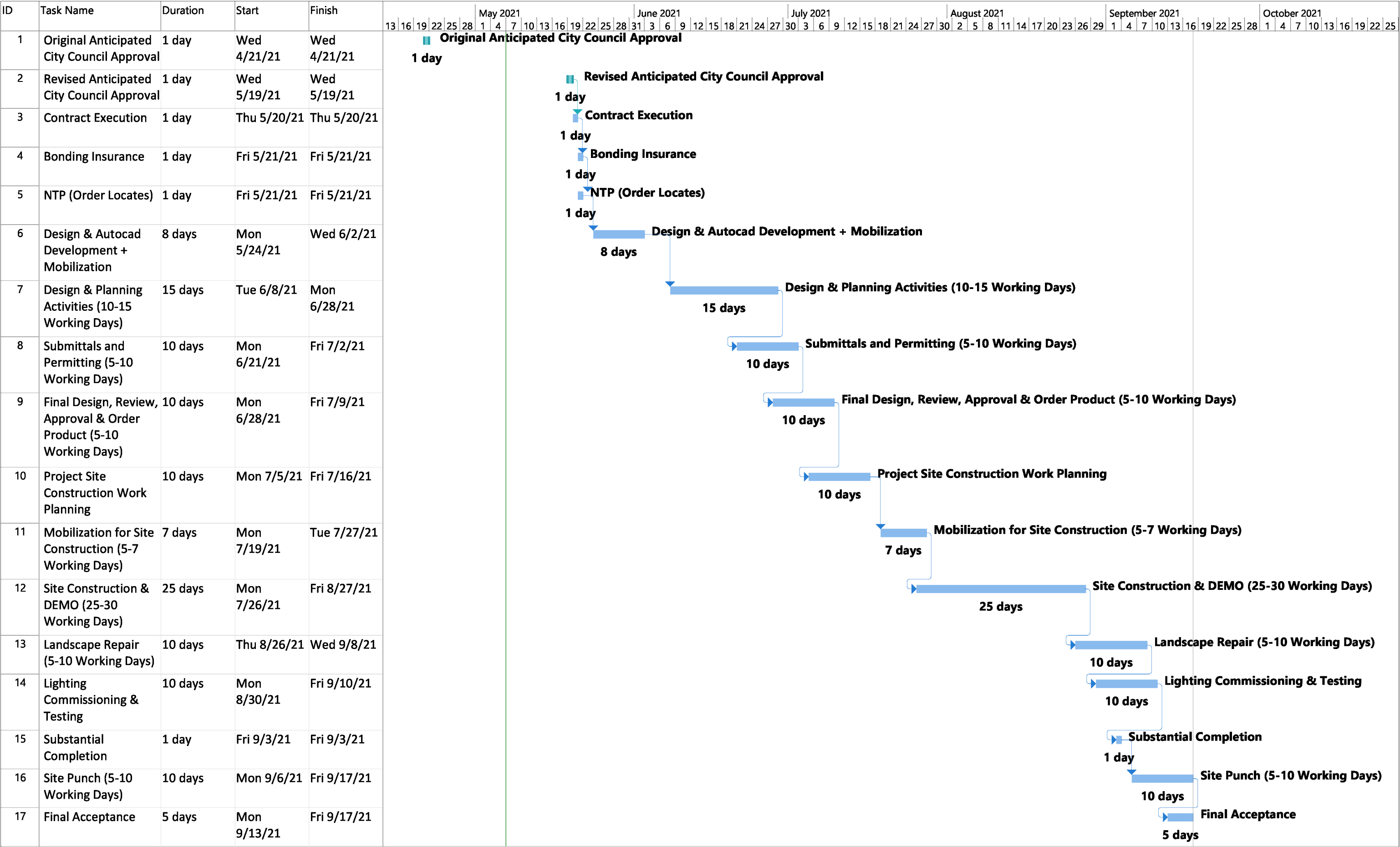
SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications	Line Amperage Per Luminaire
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SCHEDULE







Request for Proposal RFP-4864-21-DH

Design/Build Canyon View Lighting Replacement Project

RESPONSES DUE:

March 18, 2021 Prior to 3:00 PM MST

Accepting Electronic Responses Only

**Responses Only Submitted Through the Rocky Mountain E-Purchasing
System (RMEPS)**

<https://www.rockymountainbidsystem.com/default.asp>

(Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline. 800-835-4603)

IMPORTANT NOTICE:

Due to the recent developments with increased COVID-19 cases in Mesa County, public in-person bid openings are temporarily being suspended. Bid openings will still take place on their designated date and time virtually, and bid tabulations will still be posted for public view/access. Once the crisis has passed, public in-person bid openings will resume as normal. Attached is the virtual link and information to attend the bid opening. Public may addend through the link, or via phone.

PURCHASING REPRESENTATIVE:

Duane Hoff Jr., Senior Buyer

duaneh@gjcity.org

970-244-1545

This solicitation has been developed specifically for a Request for Proposal intended to solicit competitive responses for this solicitation, and may not be the same as previous City of Grand Junction solicitations. All offerors are urged to thoroughly review this solicitation prior to submitting. Submittal by **FAX, EMAIL or HARD COPY IS NOT ACCEPTABLE** for this solicitation.

REQUEST FOR PROPOSAL

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6.0	Evaluation Criteria and Factors
7.0	Solicitation Response Form
	Attachments

REQUEST FOR PROPOSAL

SECTION 1.0: ADMINISTRATIVE INFORMATION & CONDITIONS FOR SUBMITTAL

- 1.1 Issuing Office:** This Request for Proposal (RFP) is issued by the City of Grand Junction. All contact regarding this RFP shall be directed to:

RFP Questions:

Duane Hoff Jr., Senior Buyer

duaneh@gjcity.org

The City would like to remind all Contractors, Sub-Contractors, Vendors, Suppliers, Manufacturers, Service Providers, etc. that (with the exception of Pre-Bid or Site Visit Meetings) all questions, inquiries, comments, or communication pertaining to any formal solicitation (whether process, specifications, scope, etc.) must be directed (in writing) to the Purchasing Agent assigned to the project, or Purchasing Division. Direct communication with the City assigned Project Managers/Engineers is not appropriate for public procurement, and may result in disqualification.

- 1.2 Purpose:** The purpose of this RFP is to obtain proposals from qualified and professional firms/contractors specializing in the design and installation of modern, energy efficient, lighting systems for sports facilities, in order to replace the current field lighting system at Grand Junction's Canyon View Park. This will include removal and disposal of 28 light poles (including foundations and fixtures) and designing and installing a new state of the art field lighting system for four (4) softball fields and one (1) soccer field. The proposed design shall be all inclusive and turn-key, to include, but not be limited to: all necessary and required design services, installation of new foundations, poles, fixtures, electrical, controls, connectivity, training, all permitting necessary, etc.
- 1.3 Mandatory Site Visit Meeting:** Interested Firms/Contractors are required to attend a mandatory site visit meeting. The purpose of this site visit meeting will be to inspect and to clarify the contents of this Request for Proposal (RFP). The site visit meeting shall take place on March 3, 2021 at 10:00am at the west entrance to Canyon View Park, located at 730 24 Road, Grand Junction, CO. Nothing stated during the site visit meeting will modify the solicitation. Only information provided in an addendum can modify the solicitation.
- 1.4 The Owner:** The Owner is the City of Grand Junction, Colorado and is referred to throughout this Solicitation. The term Owner means the Owner or his authorized representative.
- 1.5 Procurement Process:** Procurement processes shall be governed by the most current version of the City of Grand Junction [Purchasing Policy and Procedure Manual](#).
- 1.6 Compliance:** All participating Offerors, by their signature hereunder, shall agree to comply with all conditions, requirements, and instructions of this RFP as stated or implied herein. Should the Owner omit anything from this packet which is necessary to the clear understanding of the requirements, or should it appear that various instructions are in conflict, the Offeror(s) shall secure instructions from the Purchasing Division prior to the date and time of the submittal deadline shown in this RFP.

- 1.7 **Submission:** Please refer to section 5.0 for what is to be included. ***Each proposal shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (<https://www.rockymountainbidsystem.com/default.asp>). This site offers both “free” and “paying” registration options that allow for full access of the Owner’s documents and for electronic submission of proposals. (Note: “free” registration may take up to 24 hours to process. Please Plan accordingly.)*** Please view our “**Electronic Vendor Registration Guide**” at <https://co-grandjunction.civicplus.com/501/Purchasing-Bids> for details. For proper comparison and evaluation, the City requests that proposals be formatted as directed in Section 5.0 “Preparation and Submittal of Proposals.” Submittals received that fail to follow this format may be ruled non-responsive. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline. **800-835-4603**)

Please join Solicitation Opening, RFP-4864-21-DH, Design/Build Canyon View Lighting Replacement Project on GoToConnect from your computer using the Chrome browser.
<https://my.jive.com/meet/898231565>

You can also dial in using your phone.
US: (571) 317-3129

Access Code: 898-231-565

- 1.8 **Altering Proposals:** Any alterations made prior to opening date and time must be initialed by the signer of the proposal, guaranteeing authenticity. Proposals cannot be altered or amended after submission deadline.
- 1.9 **Withdrawal of Proposal:** A proposal must be firm and valid for award and may not be withdrawn or canceled by the Offeror for sixty (60) days following the submittal deadline date, and only prior to award. The Offeror so agrees upon submittal of their proposal. After award this statement is not applicable.
- 1.10 **Addenda:** All Questions shall be submitted in writing to the appropriate person as shown in Section 1.1. Any interpretations, corrections and changes to this RFP or extensions to the opening/receipt date shall be made by a written Addendum to the RFP by the Owner. Sole authority to authorize addenda shall be vested in the City of Grand Junction Purchasing Representative. Addenda will be issued electronically through the Rocky Mountain E-Purchasing website at www.rockymountainbidsystem.com and <https://co-grandjunction.civicplus.com/501/Purchasing-Bids> Offerors shall acknowledge receipt of all addenda in their proposal.
- 1.11 **Exceptions and Substitutions:** All proposals meeting the intent of this RFP shall be considered for award. Offerors taking exception to the specifications shall do so at their own risk. The Owner reserves the right to accept or reject any or all substitutions or alternatives. When offering substitutions and/or alternatives, Offeror must state these exceptions in the section pertaining to that area. Exception/substitution, if accepted, must meet or exceed the stated intent and/or specifications. The absence of such a list shall indicate that the Offeror has not taken exceptions, and if awarded a contract, shall hold the

Offeror responsible to perform in strict accordance with the specifications or scope of work contained herein.

- 1.12 Confidential Material:** All materials submitted in response to this RFP shall ultimately become public record and shall be subject to inspection after contract award. **“Proprietary or Confidential Information”** is defined as any information that is not generally known to competitors and which provides a competitive advantage. Unrestricted disclosure of proprietary information places it in the public domain. Only submittal information clearly identified with the words **“Confidential Disclosure”** and uploaded as a separate document shall establish a confidential, proprietary relationship. Any material to be treated as confidential or proprietary in nature must include a justification for the request. The request shall be reviewed and either approved or denied by the Owner. If denied, the proposer shall have the opportunity to withdraw its entire proposal, or to remove the confidential or proprietary restrictions. Neither cost nor pricing information nor the total proposal shall be considered confidential or proprietary
- 1.13 Response Material Ownership:** All proposals become the property of the Owner upon receipt and shall only be returned to the proposer at the Owner’s option. Selection or rejection of the proposal shall not affect this right. The Owner shall have the right to use all ideas or adaptations of the ideas contained in any proposal received in response to this RFP, subject to limitations outlined in the section titled “Confidential Material”. Disqualification of a proposal does not eliminate this right.
- 1.14 Minimal Standards for Responsible Prospective Offerors:** A prospective Offeror must affirmably demonstrate their responsibility. A prospective Offeror must meet the following requirements:
- Have adequate financial resources, or the ability to obtain such resources as required.
 - Be able to comply with the required or proposed completion schedule.
 - Have a satisfactory record of performance.
 - Have a satisfactory record of integrity and ethics.
 - Be otherwise qualified and eligible to receive an award and enter into a contract with the Owner.
- 1.15 Nonconforming Terms and Conditions:** A proposal that includes terms and conditions that do not conform to the terms and conditions of this Request for Proposal is subject to rejection as non-responsive. The Owner reserves the right to permit the Offeror to withdraw nonconforming terms and conditions from its proposal prior to a determination by the Owner of non-responsiveness based on the submission of nonconforming terms and conditions
- 1.16 Open Records:** All proposals shall be open for public inspection after the contract is awarded. Trade secrets and confidential information contained in the proposal so identified by offer as such shall be treated as confidential by the Owner to the extent allowable in the Open Records Act.
- 1.17 Sales Tax:** City of Grand Junction is, by statute, exempt from the State Sales Tax and Federal Excise Tax; therefore, all fees shall not include taxes.

- 1.18 Public Opening:** Proposals shall be opened in the City Hall Auditorium, 250 North 5th Street, Grand Junction, CO 81501, immediately following the proposal deadline. Offerors, their representatives and interested persons may be present. Only the names and locations on the proposing firms will be disclosed.

SECTION 2.0: GENERAL CONTRACT TERMS AND CONDITIONS

- 2.1. Acceptance of RFP Terms:** A proposal submitted in response to this RFP shall constitute a binding offer. Acknowledgment of this condition shall be indicated on the Cover Letter by the Offeror or an officer of the Offeror legally authorized to execute contractual obligations. A submission in response to the RFP acknowledges acceptance by the Offeror of all terms and conditions, as set forth herein. An Offeror shall identify clearly and thoroughly any variations between its proposal and the Owner's RFP requirements. Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms of performance, except as outlined or specified in the RFP.
- 2.2. Execution, Correlation, Intent, and Interpretations:** The Contract Documents shall be signed by the Owner and Contractor. By executing the contract, the Contractor represents that they have familiarized themselves with the local conditions under which the Work is to be performed and correlated their observations with the requirements of the Contract Documents. The Contract Documents are complementary, and what is required by any one, shall be as binding as if required by all. The intention of the documents is to include all labor, materials, equipment, services and other items necessary for the proper execution and completion of the scope of work as defined in the technical specifications and drawings contained herein. All drawings, specifications and copies furnished by the Owner are, and shall remain, Owner property. They are not to be used on any other project.
- 2.3. Permits, Fees, & Notices:** The Contractor shall secure and pay for all permits, fees and licenses necessary for the proper execution and completion of the work. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the work. If the Contractor observes that any of the Contract Documents are at variance in any respect, Contractor shall promptly notify the Owner in writing, and any necessary changes shall be adjusted by change order/amendment. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, Contractor shall assume full responsibility and shall bear all costs attributable.
- 2.4. Warranty:** The Contractor warrants to the Owner that all materials and equipment furnished under this contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards may be considered defective. If required by Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. If within ten (10) days after written notice to the Contractor requesting such repairs or replacement, the Contractor should neglect to make or undertake with due diligence to the same, the City may make such repairs or replacements. All indirect and direct costs of such correction or removal or replacement shall be at the Contractor's expense. The Contractor will also bear the expenses of making good all work of others destroyed or damaged by the correction, removal or replacement of his defective work.

- 2.5. Quantities of Work and Unit Price:** Materials or quantities stated as unit price items in the Bid are supplied only to give an indication of the general scope of the Work. The City does not expressly or by implication agree that the actual amount of Work or material will correspond therewith, and reserves the right after award to increase or decrease the quantity of any unit item of the Work without a change in the unit price. The City also reserves the right to make changes in the Work including the right to delete any bid item in its entirety or add additional bid items.
- 2.6. Responsibility for those Performing the Work:** The Contractor shall be responsible to the Owner for the acts and omissions of all their employees and all other persons performing any of the work under a contract with the Contractor.
- 2.7. Use of the Site:** The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents, and shall not unreasonably encumber the site with any materials or equipment.
- 2.8. Cleanup:** The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by their operations. At the completion of work they shall remove all their waste materials and rubbish from and about the project, as well as all their equipment and surplus materials.
- 2.9. Payment & Completion:** The Contract Sum is stated in the Contract and is the total amount payable by the Owner to the Contractor for the performance of the work under the Contract Documents. Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of application for payment, the Owner's Project Manager will promptly make such inspection and, when Owner finds the work acceptable under the Contract Documents and the Contract fully performed, the Owner shall make payment in the manner provided in the Contract Documents. Partial payments will be based upon estimates, prepared by the Contractor, of the value of Work performed and materials placed in accordance with the Contract Documents.
- 2.10. Bid Bond:** Each Bid shall as a guaranty of good faith on the part of the Bidder be accompanied by a Bid Guaranty consisting of: a certified or cashier's check drawn on an approved national bank or trust company in the state of Colorado, and made payable without condition to the City; or a **Bid Bond** written by an approved corporate surety in favor of the City. The amount of the Bid Guaranty shall not be less than 5% of the total Bid amount. Once a Bid is accepted and a Contract is awarded, the apparent successful bidder has ten calendar days to enter into a contract in the form prescribed and to furnish the bonds with a legally responsible and approved surety. Failure to do so will result in forfeiture of the Bid Guaranty to the City as Liquidated Damages.

Each bidder shall guaranty its total bid price for a period of sixty (60) Calendar Days from the date of the bid opening.

- 2.11. Performance & Payment Bonds:** Contractor shall furnish a Performance and a Payment Bond, each in an amount at least equal to that specified for the contract amount as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These bonds shall remain in effect for the duration of the Warranty Period (as

specified in the Special Conditions). Contractor shall also furnish other bonds that may be required by the Special Conditions. All bonds shall be in the forms prescribed by the Contract Documents and be executed by such sureties as (1) are licensed to conduct business in the State of Colorado and (2) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of the Authority Act. If the surety on any bond furnished by the Contractor is declared bankrupt, or becomes insolvent, or its rights to do business in Colorado are terminated, or it ceases to meet the requirements of clauses (1) and (2) of this section, Contractor shall within five (5) days thereafter substitute another bond and surety, both of which shall be acceptable to the City.

2.12. Retention: The Owner will deduct money from the partial payments in amounts considered necessary to protect the interest of the Owner and will retain this money until after completion of the entire contract. The amount to be retained from partial payments will be five (5) percent of the value of the completed work, and not greater than five (5) percent of the amount of the Contract. When the retainage has reached five (5) percent of the amount of the Contract no further retainage will be made and this amount will be retained until such time as final payment is made.

2.13. Liquidated Damages for Failure to Meet Project Completion Schedule: If the Contractor does not achieve Final Completion by the required date, whether by neglect, refusal or any other reason, the parties agree and stipulate that the Contractor shall pay liquidated damages to the City for each such day that final completion is late. As provided elsewhere, this provision does not apply for delays caused by the City. The date for Final Completion may be extended in writing by the Owner.

The Contractor agrees that as a part of the consideration for the City's awarding of this Contract liquidated damages in the daily amount of **\$1,000.00** is reasonable and necessary to pay for the actual damages resulting from such delay. The parties agree that the real costs and injury to the City for such delay include hard to quantify items such as: additional engineering, inspection and oversight by the City and its agents; additional contract administration; inability to apply the efforts of those employees to the other work of the City; perceived inefficiency of the City; citizens having to deal with the construction and the Work, rather than having the benefit of a completed Work, on time; inconvenience to the public; loss of reputation and community standing for the City during times when such things are very important and very difficult to maintain.

The Contractor must complete the Work and achieve final completion included under the Bid Schedule in the number of consecutive calendar days after the City gives its written Notice to Proceed. When the Contractor considers the entire Work ready for its intended use, Contractor shall certify in writing that the Work is substantially complete. In addition to the Work being substantially complete, Final Completion date is the date by which the Contractor shall have fully completed all clean-up, and all items that were identified by the City in the inspection for final completion. Unless otherwise stated in the Special Conditions, for purposes of this liquidated damages clause, the Work shall not be finished and the Contract time shall continue to accrue until the City gives its written Final Acceptance.

If the Contractor shall fail to pay said liquidated damages promptly upon demand thereof after having failed to achieve Final Completion on time, the City shall first look to any retainage or other funds from which to pay said liquidated damages; if retainage or other liquid funds are not available to pay said liquidated damages amounts, the Surety on the Contractor's Performance Bond and Payment Bond shall pay such liquidated damages. In addition, the City may withhold all, or any part of, such liquidated damages from any payment otherwise due the Contractor.

Liquidated damages as provided do not include any sums to reimburse the City for extra costs which the City may become obligated to pay on other contracts which were delayed or extended because of the Contractor's failure to complete the Work within the Contract Time. Should the City incur additional costs because of delays or extensions to other contracts resulting from the Contractor's failure of timely performance, the Contractor agrees to pay these costs that the City incurs because of the Contractor's delay, and these payments are separate from and in addition to any liquidated damages.

The Contractor agrees that the City may use its own forces or hire other parties to obtain Substantial or Final Completion of the work if the time of completion has elapsed and the Contractor is not diligently pursuing completion. In addition to the Liquidated Damages provided for, the Contractor agrees to reimburse the City for all expenses thus incurred.

- 2.14. Contingency/Force Account:** Contingency/Force Account work will be authorized by the Owner's Project Manager and is defined as minor expenses to cover miscellaneous or unforeseen expenses related to the project. The expenses are not included in the Drawings, Specifications, or Scope of Work and are necessary to accomplish the scope of this contract. Contingency/Force Account Authorization will be directed by the Owner through an approved form. Contingency/Force Account funds are the property of the Owner and any Contingency/Force Account funds, not required for project completion, shall remain the property of the Owner. Contractor is not entitled to any Contingency/Force Account funds, that are not authorized by Owner or Owner's Project Manager.
- 2.15. Protection of Persons & Property:** The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. Contractor shall erect and maintain, as required by existing safeguards for safety and protection, and all reasonable precautions, including posting danger signs or other warnings against hazards promulgating safety regulations and notifying owners and users of adjacent utilities. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct by the Contractor in the execution of the work, or in consequence of the non-execution thereof by the Contractor, they shall restore, at their own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or it shall make good such damage or injury in an acceptable manner.
- 2.16. Changes in the Work:** The Owner, without invalidating the contract, may order changes in the work within the general scope of the contract consisting of additions, deletions or other revisions. All such changes in the work shall be authorized by Change Order and shall be executed under the applicable conditions of the contract documents. A Change

Order is a written order to the Contractor signed by the Owner issued after the execution of the contract, authorizing a change in the work or an adjustment in the contract sum or the contract time.

- 2.17. Minor Changes in the Work:** The Owner shall have authority to order minor changes in the work not involving an adjustment in the contract sum or an extension of the contract time and not inconsistent with the intent of the contract documents.
- 2.18. Uncovering & Correction of Work:** The Contractor shall promptly correct all work found by the Owner as defective or as failing to conform to the contract documents. The Contractor shall bear all costs of correcting such rejected work, including the cost of the Owner's additional services thereby made necessary. The Owner shall give such notice promptly after discovering of condition. All such defective or non-conforming work under the above paragraphs shall be removed from the site where necessary and the work shall be corrected to comply with the contract documents without cost to the Owner.
- 2.19. Acceptance Not Waiver:** The Owner's acceptance or approval of any work furnished hereunder shall not in any way relieve the proposer of their present responsibility to maintain the high quality, integrity and timeliness of his work. The Owner's approval or acceptance of, or payment for, any services shall not be construed as a future waiver of any rights under this Contract, or of any cause of action arising out of performance under this Contract.
- 2.20. Change Order/Amendment:** No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders/amendments to the contract shall be made in writing by the Owner Purchasing Division.
- 2.21. Assignment:** The Offeror shall not sell, assign, transfer or convey any contract resulting from this RFP, in whole or in part, without the prior written approval from the Owner.
- 2.22. Compliance with Laws:** Proposals must comply with all Federal, State, County and local laws governing or covering this type of service and the fulfillment of all ADA (Americans with Disabilities Act) requirements. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law.
- 2.23. Debarment/Suspension:** The Contractor hereby certifies that the Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Governmental department or agency.
- 2.24. Confidentiality:** All information disclosed by the Owner to the Contractor for the purpose of the work to be done or information that comes to the attention of the Contractor during the course of performing such work is to be kept strictly confidential.
- 2.25. Conflict of Interest:** No public official and/or Owner employee shall have interest in any contract resulting from this RFP.

- 2.26. Contract:** This Request for Proposal, submitted documents, and any negotiations, when properly accepted by the Owner, shall constitute a contract equally binding between the Owner and Offeror. The contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the Proposal documents. The contract may be amended or modified with Change Orders, Field Orders, or Amendment.
- 2.27. Project Manager/Administrator:** The Project Manager, on behalf of the Owner, shall render decisions in a timely manner pertaining to the work proposed or performed by the Offeror. The Project Manager shall be responsible for approval and/or acceptance of any related performance of the Scope of Work.
- 2.28. Cancellation of Solicitation:** Any solicitation may be canceled by the Owner or any solicitation response by a vendor may be rejected in whole or in part when it is in the best interest of the Owner.
- 2.29. Contract Termination:** This contract shall remain in effect until any of the following occurs: (1) contract expires; (2) completion of services; (3) acceptance of services or, (4) for convenience terminated by either party with a written *Notice of Cancellation* stating therein the reasons for such cancellation and the effective date of cancellation at least thirty days past notification.
- 2.30. Employment Discrimination:** During the performance of any services per agreement with the Owner, the Offeror, by submitting a Proposal, agrees to the following conditions:
- 2.30.1.** The Offeror shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, disability, citizenship status, marital status, veteran status, sexual orientation, national origin, or any legally protected status except when such condition is a legitimate occupational qualification reasonably necessary for the normal operations of the Offeror. The Offeror agrees to post in conspicuous places, visible to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
 - 2.30.2.** The Offeror, in all solicitations or advertisements for employees placed by or on behalf of the Offeror, shall state that such Offeror is an Equal Opportunity Employer.
 - 2.30.3.** Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
- 2.31. Immigration Reform and Control Act of 1986 and Immigration Compliance:** The Offeror certifies that it does not and will not during the performance of the contract employ illegal alien workers or otherwise violate the provisions of the Federal Immigration Reform and Control Act of 1986 and/or the immigration compliance requirements of State of Colorado C.R.S. § 8-17.5-101, *et seq.* (House Bill 06-1343).
- 2.32. Ethics:** The Offeror shall not accept or offer gifts or anything of value nor enter into any business arrangement with any employee, official, or agent of the Owner.

- 2.33. Failure to Deliver:** In the event of failure of the Offeror to deliver services in accordance with the contract terms and conditions, the Owner, after due oral or written notice, may procure the services from other sources and hold the Offeror responsible for any costs resulting in additional purchase and administrative services. This remedy shall be in addition to any other remedies that the Owner may have.
- 2.34. Failure to Enforce:** Failure by the Owner at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the Owner to enforce any provision at any time in accordance with its terms.
- 2.35. Force Majeure:** The Offeror shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions, and acts of God beyond the control of the Offeror, unless otherwise specified in the contract.
- 2.36. Indemnification:** Offeror shall defend, indemnify and save harmless the Owner and all its officers, employees, insurers, and self-insurance pool, from and against all liability, suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the Offeror, or of any Offeror's agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from proposal award. Offeror shall pay any judgment with cost which may be obtained against the Owner growing out of such injury or damages.
- 2.37. Independent Firm:** The Offeror shall be legally considered an Independent Firm and neither the Firm nor its employees shall, under any circumstances, be considered servants or agents of the Owner. The Owner shall be at no time legally responsible for any negligence or other wrongdoing by the Firm, its servants, or agents. The Owner shall not withhold from the contract payments to the Firm any federal or state unemployment taxes, federal or state income taxes, Social Security Tax or any other amounts for benefits to the Firm. Further, the Owner shall not provide to the Firm any insurance coverage or other benefits, including Workers' Compensation, normally provided by the Owner for its employees.
- 2.38. Ownership:** All plans, prints, designs, concepts, etc., shall become the property of the Owner.
- 2.39. Oral Statements:** No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this document and/or resulting agreement. All modifications to this request and any agreement must be made in writing by the Owner.
- 2.40. Patents/Copyrights:** The Offeror agrees to protect the Owner from any claims involving infringements of patents and/or copyrights. In no event shall the Owner be liable to the Offeror for any/all suits arising on the grounds of patent(s)/copyright(s) infringement. Patent/copyright infringement shall null and void any agreement resulting from response to this RFP.
- 2.41. Remedies:** The Offeror and Owner agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

- 2.42. Venue:** Any agreement as a result of responding to this RFP shall be deemed to have been made in, and shall be construed and interpreted in accordance with, the laws of the City of Grand Junction, Mesa County, Colorado.
- 2.43. Expenses:** Expenses incurred in preparation, submission and presentation of this RFP are the responsibility of the company and can not be charged to the Owner.
- 2.44. Sovereign Immunity:** The Owner specifically reserves its right to sovereign immunity pursuant to Colorado State Law as a defense to any action arising in conjunction to this agreement.
- 2.45. Public Funds/Non-Appropriation of Funds:** Funds for payment have been provided through the Owner's budget approved by the City Council/Board of County Commissioners for the stated fiscal year only. State of Colorado statutes prohibit the obligation and expenditure of public funds beyond the fiscal year for which a budget has been approved. Therefore, anticipated orders or other obligations that may arise past the end of the stated Owner's fiscal year shall be subject to budget approval. Any contract will be subject to and must contain a governmental non-appropriation of funds clause.
- 2.46. Collusion Clause:** Each Offeror by submitting a proposal certifies that it is not party to any collusive action or any action that may be in violation of the Sherman Antitrust Act. Any and all proposals shall be rejected if there is evidence or reason for believing that collusion exists among the proposers. The Owner may or may not, at the discretion of the Owner Purchasing Representative, accept future proposals for the same service or commodities for participants in such collusion.
- 2.47. Gratuities:** The Contractor certifies and agrees that no gratuities or kickbacks were paid in connection with this contract, nor were any fees, commissions, gifts or other considerations made contingent upon the award of this contract. If the Contractor breaches or violates this warranty, the Owner may, at their discretion, terminate this contract without liability to the Owner.
- 2.48. OSHA Standards:** All Offerors agree and warrant that services performed in response to this invitation shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970 (OSHA). In the event the services do not conform to OSHA Standards, the Owner may require the services to be redone at no additional expense to the Owner.
- 2.49. Performance of the Contract:** The Owner reserves the right to enforce the performance of the contract in any manner prescribed by law or deemed to be in the best interest of the Owner in the event of breach or default of resulting contract award.
- 2.50. Benefit Claims:** The Owner shall not provide to the Contractor any insurance coverage or other benefits, including Worker's Compensation, normally provided by the Owner for its employees.
- 2.51. Default:** The Owner reserves the right to terminate the contract immediately in the event the Contractor fails to meet delivery or completion schedules, or otherwise perform in accordance with the accepted proposal. Breach of contract or default authorizes the Owner

to purchase like services elsewhere and charge the full increase in cost to the defaulting Contractor.

2.52. Multiple Offers: Proposers must determine for themselves which product or service to offer. If said proposer chooses to submit more than one offer, THE ALTERNATE OFFER must be clearly marked "Alternate Proposal". The Owner reserves the right to make award in the best interest of the Owner.

2.53. Cooperative Purchasing: Purchases as a result of this solicitation are primarily for the Owner. Other governmental entities may be extended the opportunity to utilize the resultant contract award with the agreement of the successful provider and the participating agencies. All participating entities will be required to abide by the specifications, terms, conditions and pricings established in this Proposal. The quantities furnished in this proposal document are for only the Owner. It does not include quantities for any other jurisdiction. The Owner will be responsible only for the award for our jurisdiction. Other participating entities will place their own awards on their respective Purchase Orders through their purchasing office or use their purchasing card for purchase/payment as authorized or agreed upon between the provider and the individual entity. The Owner accepts no liability for payment of orders placed by other participating jurisdictions that choose to piggy-back on our solicitation. Orders placed by participating jurisdictions under the terms of this solicitation will indicate their specific delivery and invoicing instructions.

2.54. Definitions:

2.54.1. "Offeror" and/or "Proposer" refers to the person or persons legally authorized by the Consultant to make an offer and/or submit a response (fee) proposal in response to the Owner's RFP.

2.54.2. The term "Work" includes all labor, materials, equipment, and/or services necessary to produce the requirements of the Contract Documents.

2.54.3. "Contractor" is the person, organization, firm or consultant identified as such in the Agreement and is referred to throughout the Contract Documents. The term Contractor means the Contractor or his authorized representative. The Contractor shall carefully study and compare the General Contract Conditions of the Contract, Specification and Drawings, Scope of Work, Addenda and Modifications and shall at once report to the Owner any error, inconsistency or omission he may discover. Contractor shall not be liable to the Owner for any damage resulting from such errors, inconsistencies or omissions. The Contractor shall not commence work without clarifying Drawings, Specifications, or Interpretations.

2.54.4. "Sub-Contractor" is a person or organization who has a direct contract with the Contractor to perform any of the work at the site. The term sub-contractor is referred to throughout the contract documents and means a sub-contractor or his authorized representative.

2.55. Public Disclosure Record: If the Proposer has knowledge of their employee(s) or sub-proposers having an immediate family relationship with an Owner employee or elected official, the proposer must provide the Purchasing Representative with the name(s) of these individuals. These individuals are required to file an acceptable "Public Disclosure Record", a statement of financial interest, before conducting business with the Owner.

2.56. Keep Jobs in Colorado Act: Contractor shall be responsible for ensuring compliance with Article 17 of Title 8, Colorado Revised Statutes requiring 80% Colorado labor to be employed on public works. Contractor shall, upon reasonable notice provided by the Owner, permit the Owner to inspect documentation of identification and residency required by C.R.S. §8-17-101(2)(a). If Contractor claims it is entitled to a waiver pursuant to C.R.S. §8-17-101(1), Contractor shall state that there is insufficient Colorado labor to perform the work such that compliance with Article 17 would create an undue burden that would substantially prevent a project from proceeding to completion, and shall include evidence demonstrating the insufficiency and undue burden in its response.

Unless expressly granted a waiver by the Owner pursuant to C.R.S. §8-17-101(1), Contractor shall be responsible for ensuring compliance with Article 17 of Title 8, Colorado Revised Statutes requiring 80% Colorado labor to be employed on public works. Contractor shall, upon reasonable notice provided by the Owner, permit the Owner to inspect documentation of identification and residency required by C.R.S. §8-17-101(2)(a).

2.56.1. "Public Works project" is defined as:

- (a) any construction, alteration, repair, demolition, or improvement of any land, building, structure, facility, road, highway, bridge, or other public improvement suitable for and intended for use in the promotion of the public health, welfare, or safety and any maintenance programs for the upkeep of such projects
- (b) for which appropriate or expenditure of moneys may be reasonably expected to be \$500,000.00 or more in the aggregate for any fiscal year
- (c) except any project that receives federal moneys.

SECTION 3.0: INSURANCE REQUIREMENTS

Insurance Requirements: The selected Contractor agrees to procure and maintain, at its own cost, policy(s) of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by the Contractor pursuant to this Section. Such insurance shall be in addition to any other insurance requirements imposed by this Contract or by law. The Contractor shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Section by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. Contractor shall procure and maintain and, if applicable, shall cause any Subcontractor of the Contractor to procure and maintain insurance coverage listed below. Such coverage shall be procured and maintained with forms and insurers acceptable to the Owner. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Minimum coverage limits shall be as indicated below unless specified otherwise:

(a) **Worker Compensation:** Contractor shall comply with all State of Colorado Regulations concerning Workers' Compensation insurance coverage.

(b) **General Liability insurance** with minimum limits of:

ONE MILLION DOLLARS (\$1,000,000) each occurrence and
ONE MILLION DOLLARS (\$1,000,000) per job aggregate.

The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall include coverage for explosion, collapse, and underground hazards. The policy shall contain a severability of interests provision.

(c) Comprehensive Automobile Liability insurance with minimum limits for bodily injury and property damage of not less than:

ONE MILLION DOLLARS (\$1,000,000) each occurrence and
ONE MILLION DOLLARS (\$1,000,000) aggregate

(d) Professional Liability & Errors and Omissions Insurance policy with a minimum of:

ONE MILLION DOLLARS (\$1,000,000) per claim

This policy shall provide coverage to protect the contractor against liability incurred as a result of the professional services performed as a result of responding to this Solicitation.

With respect to each of Contractors owned, hired, or non-owned vehicles assigned to be used in performance of the Work. The policy shall contain a severability of interests provision. The policies required by paragraph (b) above shall be endorsed to include the Owner, and the Owner's officers and employees as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the Owner, its officers, or its employees, or carried by or provided through any insurance pool of the Owner, shall be excess and not contributory insurance to that provided by Bidder. No additional insured endorsement to any required policy shall contain any exclusion for bodily injury or property damage arising from completed operations. The Bidder shall be solely responsible for any deductible losses under any policy required above.

SECTION 4.0: SPECIFICATIONS/SCOPE OF SERVICES

4.1. General/Background: Canyon View Park is a 110-acre regional park facility located at 730 24 Road that serves as a premier park for the community as well as encompassing a regional sports complex for a variety of baseball, softball, football, soccer, and other sports organizations. Canyon View Park was constructed in 1997 and has field lighting on four (4) baseball fields and one (1) soccer field. Each softball field has six (6) light poles and the soccer field has four (4) light poles for a total of 28 poles.

The existing field lighting system is now over 20 years old and is starting to see deterioration. Specifically, a number of the light poles are exhibiting signs of rusting to a point that are starting to compromise the structural integrity. In fact, the deterioration on one pole was significant enough that it fell over in 2020. As a result, the City of Grand Junction is interested in replacing all 28 light poles.

It is understood that the technology of lighting systems has evolved since the park was originally constructed and the City is interested in implementing lighting solutions that consider new technologies and/or innovative approaches to field lighting. The City has interest in a Musco Light-Structure System with Total Light Control for LED type of system.

but is open to options of other brand name or equal to, styles, and types (LED or better is preferred).

Project Purpose: The purpose of this RFP is to obtain proposals from qualified and professional firms/contractors specializing in the design and installation of modern, energy efficient, lighting systems for sports facilities, in order to replace the current field lighting system at Grand Junction's Canyon View Park. This will include removal and disposal of 28 light poles (including foundations and fixtures) and designing and installing a new state of the art field lighting system for four (4) softball fields and one (1) soccer field. The proposed design shall be all inclusive and turn-key, to include, but not be limited to: all necessary and required design services, installation of new foundations, poles, fixtures, electrical, controls, connectivity, training, all permitting necessary, etc.

Plans & Specifications. *Construction plans and specifications shall be drawn up by a qualified engineer or architect licensed in the State of Colorado, or pre-engineered in accordance with Colorado law, and hired by the Contractor. All plans, drawings and specifications shall become the property of the City of Grand Junction, and shall be provided to the City in both hard copy and electronic (native and .pdf) formats.*

4.2. Special Conditions/Provisions:

4.2.1 Mandatory Site Visit Meeting: Interested Firms/Contractors are required to attend a mandatory site visit meeting. The purpose of this site visit meeting will be to inspect and to clarify the contents of this Request for Proposal (RFP). The site visit meeting shall take place on March 3, 2021 at 10:00am at the west entrance to Canyon View Park, located at 730 24 Road, Grand Junction, CO. Nothing stated during the site visit meeting will modify the solicitation. Only information provided in an addendum can modify the solicitation.

4.2.2 Licenses and Permits: Contractor is responsible for obtaining all necessary licenses and permits required for Construction, at Contractors expense. See Section 2.3

4.2.3 Freight/Shipping: All freight/shipping shall be F.O.B. Destination – Freight Pre-paid and allowed. Staging area provided at 730 24 Road, Grand Junction, CO 81501.

4.2.4 Price: Pricing shall be established as “cost plus a fixed fee with a guaranteed maximum price”, and shall be all inclusive to include but not be limited to: all design, labor, equipment, supplies, materials, freight (F.O.B. Destination – Freight Pre-paid and Allowed to the site), travel, meetings, conference calls, mobilization costs, fuel, set-up and take down costs, and full-time inspection costs, and all other costs related to the successful completion of the project.

The Owner shall not pay nor be liable for any other additional costs including but not limited to: taxes, shipping charges, insurance, interest, penalties, termination payments, attorney fees, liquidated damages, etc.

Contractor shall submit their pricing utilizing the attached form in Section 7.0 Solicitation Response Form.

All fees will be considered by the Owner to be negotiable.

4.2.5 Warranty: Contractor shall submit manufacturer warranty information for Owner's approval, prior to product ordering. Additionally, Contractor shall provide a minimum 1 year Contractor's warranty.

4.2.6 Laws, Codes, Rules, and Regulations: Contractor shall ensure that all services provided meet all Federal, State, County, and City laws, codes, rules, regulations, and requirements for providing such services.

4.2.7 Freight/Shipping: All freight/shipping shall be F.O.B. Destination – Freight Pre-Paid and Allowed to each of the project sites.

4.2.8 Equipment/Product/Materials Quantities: Contractor shall be responsible for determining all measurements for correctness, and all quantities/types of equipment/products/materials required for successful project completion. Also see Section 2.5 **Quantities of Work and Unit Price.**

4.2.9 Contractor Staging Area: Awarded Contractor shall coordinate with Owner for proposed project staging area during the construction phase.

4.2.10 Construction Working Schedule: Working schedule shall be Monday – Friday from 7:00am-5:00pm. If alternate scheduling is needed, Contractor shall coordinate with, and receive approval from, the City's Project Manager.

4.2.11 Time of Completion: Contractor shall submit a complete project schedule for both design and construction with their proposal. The City and awarded Contractor shall negotiate the final project completion date.

4.2.12 Brand Name or Equal: Whenever in this bid invitation any particular materials, process, mechanism, and/or equipment are indicated, described or specified by patent, proprietary, or brand name, or by name of manufacturer, such wording will be deemed to be used for the purpose of facilitating minimum acceptable requirements and will be deemed to be followed by the words, "or equal". Proof satisfactory to the Owner must be provided by Bidder to show that the alternative product/equipment/vehicle is in fact, equal to specification requirements. The Owner has determined that the brand name, model name/numbers meets the specifications as stated in the solicitation documents. These manufacturer's references are not intended to be restrictive but descriptive of the type and quality the Owner desires to purchase. Bids for similar manufactured items of like quality will be considered if the bid is fully noted with the manufacturer's brand name and model. The Owner reserves the right to determine products of equal value. Bidders will not be allowed to make unauthorized substitutions after award is made.

4.2.13 Contract: A binding contract shall consist of: (1) the RFP and any amendments thereto, (2) the proposer's response (proposal) to the RFP, (3) clarification of the proposal, if any, and (4) the City's Purchasing Department's acceptance of the proposal by "Notice of Award". All Exhibits and Attachments included in the RFP shall be incorporated into the contract by reference.

A. The contract expresses the complete agreement of the parties and, performance shall be governed solely by the specifications and requirements contained therein.

B. Any change to the contract, whether by modification and/or supplementation, must be accomplished by a formal contract amendment signed and approved by and between the duly authorized representative of the bidder and the City Purchasing Division or by a modified Purchase Order prior to the effective date of such modification. The proposer expressly and explicitly understands and agrees that no other method and/or no other document, including acts and oral communications by or from any person, shall be used or construed as an amendment or modification to the contract.

4.2.14 CITY PROJECT MANAGER: The Project Manager for the Project is Marc Mancuso – Project Manager, who can be reached at (970)254-3850. During Design and Construction, all notices, letters, submittals, and other communications directed to the City shall be addressed and mailed or delivered to:

**City of Grand Junction
Department of Parks & Recreation
Attn: Marc Mancuso, Project Manager
2529 High Country Ct.
Grand Junction, CO 81501**

4.3. Scope of Services: The general scope of services to be obtained as a result of this RFP includes all design, preconstruction, and construction services required for successful completion of the project.

The electrical/lighting design/build firm shall design, obtain all permits, construct, manufacture, procure equipment/material, install, train City personnel, and startup/test the new lighting system.

The field lighting design/build firm shall disconnect and remove the existing field lighting fixtures and poles, including the foundations. Design of the foundations for the new field lighting systems shall be certified by a licensed Professional Engineer. A geotechnical investigation has been completed to assist in the foundation design and allow firms to provide accurate pricing for the project. A copy of the geotechnical investigation is included in Appendix B for reference.

The City is seeking Dark Sky Certification Accreditation for this project and the proposed field lighting system shall be designed in compliance with the International Dark-Sky Association (IDA) criteria to limit light pollution. A copy of the IDA Criteria for Community-Friendly Outdoor Sports Lighting is included in Appendix C for reference.

It is the City's desire that the new lighting system will provide a LED lighting control system that allows for programmatic scheduling of the lights as well as remote access allowing the lights to be operated and controlled from a mobile app.

Minimum Electrical/Lighting Design/Build Firm Requirements:

- At least five years in the industry, with experience directly related to lighting projects of facilities similar in size and scope.
- Successfully completed three (3) similar projects of scope and size within the last five (5) years.
- Each design/build firm must show:
 - (a) complete disclosure of any incidents of default on projects where the Firm or related entity acted as project sponsor and the current status of such incidents;
 - (b) complete disclosure of any liabilities, contingent liabilities, obligations, charges and liens, covenants, off-balance sheet financing arrangements, defaults, legal action pending, or other matters that might prevent the Firm from implementing the Project; and
 - (c) the Firm's or related entity's latest audited financial statements available as at the date of the RFP Submission.
- Ability to meet the bonding and insurance requirements of the City of Grand Junction. Submit a Bid Bond and COI with this response.
- Architect and engineers retained to design/construct facility are to be licensed/registered to practice in Colorado.
- Qualified and permitted by law to perform the services provided for this project. All personnel engaged in this work for this project shall likewise be qualified and permitted to perform necessary duties.
- Ensure compliance with all applicable environmental regulations related to the project.
- The ability to develop value engineered solution options, budget and/or cost estimates, plans, drawings, designs, and to obtain and manage permitting, scheduling and any other typical building construction task.
- Project management and supervision.
- Coordination of construction, scheduling of construction meetings and resolving discrepancies or disputes with sub-contractors or other supply or services vendors.
- Preparation of all plans, schematics, drawings, scope, specifications, and all other related documents and requirements associated with the successful completion of this project. All said documents shall become the property of the City of Grand Junction, and shall be provided to the City in both hard copy and electronic (native and .pdf) formats.
- Providing a time frame for completion of total design development, and each construction phase as well as a schedule for total completion of the project.
- Scheduling inspections and meeting applicable National, State and local building code requirements to achieve approval of work. The selected firm will be responsible for obtaining all building permits and will be responsible for permit related fees.

- The electrical/lighting firm may use local, qualified partners in design, engineering, construction and maintenance of the facility.

Summary of Requirements of the selected Design/Build Firm:

- Designing a new lighting plan for Canyon View Park (at a minimum) Design shall consist of: architectural and engineering, program management, construction management, feasibility studies (if required), preliminary engineering, design, architectural engineering, surveying, mapping or other related A&E Services; design/engineer plans/services shall ultimately be all inclusive.
- Securing all local, state and Federal permits required to design/construct the project;
- Constructing the project on a site provided by Owner;
- Completion of all work on the lighting project (including testing and commissioning) by the negotiated date between the awarded Contractor and Owner, this shall also include the removal and disposal of all existing lighting, fixtures, foundations to be replaced;
NOTE: Contractor shall take any and all necessary precautions to minimize damage to landscaping, pathways, structures, etc. throughout the project. Contractor shall be responsible to make repairs for any damages by the Contractor, Contractor's employees, Sub-Contractors, suppliers, etc.
- Providing training to Owner employees on new lighting operation, safety and emergency procedure;
- Owner shall be the sole contracting entity for the equipment and be provided by the selected Firm/Contractor.
- Develop Performance Specification of the Design-Build
- Project management and coordination
- Data collection, review and organization
- Validate additional (if any) lighting requirements
- Basis of design report
- Progressive design with owner review at 60% and 90%
- Construction administration

Attached Documents:

1. Geotechnical Report
2. IDA Criteria for Community-Friendly Outdoor Sports Lighting

4.4. RFP Tentative Time Schedule:

• Request for Proposal Available	February 19, 2021
• Mandatory Site Visit Meeting/Briefing	March 3, 2021
• Inquiry deadline, no questions after this date	March 10, 2021
• Addendum Posted	March 12, 2021
• Submittal deadline for proposals	March 18, 2021
• Owner evaluation of proposals	March 19 – 25, 2021
• Interviews (if required)	April 1, 2021
• Final selection	April 6, 2021
• City Council Approval	April 21, 2021
• Contract execution	April 22, 2021
• Bonding and Insurance	April 29, 2021
• Work begins	Upon Notice to Proceed
• Completion Date	TBD

4.5. Questions Regarding Scope of Services:

Duane Hoff Jr., Senior Buyer
duaneh@gjcity.org

SECTION 5.0: PREPARATION AND SUBMITTAL OF PROPOSALS

Submission: Each proposal shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (<https://www.rockymountainbidssystem.com/default.asp>). This site offers both “free” and “paying” registration options that allow for full access of the Owner’s documents and for electronic submission of proposals. (Note: “free” registration may take up to 24 hours to process. Please Plan accordingly.) Please view our “**Electronic Vendor Registration Guide**” at <http://www.gjcity.org/business-and-economic-development/bids/> for details. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline; **800-835-4603**). For proper comparison and evaluation, the City requests that proposals be formatted as directed. Offerors are required to indicate their interest in this Project, show their specific experience and address their capability to perform the Scope of Services in the Time Schedule as set forth herein. For proper comparison and evaluation, the Owner requires that proposals be formatted **A** to **H**.

- A. Cover Letter:** Cover letter shall be provided which explains the Firm’s interest in the project. The letter shall contain the name/address/phone number/email of the person who will serve as the firm’s principal contact person with Owner’s Contract Administrator and shall identify individual(s) who will be authorized to make presentations on behalf of the firm. The statement shall bear the signature of the person having proper authority to make formal commitments on behalf of the firm. By submitting a response to this solicitation the Contractor agrees to all requirements herein.
- B. Qualifications/Experience/Credentials:** Proposers shall provide their qualifications for consideration as a contract provider to the City of Grand Junction and include prior experience in similar projects. In addition to Section 4.3 Scope of Services, Proposers shall also provide the following information with their proposal submittal:

Sports Facilities Lighting Design Experience and Capabilities

Note: Key personnel will be committed to this project in the Design/Build contract and can only be changed by approval of the City.

Provide a summary of key personnel experience information. List the most recent projects first. Include project owner and contact reference, project location, scope of project, design cost, construction cost, project duration, completion date and current lighting performance. Additional discussion of Key Personnel experience can be provided as a narrative in the RFP.

Important experience includes Sports Facilities Lighting and other similar lighting projects of scope and size. Higher rating will be given to experience in Design/Build of Sports Facilities Lighting projects. The RFP response must include the following information, which will be used to rate the fueling station experience and design capabilities of the Design team.

- a. Discuss the design experience of key personnel that is similar or relevant to this Project.
- b. Discuss experience of the key personnel working together on past Design/Build or Design-Bid-Build projects. List previous projects and roles of the key personnel. Provide client references and resumes of key personnel.

- c. Discuss goals and challenges on previous projects that the team was involved in and how goals were met and challenges were addressed by key personnel.
- d. Discuss projects with a change order values over 5% of the original project cost (not including change orders) or time delays over 1 month of the original duration. Describe circumstances that led to the change orders or delays and how the issues were resolved with the owner.

Contractor Experience and Capabilities

Note: Key personnel will be committed to this project in the Design/Build contract and can only be changed by approval of the City.

Provide a summary of key personnel experience. List at least three projects (within the last five years) for each project type listed below. If less than three completed projects, Contractor can still be used for the Design/Build team but will receive fewer points in the evaluation. List the most recent projects first. Additional discussion of contractor experience can be provided as a narrative in the RFP.

Important construction experience includes Sports Facilities Lighting and other similar lighting projects of scope and size. Higher rating will be given to construction experience in Design/Build of Sports Facilities Lighting projects. The RFP response must include the following information, which will be used to rate the construction and construction management capabilities of the Design/Build team.

- a. List recent construction projects completed at a Sports Facility or other similar lighting projects of scope and size. If Contractor does not have this experience, list the proposed subcontractor and provide the subcontractor information.
- b. Discuss projects listed with a change order values over 5% of the original project cost (not including change orders) or time delays over 1 month of the original duration.
- c. Describe circumstances that led to the change orders or delays and how the issues were resolved with the owner.
- d. Provide the contractor's safety information, including a summary of the safety program or plan.
- e. For information only. Provide information on major subcontractors (e.g. structural concrete, electrical, process mechanical) proposed for this project. Indicate if the subcontractor worked on a previous Design/Build or a Design-Bid-Build project. If subcontractors have not been determined, list subcontractors you have previously worked with and the project they worked on.

Start-Up, Commissioning, Performance Verification, and Training

The RFP response must include the following information, which will be used to rate the support that the Design/Build team provides for startup, commissioning, performance verification, and training of the project.

- a. Describe the general approach and process that will be used in start-up, commissioning, performance verification, and training for this project. Identify the personnel that will perform start-up and list previous experience.

- b. Discuss the experience of the Design/Build in start-up, commissioning, performance verification, and training.
 - c. Describe the types of operation and maintenance documents prepared on previous projects and recommended O&M documents for this project.
- C. Strategy and Implementation Plan:** Describe your (the firm's) interpretation of the Owner's objectives with regard to this RFP. Describe the proposed strategy and/or plan for achieving the objectives of this RFP, to include the brand, model, type and style of lighting system your firm is proposing. The Firm may utilize a written narrative or any other printed technique to demonstrate their ability to satisfy the Scope of Services. The narrative should describe a logical progression of tasks and efforts starting with the initial steps or tasks to be accomplished and continuing until all proposed tasks are fully described and the RFP objectives are accomplished. Include a time schedule for completion of your firm's implementation plan for both design and construction and an estimate of time commitments from Owner staff. Also include, warranty and service plan information.
- D. References:** Provide references per Section 4.3 Scope of Services, Minimum Sports Facilities Lighting Design/Build Firm Requirements with name, address, telephone number, and email address that can attest to your experience in projects of similar scope and size.
- E. Bid Bond and Certificate of Insurance:** Proposer shall submit a Bid Bond and Certificate of Insurance, as per the solicitation documents.
- F. Fee Proposal:** Provide your fee proposal, as stated in Section 4.2.4 Pricing, using the Solicitation Response Form found in Section 7.
- G. Additional Data (optional):** Provide any additional information that will aid in evaluation of your qualifications with respect to this project.
- H. Financial Statements:** Proposer shall provide an audited financial statement, as prepared by a certified public accountant, for their prior fiscal year, consisting of a balance sheet, profit and loss statement and such other financial statements as may be appropriate, which shall demonstrate that the proposer possesses adequate financial ability and stability to enable the Proposer to fulfill their obligations under the terms of this RFP. If requested by the Proposer, such information shall be treated as confidential by the Owner and shall not be subject to public disclosure. These documents must depict the financial status of that entity, subsidiary, division, or subdivision thereof, which will actually provide services. If the Proposer is a partnership or joint venture, individual financial statements must be submitted for each general partner or joint venture thereof. Consolidated balance sheets and profit/loss statements depicting the financial status of a Parent Corporation or joint venture shall not be considered an acceptable response.

SECTION 6.0: EVALUATION CRITERIA AND FACTORS

- 6.1 Evaluation:** An evaluation team shall review all responses and select the proposal or proposals that best demonstrate the capability in all aspects to perform the scope of services and possess the integrity and reliability that will ensure good faith performance.
- 6.2 Intent:** Only respondents who meet the qualification criteria will be considered. Therefore, it is imperative that the submitted proposal clearly indicate the firm's ability to provide the services described herein.

Submittal evaluations will be done in accordance with the criteria and procedure defined herein. The Owner reserves the right to reject any and all portions of proposals and take into consideration past performance. The following parameters will be used to evaluate the submittals **(with weighted values)**:

The following collective criteria shall be worth 90%
<ul style="list-style-type: none">• Responsiveness of Submittal to the RFP (5) (Firm has submitted a proposal that is fully comprehensive, inclusive, and conforms in all respects to the Request for Proposals (RFP) and all of its requirements, including all forms and substance.)• Understanding of the Project and Objectives (20) (Firm's ability to demonstrate a thorough understanding of the City's goals pertaining to this specific project.)• Experience (25) (Firm's proven proficiency in the successful completion of similar projects.)• Strategy & Implementation Plan (25) (Firm has provided a clear interpretation of the City's objectives in regard to the project, and a fully comprehensive plan to achieve successful completion. See Section 5.0 Item C. – Strategy and Implementation Plan for details.)• Warranty and Service Plan (15) (Firm's warranty and service plan provides for adequate service, repair, and replacement coverage. See Section 5.0 Item C. – Strategy and Implementation Plan for details.)

The following criteria shall be worth 10%
<ul style="list-style-type: none">• Fees (10)

Owner also reserves the right to take into consideration past performance of previous awards/contracts with the Owner of any vendor, contractor, supplier, or service provider in determining final award(s).

The Owner will undertake negotiations with the top rated firm and will not negotiate with lower rated firms unless negotiations with higher rated firms have been unsuccessful and terminated.

- 6.3 Oral Interviews:** The Owner may invite the most qualified rated proposers to participate in oral interviews.
- 6.4 Award:** Firms shall be ranked or disqualified based on the criteria listed in Section 6.2. The Owner reserves the right to consider all of the information submitted and/or oral presentations, if required, in selecting the project Contractor.

SECTION 7.0: SOLICITATION RESPONSE FORM
RFP-4864-21-DH

“Design/Build Canyon View Lighting Replacement Project”

Offeror must submit entire Form completed, dated and signed.

1) Cost plus a Fixed Fee with a Guaranteed Maximum Price:

Fixed Fee \$ _____

WRITTEN: _____ **dollars.**

Guaranteed Maximum Price \$ _____

WRITTEN: _____ **dollars.**

The Owner reserves the right to accept any portion of the work to be performed at its discretion

The undersigned has thoroughly examined the entire Request for Proposals and therefore submits the proposal and schedule of fees and services attached hereto. This offer is firm and irrevocable for sixty (60) days after the time and date set for receipt of proposals.

The undersigned Offeror agrees to provide services and products in accordance with the terms and conditions contained in this Request for Proposal and as described in the Offeror's proposal attached hereto; as accepted by the Owner.

Prices in the proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices in this proposal have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a proposal for the purpose of restricting competition.
- The individual signing this proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-03544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of _____ percent of the net dollar will be offered to the Owner if the invoice is paid within _____ days after the receipt of the invoice.

RECEIPT OF ADDENDA: the undersigned Contractor acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents. State number of Addenda received: _____.

It is the responsibility of the Proposer to ensure all Addenda have been received and acknowledged.

Company Name – (Typed or Printed)

Authorized Agent – (Typed or Printed)

Authorized Agent Signature

Phone Number

Address of Offeror

E-mail Address of Agent

City, State, and Zip Code

Date



Purchasing Division

ADDENDUM NO. 1

DATE: February 23, 2021
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: Design/Build Canyon View Lighting Replacement Project RFP-4864-21-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Q. Please see the following attachments that were to be included in the solicitation package.

- Geotechnical Report
- IDA Criteria for Community-Friendly Outdoor Sports Lighting
- Canyon View Lighting Location map

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

A handwritten signature in black ink, appearing to read "Duane Hoff Jr.", enclosed in a yellow rectangular box.

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

**Geotechnical Investigation Report
Canyon View Park Lighting Upgrade Project
Grand Junction, Colorado**



Prepared for:

City of Grand Junction
333 West Avenue, Building C
Grand Junction, Colorado 81501

Attention: Mr. Eric C. Mocko, P.E.

February 5, 2021

Prepared by:



RockSol Consulting Group, Inc.
566 West Crete Circle, Unit 2
Grand Junction, Colorado 81505
(970)-822-4350

RockSol Project No. 599.23

**Geotechnical Investigation Report
Canyon View Park Lighting Upgrade Project
Grand Junction, Colorado**

Prepared for:

City of Grand Junction
333 West Avenue, Building C
Grand Junction, Colorado 81501

Attention: Mr. Eric C. Mocko, P.E.

February 5, 2021

Prepared by:



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(970)-822-4350

RockSol Project No. 599.23

Jacob Sphatt, E.I.T.
Civil Engineering Associate

Donald G. Hunt, P.E.
Senior Geotechnical Engineer

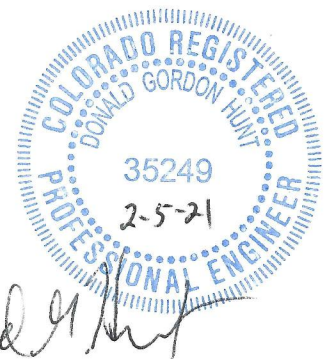


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ATTACHMENTS

Appendix A:	Borehole Location Plan
Appendix B:	Legend and Individual Boring Soil Logs
Appendix C:	Summary of Laboratory Test Results
Appendix D:	IBC Foundation Embedment Design Equation

1.0 PROJECT PURPOSE AND DESCRIPTION

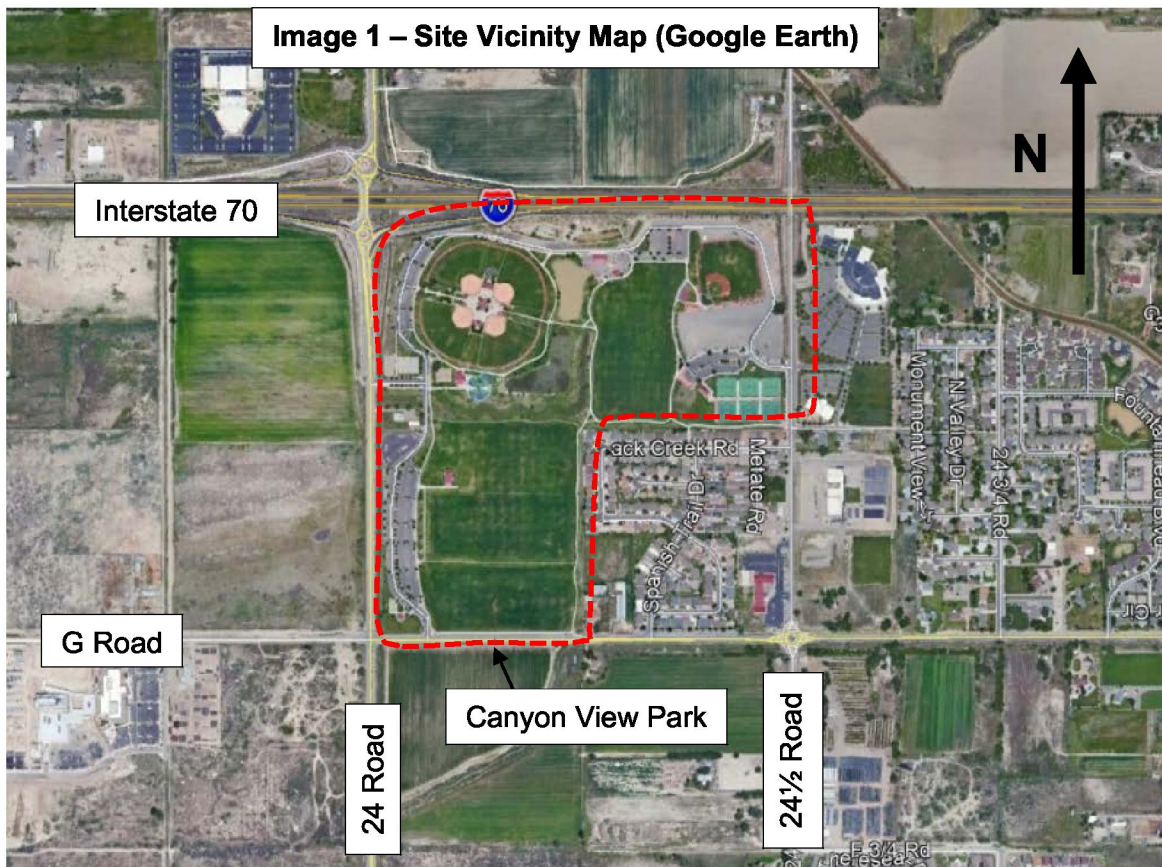
This report documents the Geotechnical investigation performed by RockSol Consulting Group, Inc. (RockSol) to assist with the design of the Canyon View Park Lighting Upgrade Project in Grand Junction, Colorado. The project consists of replacing the existing lighting system with new light emitting diode (LED) fixtures mounted on a mono-pole type structure. RockSol understands that the existing light poles are experiencing significant degradation of the connections between the pole base and the top of the foundations.

The geotechnical investigation program was conducted to obtain information on the subsurface soil, groundwater and bedrock conditions. The scope of work for this geotechnical investigation included:

- Preparing a drilling/sampling program to perform a subsurface investigation and implementing the program to collect soil samples for laboratory testing.
- Performing laboratory tests and analyzing the data.
- Preparing a geotechnical report presenting the field and laboratory data obtained, geological conditions, and geotechnical parameters for the proposed light pole foundation design.

2.0 PROJECT SITE CONDITIONS

Canyon View Park is located immediately south of Interstate 70 (I-70) and north of G Road between 24 Road and 24½ Road. (See Image 1 – Site Vicinity Map). Canyon View Park is surrounded by undeveloped and agricultural land to the north, west, and south and surrounded by residential and commercial properties to the east.

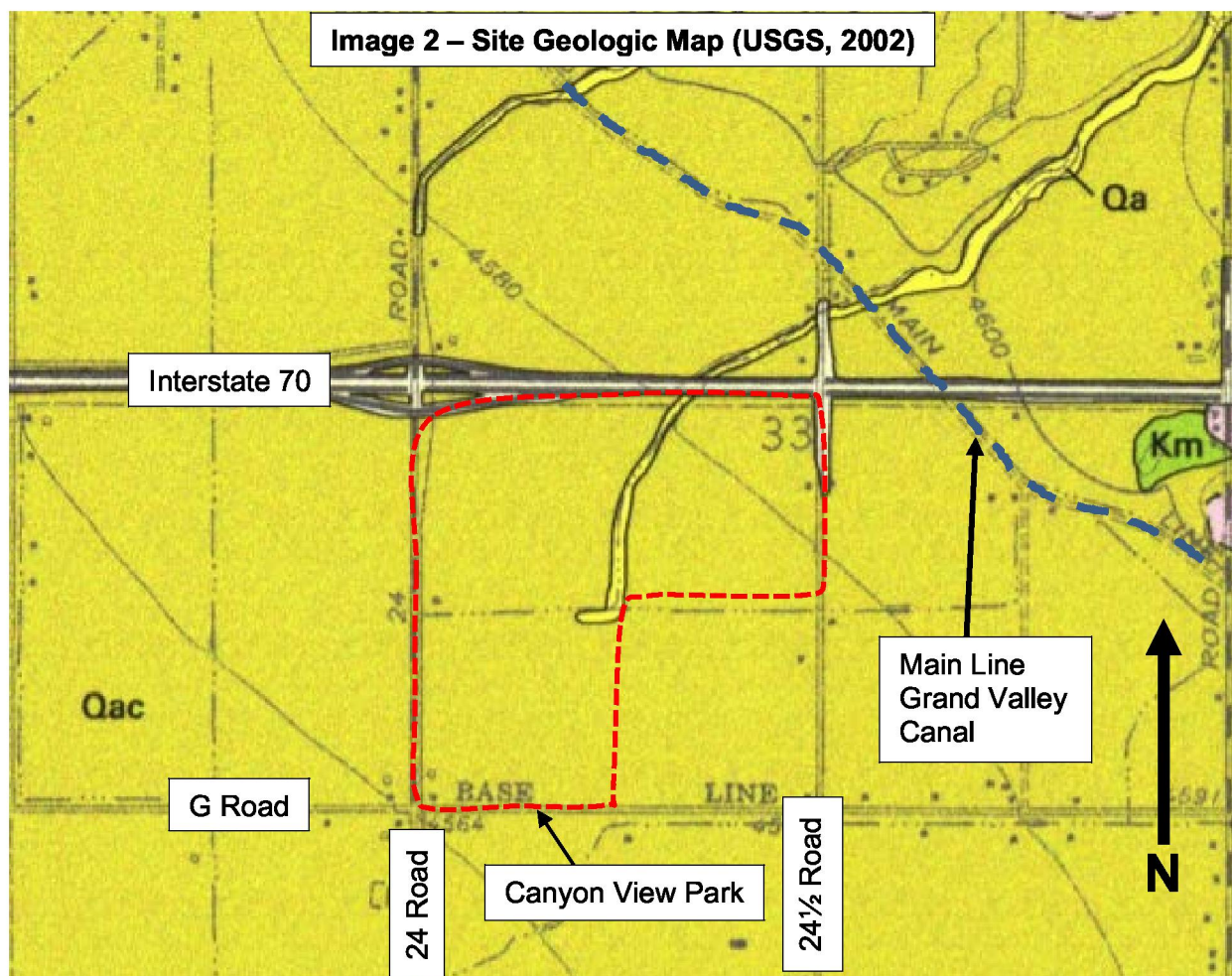


3.0 GEOLOGICAL SETTING

Geologic information about the project site and site vicinity is presented in the United States Geological Survey (USGS) *Geologic Map of the Grand Junction Quadrangle, Mesa County, Colorado* by Robert B. Scott, Paul E. Carrara, William C. Hood, and Kyle E. Murray, dated 2002 (See Image 2 – Site Geology Map).

Based on the USGS map, undivided alluvium and colluvium (Holocene/late Pleistocene) (Qac) is the primary surficial material mapped at the project site. A deposit of Holocene/late Pleistocene alluvium (Qa) is mapped through the middle portion of the Park. A small area of Mancos Shale (Km) is mapped at the ground surface approximately one-half mile to the east of the project site. Mancos Shale generally consists of gray shale and minor sandstone. The Qa alluvium generally consists of silt, sand and gravels and the Qac colluvium generally consists of sandy silt, silty to clayey sand, silty clay, and sandy clay. The materials identified by the USGS mapping was consistent with native soils and bedrock encountered during our geotechnical investigation.

The project site consists of relatively flat slopes with elevation decreasing to the southwest. The Main Line Grand Valley Canal (Canal) is located to the northeast of the project site and cuts through the alluvial deposit that goes through the project site. The Canal flows water for a majority of the year and appears to be unlined, which may contribute to the groundwater conditions observed during our geotechnical investigation. North Leach Creek flows along the west side of the Park.



4.0 SUBSURFACE EXPLORATION

For this investigation, RockSol completed 5 geotechnical boreholes identified as B-1 through B-5 at the locations shown on Image 3 and in Appendix A.



Boreholes B-1 and B-5 extended to approximate depths ranging from 60 to 65 feet below the existing ground surface to characterize subsurface conditions including groundwater depths/elevations, soil stratigraphy, and bedrock depth/elevations, if encountered. Boreholes B-2 through B-4 extended to approximate depths of 26 feet below the existing ground surface.

The boreholes were completed on January 5, 2021. The boreholes were surveyed after drilling operations were completed by the City of Grand Junction and the survey information (surface elevations, northing, and easting) was provided to RockSol and is summarized in the individual borehole logs in Appendix B.

Boreholes were advanced with a CME 55 track mounted drill rig using an 8-inch outside diameter hollow stem auger. The boreholes were logged in the field by a representative of RockSol with the depth to groundwater, if encountered, noted at the time of drilling. The boreholes were backfilled at the completion of drilling.

Subsurface materials were sampled and resistance of the materials to penetration of the sampler was performed using Modified California barrel and standard split spoon samplers. Penetration tests were performed using an automatic lift system and a hammer weighing 140 pounds falling 30 inches.

The standard split spoon sampling method is the Standard Penetration Test (SPT) described by ASTM Method D-1586. The standard split spoon sampler has an outside diameter of 2 inches and an inside diameter of 1 $\frac{3}{8}$ -inches. Sample retaining liners are not used with the standard split spoon sampler.

The Modified California barrel sampler has an outside diameter of approximately 2.5 inches and an inside diameter of 2 inches. The Modified California Barrel sampling method is similar to the SPT test with the difference being the sampler dimensions and the number of 6-inch intervals driven with the hammer per ASTM D3550. It is RockSol's experience that blow counts obtained with the Modified California sampler tend to be slightly greater than a standard split spoon sampler. Brass tube liners were used with the modified California barrel sampler to obtain samples that can be characterized as "relatively" undisturbed, although some sample disturbance does occur as part of the sampling process.

Penetration resistance values (blow counts) were recorded for each sampling event. Blow counts, when properly evaluated, indicate the relative density or consistency of the soils. Depths at which the samples were taken, the type of sampler used, and the blow counts that were obtained are shown on the Borehole Logs (See Appendix B).

5.0 SITE SOIL AND BEDROCK CHARACTERIZATION

5.1 Surficial Materials

Surficial soils at boring locations generally consist of a relatively thin cover of moist, brown, silty sand topsoil, approximately 3 inches in thickness and supporting a moderate to thick cover of sod vegetation.

5.2 Subsurface Materials

Subsurface materials encountered at all boreholes in the upper 26-feet generally consisted of very soft to medium stiff silty to sandy clay with sandy silt lenses in parts. In Borehole B-1 the silty to sandy clay material extended to a depth of 50 feet and in Borehole B-5 this material extended to a depth of 43 feet. In Borehole B-1 dense silty sand with gravel was encountered at a depth of 50 feet and extended to the maximum depth drilled of 66 feet. Loose sand was encountered at a depth of 43 feet in Borehole B-5 and extending to a depth of 60 feet

5.3 Sedimentary Bedrock

Sedimentary bedrock was encountered at Borehole B-5 at approximately 60-feet below existing ground surface and consisted of very hard dark gray claystone and shale, consistent with Mancos Shale. Bedrock not encountered to the depths drilled at Boreholes B-1 through B-4. Bedrock depth and elevation, where encountered, is summarized in Table 1 – *Bedrock and Groundwater Summary*.

5.4 Groundwater

Groundwater was encountered during drilling/sampling activities at all boreholes at approximate depths ranging from 8 to 13 feet below the existing ground surface at the time of drilling operations. See Table 1, *Bedrock and Groundwater Summary* for approximate depths and elevations to groundwater and bedrock, where encountered.

Table 1 – Groundwater and Bedrock Summary

Borehole I.D.	Ground Surface Elevation (Feet)	Borehole Depth (Feet)	Groundwater Depth (Feet)	Groundwater Elevation (Feet)	Bedrock Depth (Feet)	Bedrock Elevation (Feet)
B-1	4580.0	66.0	10.0	4570.0	NE	NE
B-2	4579.8	26.0	10.0	4569.8	NE	NE
B-3	4579.6	26.0	12.0	4567.6	NE	NE
B-4	4568.9	26.0	13.0	4555.9	NE	NE
B-5	4571.0	60.2	8.0	4563.0	60.0	4511.0

NE = Not Encountered

Groundwater elevations are subject to change depending on climatic conditions, Colorado River flow stages, North Leach Creek flow stages, local irrigation practices, changes in local topography, and changes in surface storm water management. Long-term monitoring of groundwater elevations is required to establish groundwater fluctuations.

6.0 LABORATORY TESTING SUMMARY

Soil samples retrieved from borehole locations were examined by the project geotechnical engineer in the RockSol laboratory. Selected samples were tested and classified according to the Unified Soil Classification System (USCS). The following laboratory tests were performed in accordance with the American Society for Testing and Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), and current local practices:

- Percent Passing No. 200 Sieve (ASTM D-1140)
- Liquid and Plastic Limits (ASTM D-4318)
- Soil Classification (ASTM D-2487, ASTM D-2488, and AASHTO M145)
- Gradation (ASTM D6913)
- Water-Soluble Sulfates (CDOT CP-L 2103)
- Water-Soluble Chloride Content (AASHTO T291-91)
- Standard Test Method for pH of Soils (ASTM D4972-01)
- Soil Resistivity (ASTM G187 - Soil Box)
- Swell Test (ASTM D-4546)

Laboratory test results were used to characterize the engineering properties of the subsurface material. For soil classification, RockSol conducted sieve analyses and Atterberg Limits tests. All laboratory tests were performed by RockSol. Laboratory test results are presented in Appendix C.

7.0 SUBSURFACE CHARACTERIZATION

Laboratory test results were used to characterize the engineering properties of the subsurface material encountered. For soil classification, RockSol conducted sieve analyses and Atterberg Limits tests. Lab testing was also performed on selected samples to determine the water-soluble

sulfate and chloride content of subsurface materials to assist with cement type recommendations. A summary of the physical and chemical test results is included in Appendix C.

7.1 Subsurface Soil Classification

Subsurface bulk samples and split spoon samples were obtained at various depths from each borehole location and were tested for AASHTO and USCS soil classification. The subsurface soils tested generally consisted of the A-4 AASHTO soil type and USCS soil types CL, ML, and CL-ML. A summary of the subsurface soil classifications is presented in Table 2.

Table 2 – Subsurface Soil Classifications

Borehole Location	Depth (feet)	AASHTO Classification	USCS Classification
B-1	5	A-4 (0)	ML
B-1	20	A-4 (4)	CL
B-1	55	A-3 (0)	
B-2	10	A-4 (0)	ML
B-3	15	A-4 (0)	ML
B-4	15	A-4 (3)	CL-ML
B-5	0-41	A-4 (4)	CL

7.2 Water-Soluble Sulfate Content

Cementitious material requirements for concrete in contact with site soils or groundwater is typically based on the percentage of water-soluble sulfate in the soil or groundwater. Mix design requirements for concrete exposed to water-soluble sulfates in soils or water is considered by CDOT as shown in Table 3 and in the CDOT Standard Specifications for Road and Bridge Construction, dated 2019. Water-soluble sulfate testing results for samples tested for this project are summarized in Table 4.

**Table 3 – Requirements to Protect Against Damage to Concrete
by Sulfate Attack from External Sources of Sulfate**

Severity of Sulfate Exposure	Water-Soluble Sulfate (SO ₄), in dry soil, percent	Sulfate (SO ₄), in water, ppm	Water Cementitious Ratio, Maximum	Cementitious Material Requirements
Class 0	0.00 to 0.10	0 to 150	0.45	Class 0
Class 1	0.11 to 0.20	151 to 1,500	0.45	Class 1
Class 2	0.21 to 2.0	1,501 to 10,000	0.45	Class 2
Class 3	2.01 or greater	10,001 or greater	0.40	Class 3

Table 4 – Water-Soluble Sulfate Testing Summary

Borehole I.D.	Sample Depth (Feet)	Water-Soluble Sulfate (SO ₄) in dry soil, percent	Cementitious Material Requirements
B-1	15	0.59	Class 2
B-1	30	1.38	Class 2
B-2	5	0.94	Class 2
B-3	20	0.64	Class 2
B-4	5	0.72	Class 2
B-4	20	1.14	Class 2
B-5	0-41	0.48	Class 2

The concentration of water-soluble sulfates measured in soil samples obtained from RockSol's exploratory boreholes ranged from 0.48 percent to 1.38 percent by weight. The test results indicate that water-soluble sulfates are present in the subsurface soils at this site. Based on the test results, RockSol recommends all concrete placed for this project be constructed with cement meeting the requirements for CDOT Exposure Class 2 as presented in Section 601.04 of the 2019 CDOT Standard Specifications for Road and Bridge Construction. Our recommendation would also apply to all pre-cast concrete elements placed at this site.

8.0 FOUNDATION DESIGN PARAMETER RECOMMENDATIONS

Based on the information provided to RockSol, the existing light pole foundations are cylindrical concrete elements with embedment depths not known. RockSol anticipates that a pre-cast concrete foundation or a drilled-shaft (caisson) foundation will be used for the new light pole structures. RockSol recommends design of the foundation systems using the non-constrained depth of embedment formula per Chapter 18 of the International Building Code (IBC), Equation 18-1. This equation is included in Appendix D. Equation 18-1 also references Table 1806.2 in IBC Section 1806.2 (Presumptive Load-Bearing Values).

8.1 Light Pole Foundation Design Parameters

Based on the soil types encountered to depths of at least 26 feet, RockSol recommends a design soil type identified as "cohesive" as it is primarily fine-grained material consisting of silt and clay with varying percentages of sand (Class 6 Materials per IBC Table 1806.2). Based on sampler driving resistance (blow counts) observed during drilling operations, the material is soft to very soft but for design purposes, a very soft consistency is recommended. Unconfined compression tests were not performed but based on blow counts and using the Terzaghi Standard for cohesive soils chart presented in Appendix D, a cohesion value of 250 psf is recommended. Based on the conditions encountered RockSol also recommends reduced values for allowable vertical foundation pressure and lateral bearing pressure from the presumptive values listed in IBC Table 1806.2 for Class 6 Materials. A summary of recommended foundation design parameters is summarized in Table 6.

Table 6 – Foundation Design Parameters

Design Soil Type	Consistency	Cohesion (C), psf	Allowable Vertical Foundation Pressure (psf)	Lateral Bearing Pressure (psf/ft)
Cohesive	Very Soft	250	1,000	80

Additional design and construction considerations for installation of the light pole foundations are presented below.

- (a) During excavation for installation of the foundation, casing or slurry methods will be required to support the excavation due to relatively shallow groundwater conditions. Groundwater was encountered in the boreholes drilled at approximate depths ranging from 8 to 13 feet. Caving conditions are anticipated at and below groundwater elevations and may also occur above groundwater elevations due to saturated soil conditions that can be present above the groundwater elevation.
- (b) Prior to concrete placement, the excavation bottom should be cleaned of all loose material. For wet conditions (more than two inches of water), concrete placement by "tremie" methods should be used to displace all accumulated water and/or slurry, if used.

- (c) If a pre-cast concrete foundation is used, the excavation should be oversized by at least 8 inches beyond the foundation perimeter. After installation of the pre-cast foundation the annular space must be completely filled with concrete.

9.0 OTHER DESIGN AND CONSTRUCTION CONSIDERATIONS

Proper construction practices and adherence to project plans and specifications should be followed during site preparation, earthwork, excavations, and construction of associated utilities for the suitable long-term performance of the proposed structures. Excavation support should be provided to maintain onsite safety and the stability of excavations. Excavations shall be constructed in accordance with local, state, and federal regulations including OSHA guidelines. The contractor must provide a competent person to determine compliance with OSHA excavation requirements. For preliminary planning, native soils may be considered as OSHA Type C soils.

10.0 LIMITATIONS

This geotechnical investigation was conducted in general accordance with the scope of work to provide geotechnical support for construction of the Canyon View Park Lighting Upgrade Project for the City of Grand Junction

Surface and groundwater hydrology, hydraulic engineering, and environmental studies including contaminant characterization were not included in RockSol's geotechnical scope of work.

The geotechnical practices are similar to that used in Colorado with similar soil conditions and our understanding of the proposed work. This report has been prepared by RockSol for the City of Grand Junction exclusively for the project described in this report. The report is based on our exploratory boreholes and does not take into account variations in the subsurface conditions that may exist between boreholes. Additional investigation is required to address such variation. If during construction activities, materials or water conditions appear to be different from those described herein, RockSol should be advised at once so that a re-evaluation of the recommendations presented in this report can be made. RockSol is not responsible for liability associated with interpretation of subsurface data by others

APPENDIX A

BOREHOLE LOCATION PLAN

Canyon View Park

Borehole location Plan

Legend

○ Borehole Locations



Google Earth

© 2020 Google

APPENDIX B

LEGEND AND INDIVIDUAL BORING SOIL LOGS

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado

LITHOLOGY



TOPSOIL



Native - SAND



Native - SAND, silty



Native - CLAY, silty to sandy with SILT lenses in parts



Bedrock - SHALE

SAMPLE TYPE



Auger Cuttings



**MODIFIED CALIFORNIA SAMPLER
2.5" O.D. AND 2" I.D.
WITH BRASS LINERS INCLUDED**



**SPLIT SPOON SAMPLER
2" O.D. AND 1 3/8" I.D.
NO LINERS**

Fines Content indicates amount of material, by weight, passing the US No 200 Sieve (%)

15/12 Indicates 15 blows of a 140 pound hammer falling 30 inches was required to drive the sampler 12 inches.

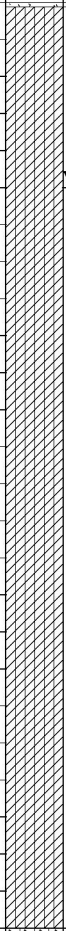
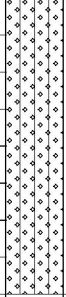
50/11 Indicates 50 blows of a 140 pound hammer falling 30 inches was required to drive the sampler 11 inches.

5,5,5 Indicates 5 blows, 5 blows, 5 blows of a 140 pound hammer falling 30 inches was required to drive the sampler 18 inches.

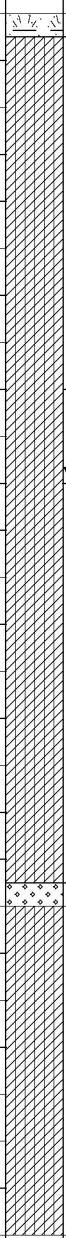
▼ **GROUND WATER LEVEL 1ST DEPTH**

▼ **GROUND WATER LEVEL 2ND DEPTH**

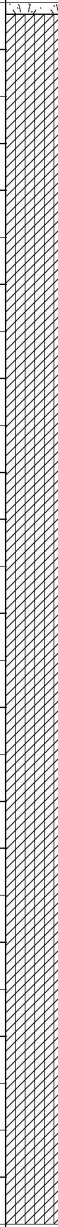
CLIENT City of Grand Junction PROJECT NUMBER 599.23 DATE STARTED 1/5/21 COMPLETED 1/5/21 DRILLING CONTRACTOR DA Smith DRILLING METHOD Hollow Stem Auger HOLE SIZE 8.0" LOGGED BY J. Obanion HAMMER TYPE Automatic NOTES	PROJECT NAME Canyon View Lighting Project PROJECT LOCATION Grand Junction, Colorado GROUND ELEVATION 4580.0 ft STATION NO. NORTH 52472.0 EAST 79330.9 BORING LOCATION: N of softball field GROUND WATER LEVELS: WATER DEPTH 10.0 ft on 1/5/21
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	BLOW COUNTS	SWELL POTENTIAL (%)	SULFATE (%)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
4580.0	0		(Topsoil) SAND, silty, moist, brown, approximately 3 inches thick, moderate to thick vegetation cover (Native) CLAY, silty to sandy with sandy silt in parts, slightly moist to wet, brown, soft to very soft	MC	4/12			101.7	17.9	NP	NP	NP	76.7
4570.0	10			MC	1/12	-0.3		97.8	22.7				
				MC	1/12		0.59	99.0	25.3				
4560.0	20			MC	2/12			100.8	24.1	24	16	8	74.3
4550.0	30			MC	4/12		1.38	100.3	24.8				
4540.0	40			MC	4/12			98.8	25.1				
4530.0	50		(Native) SAND, silty with gravel, wet, brownish red and black to brownish gray and black to light brown, dense, cobbles in parts	SS	11/23/28				11.0	NP	NP	NP	7.7
4520.0	60			SS	8/23/29				15.5				
			Bottom of hole at 66.0 feet.										

CLIENT City of Grand Junction PROJECT NUMBER 599.23 DATE STARTED 1/5/21 COMPLETED 1/5/21 DRILLING CONTRACTOR DA Smith DRILLING METHOD Hollow Stem Auger HOLE SIZE 8.0" LOGGED BY J. Obanion HAMMER TYPE Automatic NOTES	PROJECT NAME Canyon View Lighting Project PROJECT LOCATION Grand Junction, Colorado GROUND ELEVATION 4579.8 ft STATION NO. NORTH 52291.1 EAST 79973.2 BORING LOCATION: E side of softball field GROUND WATER LEVELS: WATER DEPTH 10.0 ft on 1/5/21
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ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	BLOW COUNTS	SWELL POTENTIAL (%)	SULFATE (%)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
4579.8	0		(Topsoil) SAND, silty, moist, brown, approximately 6 inches thick, moderate to thick vegetation cover (Native) CLAY, silty to sandy, moist, brown, very soft										
4574.8	5			MC	3/12		0.94	97.1	20.9				
4569.8	10		(Native) CLAY, silty to sandy with sandy silt in parts, wet, brown, very soft	MC	1/12			95.4	27.9	NP	NP	NP	98.1
4564.8	15			MC	1/12			92.3	25.0				
4559.8	20		SAND lense at approximately 18.5 feet (Native) CLAY, silty to sandy, wet, brown, very soft	MC	1/12			93.8	26.4				
4554.8	25			MC	2/12			95.5	25.3				
			Bottom of hole at 26.0 feet.										

CLIENT City of Grand Junction PROJECT NUMBER 599.23 DATE STARTED 1/5/21 COMPLETED 1/5/21 DRILLING CONTRACTOR DA Smith DRILLING METHOD Hollow Stem Auger HOLE SIZE 8.0" LOGGED BY J. Obanion HAMMER TYPE Automatic NOTES	PROJECT NAME Canyon View Lighting Project PROJECT LOCATION Grand Junction, Colorado GROUND ELEVATION 4579.6 ft STATION NO. NORTH 51753.2 EAST 79405.6 BORING LOCATION: SW corner of softball field GROUND WATER LEVELS: WATER DEPTH 12.0 ft on 1/5/21
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ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	BLOW COUNTS	SWELL POTENTIAL (%)	SULFATE (%)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
4579.6	0		(Topsoil) SAND, silty, moist, brown, approximately 3 inches thick, moderate to thick vegetation cover (Native) CLAY, silty to sandy, slightly moist, brown, stiff, slightly calcareous										
4574.6	5		(Native) CLAY, silty to sandy, moist, brown, soft to very soft	MC	12/12	0.0		108.7	15.4				
4569.6	10		(Native) CLAY, silty to sandy, wet, brown, soft to very soft	MC	3/12			96.9	22.9				
4564.6	15		(Native) CLAY, silty to sandy with trace gravel, wet, brown, very soft	MC	2/12			96.9	26.3	NP	NP	NP	78.9
4559.6	20			MC	2/12	0.64		100.1	23.2				
4554.6	25			MC	1/12			97.5	24.6				
			Bottom of hole at 26.0 feet.										

CLIENT City of Grand Junction PROJECT NUMBER 599.23 DATE STARTED 1/5/21 COMPLETED 1/5/21 DRILLING CONTRACTOR DA Smith DRILLING METHOD Hollow Stem Auger HOLE SIZE 8.0" LOGGED BY J. Obanian HAMMER TYPE Automatic NOTES	PROJECT NAME Canyon View Lighting Project PROJECT LOCATION Grand Junction, Colorado GROUND ELEVATION 4568.9 ft STATION NO. NORTH 50932.6 EAST 79493.0 BORING LOCATION: NE corner of soccer field GROUND WATER LEVELS: WATER DEPTH 13.0 ft on 1/5/21
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ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	BLOW COUNTS	SWELL POTENTIAL (%)	SULFATE (%)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
4568.9	0		(Topsoil) SAND, silty, moist, brown, approximately 3 inches thick, moderate to thick vegetation cover (Native) CLAY, silty, moist, brown, very soft										
4563.9	5		(Native) CLAY, silty to sandy, moist, brown, very soft to soft	MC	1/12	-0.8	0.72	106.4	21.2				
4558.9	10		(Native) CLAY, silty to sandy, wet, brown, very soft to soft	MC	1/12				19.2				
4553.9	15			SS	1/1/0				26.5	24	18	6	77.3
4548.9	20			SS	1/2/3		1.14		27.9				
4543.9	25			MC	3/12			95.9	24.5				
			Bottom of hole at 26.0 feet.										

CLIENT City of Grand Junction PROJECT NUMBER 599.23 DATE STARTED 1/5/21 COMPLETED 1/5/21 DRILLING CONTRACTOR DA Smith DRILLING METHOD Hollow Stem Auger HOLE SIZE 8.0" LOGGED BY J. Obanion HAMMER TYPE Automatic NOTES	PROJECT NAME Canyon View Lighting Project PROJECT LOCATION Grand Junction, Colorado GROUND ELEVATION 4571.0 ft STATION NO. NORTH 50526.8 EAST 79262.8 BORING LOCATION: SW corner of soccer field GROUND WATER LEVELS: WATER DEPTH 8.0 ft on 1/5/21
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ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	BLOW COUNTS	SWELL POTENTIAL (%)	SULFATE (%)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
4571.0	0		(Topsoil) SAND, silty, moist, brown, approximately 3 inches thick, moderate to thick vegetation cover (Native) CLAY, silty to sandy, moist to wet, brown, medium stiff to very soft	BULK			0.48			23	14	9	76.9
				MC	7/12	-0.2		92.3	15.4				
4561.0	10			MC	2/12			102.9	20.1				
			(Native) CLAY, silty to sandy, wet, brown, very soft to medium stiff	SS	1/1/0				25.8				
			Approximate Bulk Depth 0-41 Liquid Limit= 23 Plastic Limit= 14 Plasticity Index= 9 Fines Content= 76.9 Sulfate= 0.4800	SS	1/1/0				26.9				
4551.0	20			MC	3/12			98.8	25.3				
4541.0	30			MC	6/12			98.0	25.2				
			(Native) CLAY, silty to sandy with minor gravel, wet, brownish red, very soft, iron staining, cobbles intermixed	MC	2/12			98.3	25.9				
4531.0	40												
			(Native) SAND, trace gravel, wet to very wet, brown, loose	SS	1/0/0				27.7				9.8
4521.0	50			MC	1/12								
4511.0	60												
			(Bedrock) SHALE, dry, dark brown with gray, very hard Bottom of hole at 61.0 feet.	SS	50/2.5		0.31		24.3				

APPENDIX C

SUMMARY OF LABORATORY TEST RESULTS

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado

Borehole	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	Swell Potential (%)	%<#200 Sieve	Classification		Water Content (%)	Dry Density (pcf)	Unconfined Compressive Strength (psi)	Sulfate (%)	Resistivity (ohm-cm)	pH	Chlorides (%)	Proctor		
							USCS	AASHTO								S=Standard	M=Modified	
B-1	5	NP	NP	NP		77	ML	A-4 (0)	17.9	101.7								
B-1	10				-0.3				22.7	97.8								
B-1	15								25.3	99.0		0.59						
B-1	20	24	16	8		74	CL	A-4 (4)	24.1	100.8								
B-1	30								24.8	100.3		1.38						
B-1	40								25.1	98.8								
B-1	55	NP	NP	NP		8		A-3 (0)	11.0									
B-1	65								15.5									
B-2	5								20.9	97.1		0.94						
B-2	10	NP	NP	NP		98	ML	A-4 (0)	27.9	95.4								
B-2	15								25.0	92.3								
B-2	20								26.4	93.8								
B-2	25								25.3	95.5								
B-3	5				0.0				15.4	108.7								
B-3	10								22.9	96.9								
B-3	15	NP	NP	NP		79	ML	A-4 (0)	26.3	96.9								
B-3	20								23.2	100.1		0.64						
B-3	25								24.6	97.5								
B-4	5				-0.8				21.2	106.4		0.72						
B-4	10								19.2									
B-4	15	24	18	6		77	CL-ML	A-4 (3)	26.5									
B-4	20								27.9			1.14						
B-4	25								24.5	95.9								
B-5	0-41	23	14	9		77	CL	A-4 (4)				0.48	750 @ 19.8%	8.2	0.0136			
B-5	5				-0.2				15.4	92.3								
B-5	10								20.1	102.9								
B-5	15								25.8									
B-5	20								26.9									
B-5	25								25.3	98.8								
B-5	30								25.2	98.0								

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado

Borehole	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	Swell Potential (%)	%<#200 Sieve	Classification		Water Content (%)	Dry Density (pcf)	Unconfined Compressive Strength (psi)	Sulfate (%)	Resistivity (ohm-cm)	pH	Chlorides (%)	Proctor		
							USCS	AASHTO								S=Standard	M=Modified	
B-5	35								25.9	98.3								
B-5	45					10			27.7									
B-5	60								24.3			0.31						



Rocksol Consulting Group

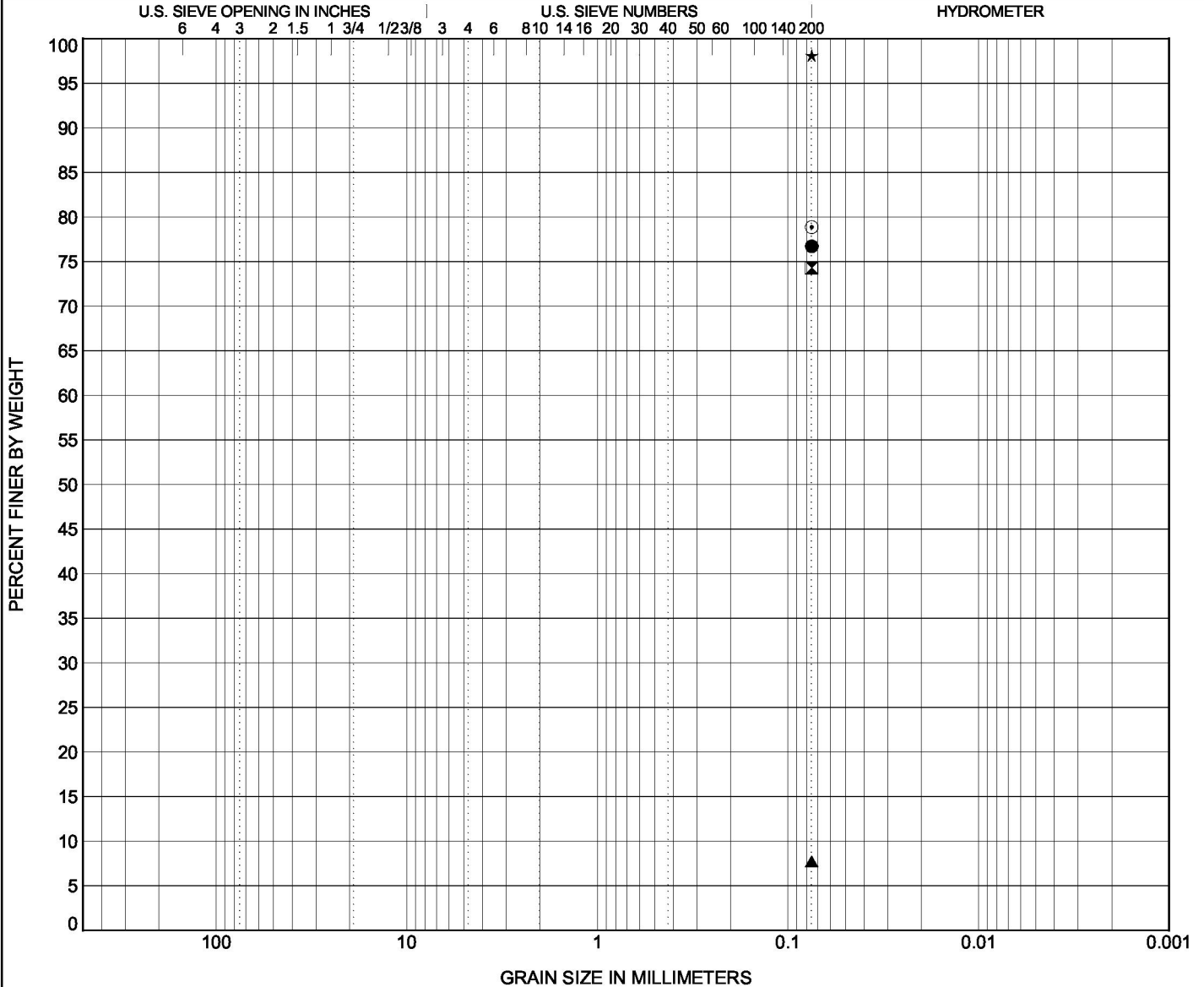
GRAIN SIZE DISTRIBUTION

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification			Classification					LL	PL	PI	Cc	Cu
●	B-1	5.0	SILT with SAND (ML) (A-4)					NP	NP	NP		
⊠	B-1	20.0	LEAN CLAY with SAND (CL) (A-4)					24	16	8		
▲	B-1	55.0	SAND, silty with gravel (A-3)					NP	NP	NP		
★	B-2	10.0	SILT (ML) (A-4)					NP	NP	NP		
⊙	B-3	15.0	SILT with SAND (ML) (A-4)					NP	NP	NP		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Coarse Sand	%Fine Sand	%Silt	%Clay	
●	B-1	5.0	0.075							76.7		
⊠	B-1	20.0	0.075							74.3		
▲	B-1	55.0	0.075							7.7		
★	B-2	10.0	0.075							98.1		
⊙	B-3	15.0	0.075							78.9		



Rocksol Consulting Group

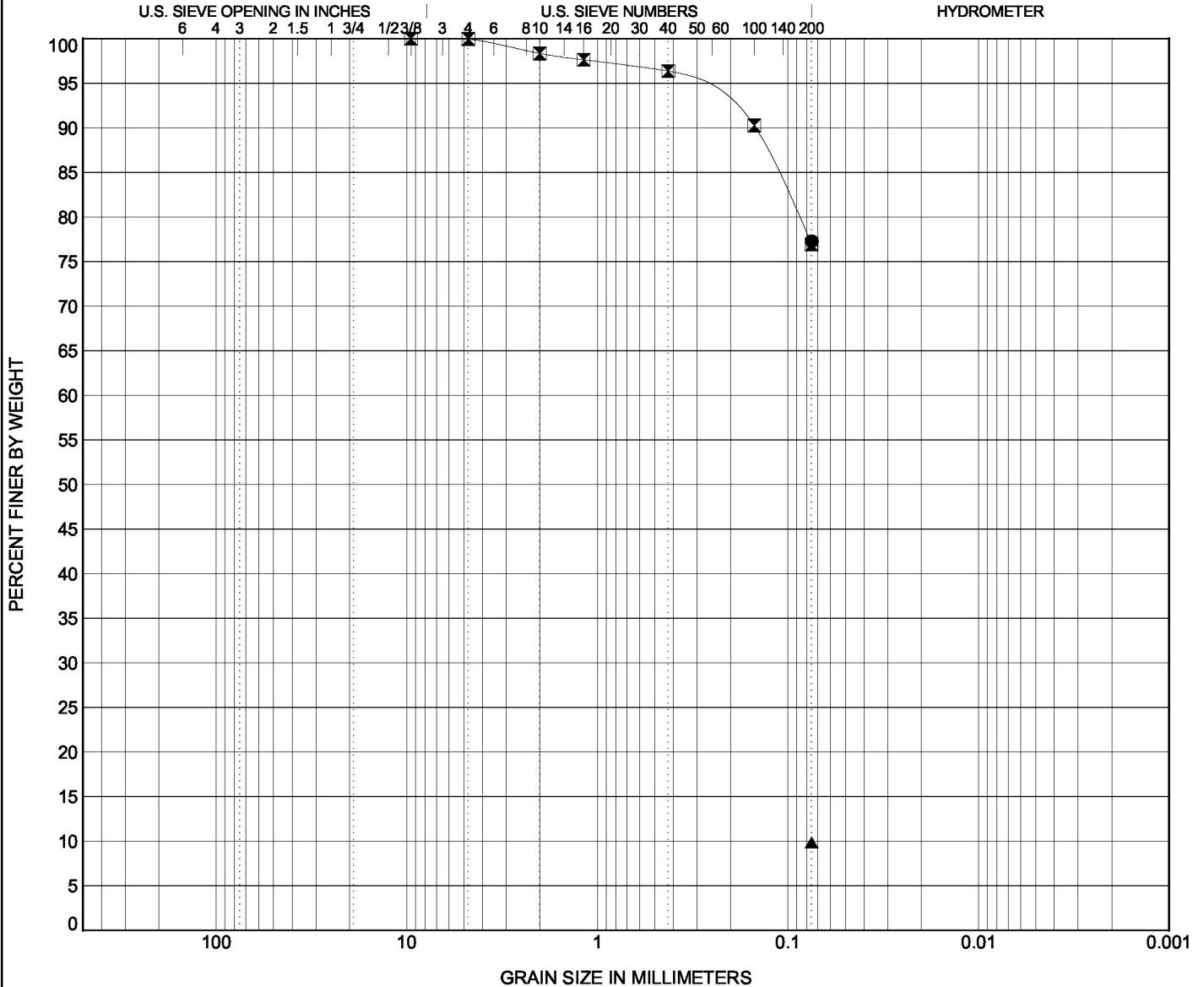
GRAIN SIZE DISTRIBUTION

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado

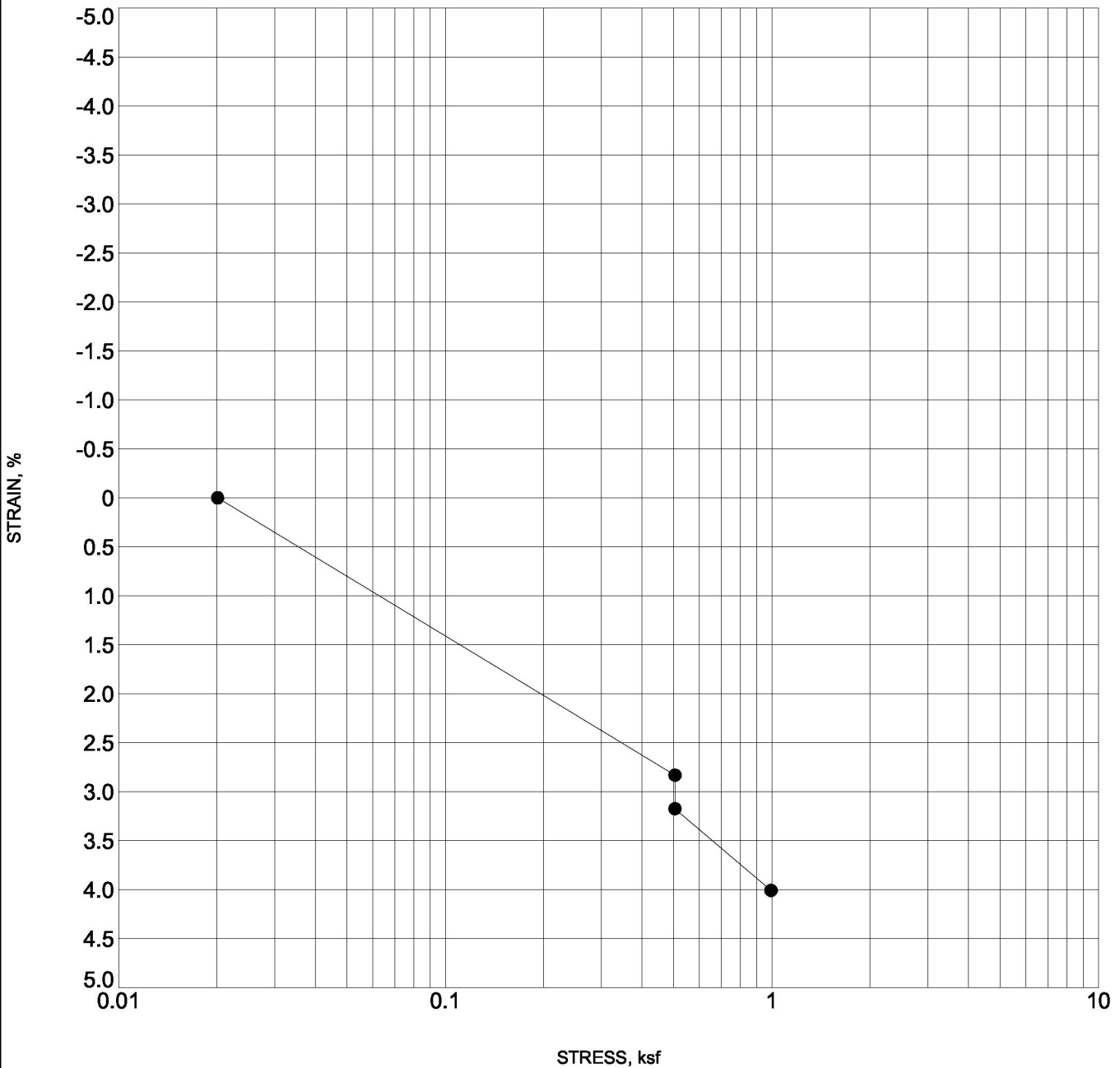


CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado



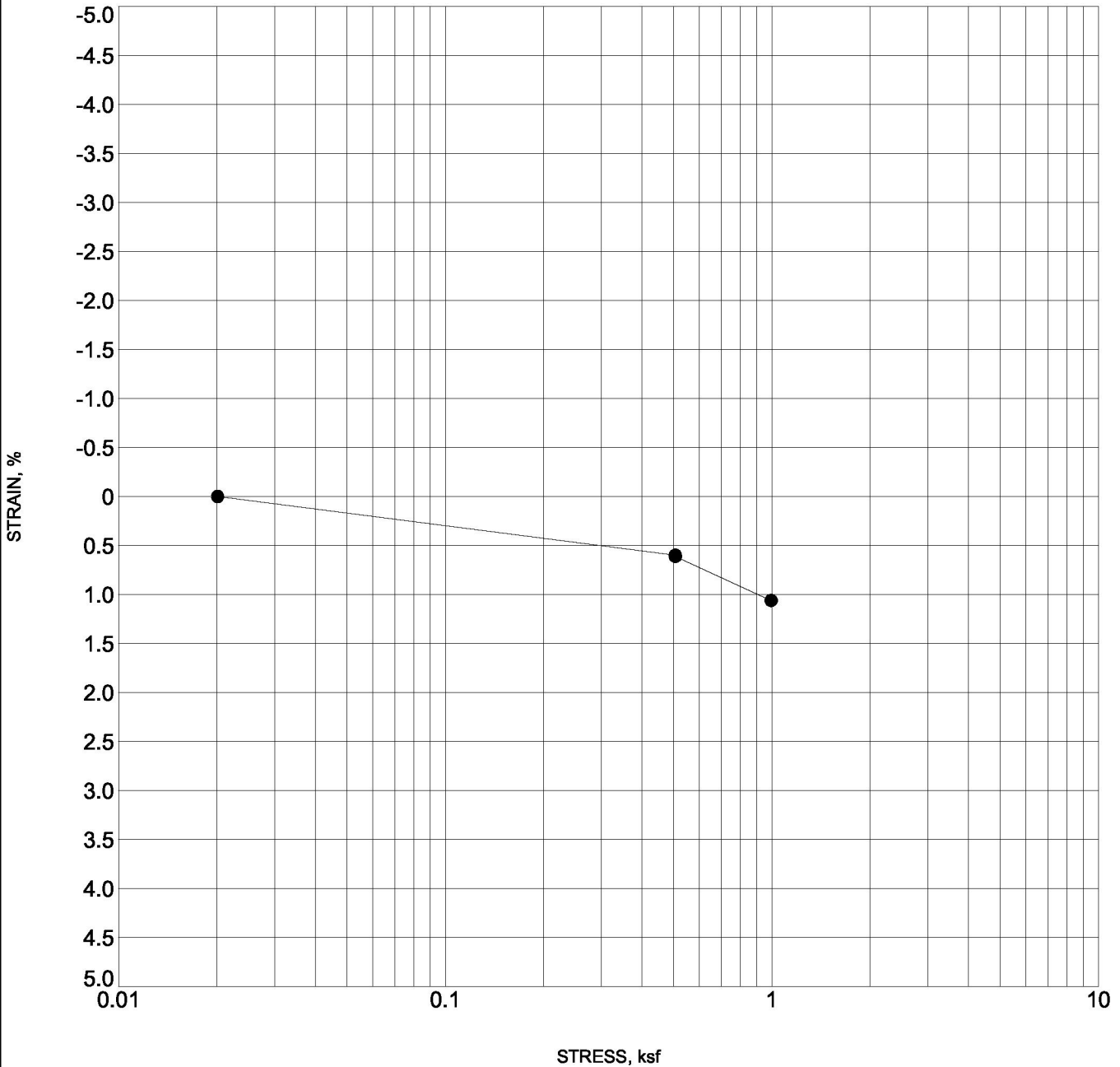
Specimen Identification		Classification	Swell/Consol. (%)	γ_d (pcf)	MC%
● B-1	10	CLAY, silty to sandy	-0.3	97.8	22.7

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado



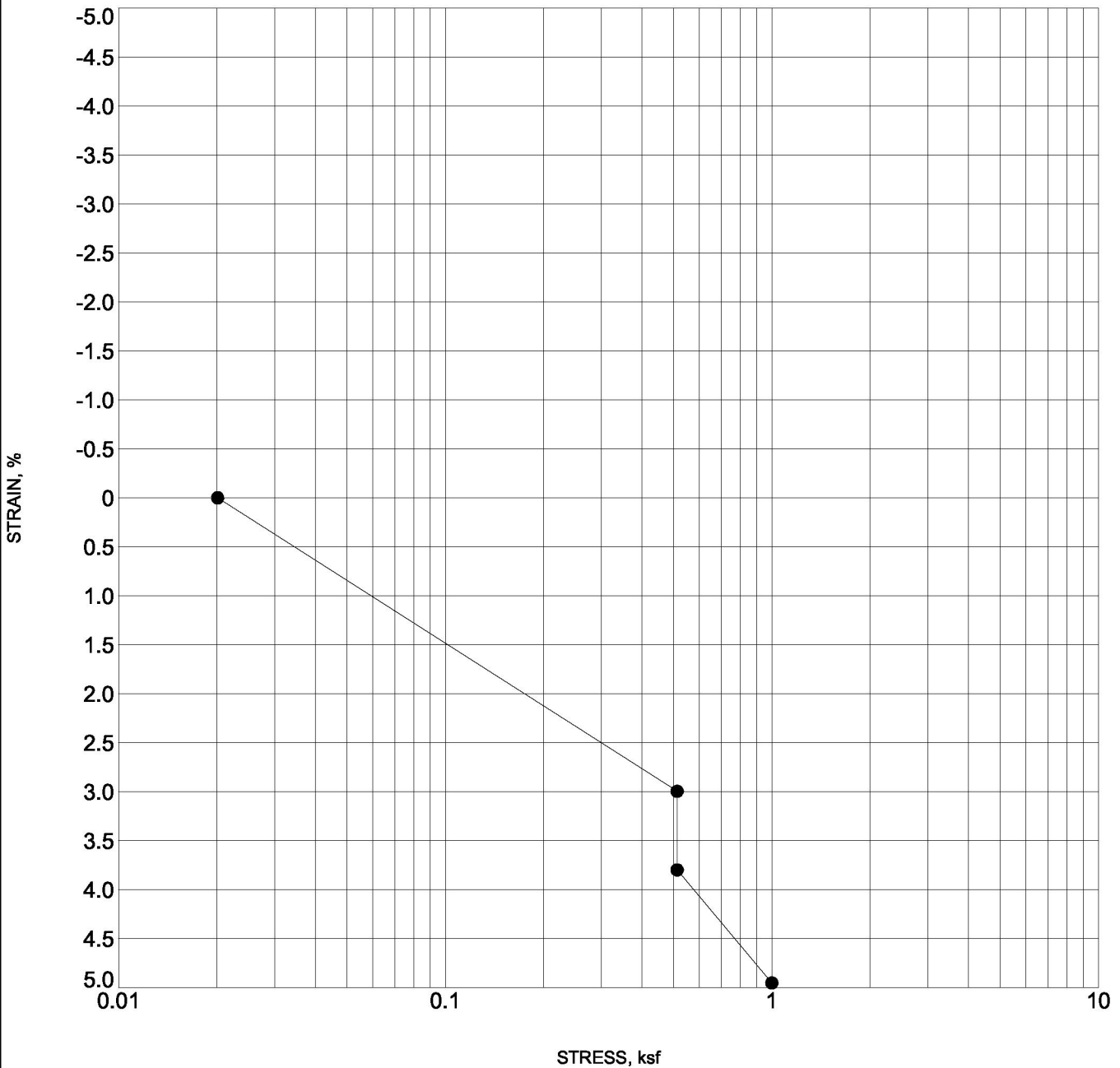
Specimen Identification	Classification	Swell/Consol. (%)	γ_d (pcf)	MC%
● B-3 5	CLAY, silty to sandy	0.0	108.7	15.4

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado



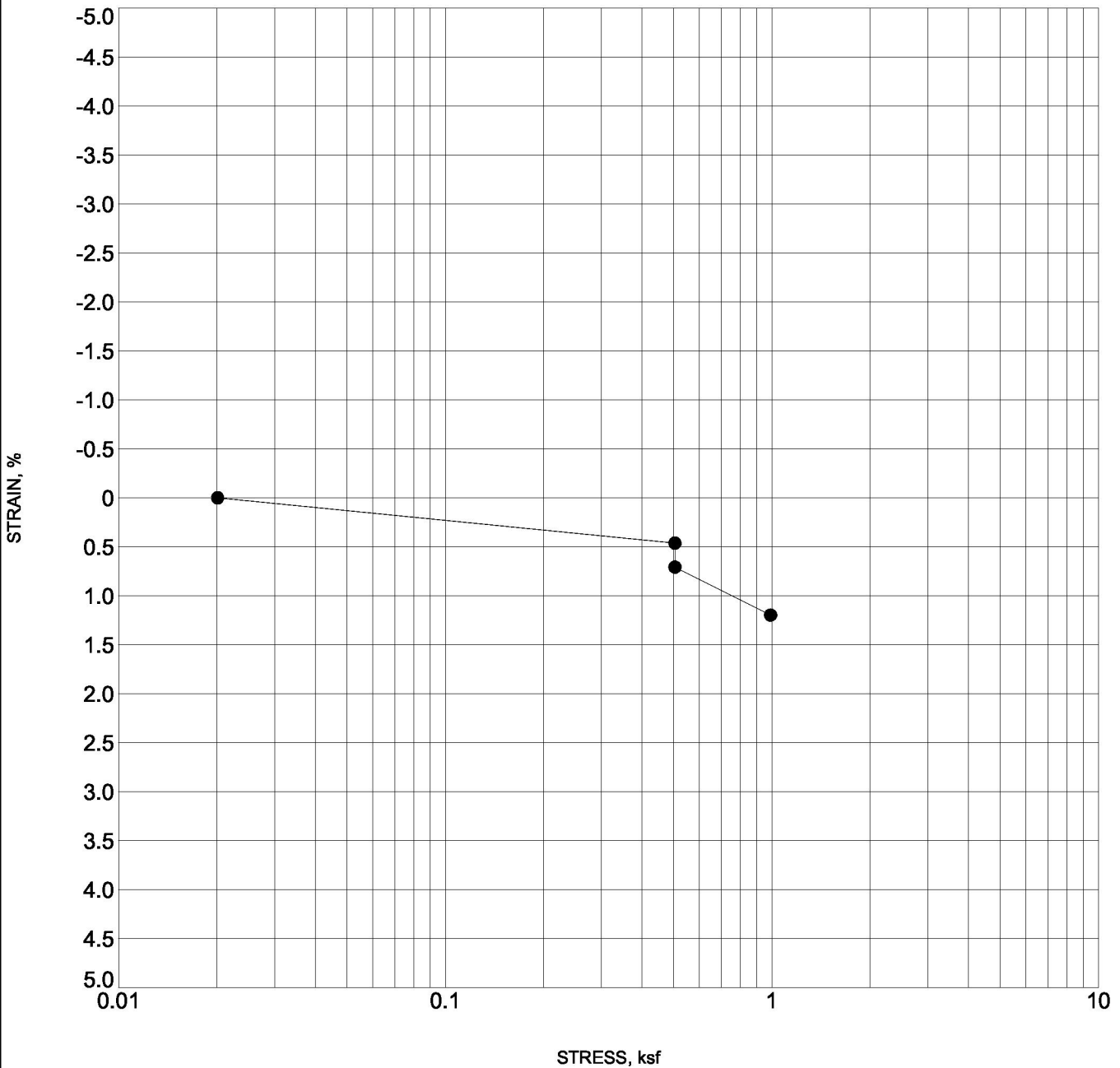
Specimen Identification	Classification	Swell/Consol. (%)	γ_d (pcf)	MC%
● B-4 5	CLAY, silty	-0.8	106.4	21.2

CLIENT City of Grand Junction

PROJECT NAME Canyon View Lighting Project

PROJECT NUMBER 599.23

PROJECT LOCATION Grand Junction, Colorado



Specimen Identification	Classification	Swell/Consol. (%)	γ_d (pcf)	MC%
● B-5 5	CLAY, silty	-0.2	92.3	15.4

APPENDIX D

IBC FOUNDATION EMBEDMENT DESIGN EQUATION

Applicable International Building Code Design Formulae

1807.3.2.1 Nonconstrained.

The following formula shall be used in determining the depth of embedment required to resist lateral loads where lateral constraint is not provided at the ground surface, such as by a rigid floor or rigid ground surface pavement, and where lateral constraint is not provided above the ground surface, such as by a structural diaphragm.

$$d = 0.5A \{ 1 + [1 + (4.36h/A)]^{1/2} \}$$

(Equation 18-1)

where:

$A = 2.34P/(S_1b)$.

b = Diameter of round post or footing or diagonal dimension of square post or footing, feet (m).

d = Depth of embedment in earth in feet (m) but not over 12 feet (3658 mm) for purpose of computing lateral pressure.

h = Distance in feet (m) from ground surface to point of application of "P."

P = Applied lateral force in pounds (kN).

S_1 = Allowable lateral soil-bearing pressure as set forth in Section 1806.2 based on a depth of one-third the depth of embedment in pounds per square foot (psf) (kPa).

TABLE 1806.2 PRESUMPTIVE LOAD-BEARING VALUES

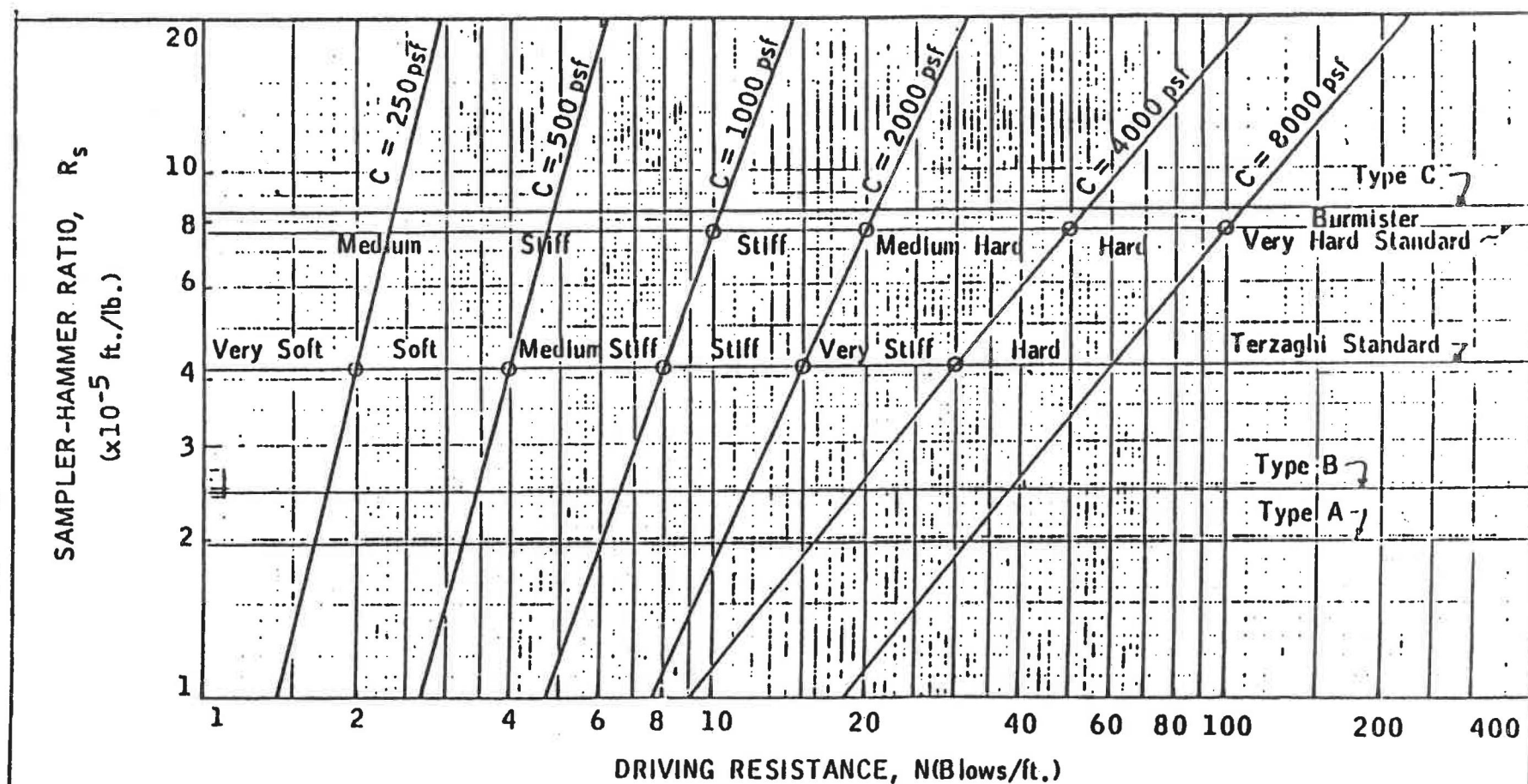
CLASS OF MATERIALS	VERTICAL FOUNDATION PRESSURE (psf)	LATERAL BEARING PRESSURE (psf/ft below natural grade)	LATERAL SLIDING RESISTANCE	
			Coefficient of friction ^a	Cohesion (psf) ^b
1. Crystalline bedrock	12,000	1,200	0.70	—
2. Sedimentary and foliated rock	4,000	400	0.35	—
3. Sandy gravel and gravel (GW and GP)	3,000	200	0.35	—
4. Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	2,000	150	0.25	—
5. Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH and CH)	1,500	100	—	130

For SI: 1 pound per square foot = 0.0479kPa, 1 pound per square foot per foot = 0.157 kPa/m.

a. Coefficient to be multiplied by the dead load.

b. Cohesion value to be multiplied by the contact area, as limited by Section 1806.3.2.

Figure C-1



W = Weight of Hammer (lb.)
 H = Height of Drop (in.)
 D_o = Outside Diameter Sampler Shoe (in.)
 D_i = Inside Diameter Sampler Shoe (in.)
 R_s = Sampler-Hammer Ratio = $\frac{D_o^2 - D_i^2}{WH(12)}$ (ft./lb.)
 (Cohesive Soils)
 C = Shearing Strength (psf)

SAMPLER TYPE	W	H	D_o	D_i	R_s
TERZAGHI STANDARD	140	30	2.000	1.375	4.18×10^{-5}
BURMISTER STANDARD	250	20	3.625	2.930	7.59×10^{-5}
TYPE A	300	30	2.000	1.375	1.95×10^{-5}
TYPE B	300	24	2.000	1.375	2.44×10^{-5}
TYPE C	140	24	3.000	2.375	8.33×10^{-5}

SAMPLER DRIVING RESISTANCE
 VS. SHEAR STRENGTH
 COHESIVE SOILS



IDA-Criteria for Community-Friendly Outdoor Sports Lighting v1.0

1. Compliance with all applicable Codes and Standards (e.g. Underwriter Laboratories, CEC, National Building Codes with Local Amendments)
2. **Target Illumination** – Measured on-field illuminance values appropriate for the application per IESNA RP-6-15 Sports and Recreational Area Lighting criteria (or equivalent CIE guidance) together with modeled initial illuminance targets. Only IES Class III & IV level and State High School Lighting Recommendation illumination levels are eligible for the Award of Excellence. To limit over-lighting, the design may vary by no more than 10% above the average target illuminance levels for each Class.
3. As the IES TM-15-11 Luminaire Classification System for Outdoor Lighting is not appropriate for sports lighting, a modified approach to controlling backlight, uplight, and glare is applied with the following metrics:
 - A. **Backlight** – Directionality and application efficiency will be addressed indirectly through two methods that quantify off-site performance, one using the design luminance and another using measured illuminance. Backlight criteria will be difficult to meet without sufficient and appropriate setback of sports fields from the properly line.
 - a. Total designed lumens not contained within the area encompassing the field perimeter and an area immediately adjacent to that area that has a 33 foot (10 meter) offset. As modeled, no more than 15% of the total lumens may be outside of this region.
 - b. Measured spill illuminance values, as measured with the light meter aimed in the direction of the brightest reading, shall not exceed criteria for the respective Environmental Zone (Table 1 below) nor shall it exceed the maximum initial spill illuminance values as modeled and specified in the design process. These measurements shall be taken a distance equal to 150' beyond the edge of the field. Measurements should be conducted with and without the facility lighting operating so that the sports facility lighting can be isolated from other natural and artificial light sources.

Table 1 – Allowable spill illuminance to control backlight

Lighting Zone		Spill Illuminance at Setback
Environmental Zone (IESNA RP-33-99)	MLO Lighting Zone (IDA Model Lighting Ordinance)	
E2 – E4	LZ1 – LZ4	≤0.20 ft-c / ≤2.0 lux

- B. **Uplight** – All luminaires must be designed such as to not to emit direct light above the horizon, unless required for the activity (i.e. aerial sports) being played. In those cases, only 8% of the total (directly) applied lumens as modeled may be in this zone. For modeling purposes, a horizontal ceiling grid shall be placed 5 feet (1.5 meters) above the top of the tallest pole, extending out to 150 feet (45 meters) beyond the edge of the field to determine compliance. Installation shall not deviate from the design.
- C. **Glare** – Modeled luminous intensity from any luminaire for any viewing angle at 5' above grade level, at a distance equal to 150' beyond the edge of the field shall not exceed 1000 candela (absolute). Luminaires shall not emit more than 250 lumens in the “Very High” glare zone, ranging from 80° to 90° above nadir. This shall be verified through a luminaire photometric report and aiming summary report and visual inspection, or through an equivalent software application and visual inspection.¹
4. **Lighting Zoning** – Community-Friendly Outdoor Sports Lighting will only be certified if located in environmental zones E2 through E4, or MLO lighting zone LZ1 through LZ4. Areas especially sensitive to lighting such as E1 or LZ0 are not appropriate for this award program.
5. **Application Efficiency** – The lighting system shall achieve a minimum Application Efficiency of 70 lumens per watt, calculated per the following formula (or the metric equivalent):

$$\frac{\text{Target area square footage} \times \text{Avg. Maintained Design ft-c}}{\text{Total System Watts}} = \text{Applied Lumens/watt}$$

“Target Area” is defined as the total grid area for the sports field and/or sports court as defined by the IES LM-5-04 IESNA Guide for Photometric Measurements of Area and Sports Lighting Installments (or CIE equivalent guidance).

¹ When commercial meters are widely available to measure luminous intensity in the field, these criteria will be amended to also require a measurement component for glare.

6. **Controls** – Provide advanced controls and documentation for the following:
- a. Automatic and/or remote control system via smartphone apps, or direct remote communication to the company facility responsible for handling the lighting controls, to enforce shut-off at locally established curfew time, not to be later than 11:00 PM (2300 hrs).
 - b. On-site manual and/or remote control system shall also be provided to allow for the lights to be turned on or off at will (before curfew) to assure that only active sports fields are lighted.
 - c. Provide readily accessible controls to implement uniform and variable adaptive illumination levels for different task lighting needs on field, e.g. IES class of play, competition athletics, band practice, striping, mowing, sports practice, etc. Adaptive dimming shall be possible across the range of 25% to 100% of full illumination.²
 - d. A formal policy defining the appropriate level of illumination necessary for the specific activities and curfew times must be established and enforced. A copy of the policy will be included in the application for the Award of Excellence.
7. **Color** – Luminaire Correlated Color Temperature (CCT) may not exceed 5700°K, as defined by ANSI C78.377. Luminaire CCT must be determined through empirical measurements as defined by IESNA LM-79 (or CIE equivalent) and performed by a laboratory appropriately accredited by NVLAP. Installation shall be verified by measurement across the target area.³
8. **Other Lighting** – The installed field lighting is not to be used for illuminating other area tasks. For example, if parking and concession areas lighting is desired, those areas shall be illuminated by separate luminaires and systems not associated with sports field illuminance needs. Other outdoor lighting at the site must, at a minimum, meet the lighting standards and lighting codes established by the community, and must meet the standards set forth in the IDA Model Lighting Ordinance for the relevant lighting zones and tasks.

² IDA is developing guidance for the appropriate illumination levels for non-sports activities and tasks that often occur on playing fields.

³ Some variance in the measured CCT values are permitted, following the ANSI guidance.



Frequently Asked Questions

IDA-Criteria for Community-Friendly Outdoor Sports Lighting

1. Why is IDA creating criteria for IDA Community-Friendly Outdoor Sports Lighting? Aren't you simply "certifying" more light pollution?

Since 2007, IDA's Fixture Seal of Approval (FSA) Program has successfully evaluated roadway, wall pack and walkway luminaires that have been utilized in communities to promote the protection of the nighttime environment. Although successful, the FSA was neither developed nor intended to apply to athletic field lighting, due to the need that the facilities' luminaires had to be positioned above full cutoff orientations. This resulted in a number of issues and concerns in communities where general lighting practices were promoting dark skies, yet local sporting facilities – which were being lit with non-shielded luminaires – were exacerbating sky glow and light pollution.

To encourage the use of the best available technology for dark sky preservation, IDA has established Criteria for Community-Friendly Outdoor Sports Lighting that upholds the values that many communities seek in their public illuminated spaces. These criteria ensure that outdoor sports lighting design minimizes obtrusive light spill and glare into surrounding neighborhoods and natural areas, meets sustainability and climate-friendly goals, and reduces sky glow to the greatest extent practicable. By utilizing IDA's criteria, communities demonstrate and promote the vision for outdoor sports lighting that simultaneously meets the demanding task of illuminating night-time sports events while preserving night skies.

2. How will the IDA-Criteria for Community-Friendly Outdoor Sports Lighting protect my neighborhood from light pollution?

By adopting the IDA-Criteria for Community-Friendly Outdoor Sports Lighting, communities will:

- Minimize neighborhood lighting nuisance by greatly reducing spill and glare disruption.
- Manage high angle glare, thus dramatically decreasing off-site light trespass and sky glow.

- Mitigate neighborhood nuisance factors and sky glow which, in turn, provide benefits to the environment, the astronomy community, and others.
- Minimize lumen densities, which reduce energy consumption.

3. For what types of play field is the IDA-Criteria for Community-Friendly Outdoor Sports Lighting appropriate?

The criteria specify that only facilities used for soccer, baseball, tennis and other recreational activities typically associated with schools and community parks qualify for consideration.

4. Who should know about the IDA-Criteria for Community-Friendly Outdoor Sports Lighting?

To promote lighting that helps protect the nighttime environment, we recommend contacting city council members, community representatives, home owner associations, and parks and recreation authorities to encourage their use of the IDA-Criteria for Community-Friendly Outdoor Sports Lighting when designing or retrofitting playfields.

5. Why do the criteria utilize a maximum allowable correlated color temperature of 5700 kelvin (k) when IDA recommends 3000k for roadway and general area lighting?

IDA's recommendation for correlated color temperature values of outdoor lighting applications have been, and remain, 3000k maximum. Street and area lighting illuminances are established at levels to facilitate safe way-finding and hazard identification, while minimizing light trespass and the disruption of nocturnal habitats. By contrast, sports fields have high levels of human activity and ball speeds where visibility is essential, requiring the allowance for design professional and end user preferences of light sources of up to 5700k. Nonetheless, the use of advanced technologies combined with rigorous design standards, curfews, and variable output controls tailored to the need of the activity, sports lighting facilities **can** be constructed or retrofit to essentially eliminate light trespass and curtail sky glow, protect nocturnal habitat, moderate neighborhood nuisance glare, and support dark skies.

6. Can the IDA-Criteria for Community-Friendly Outdoor Sports Lighting be achieved with existing installations?

Light trespass limitations of the IDA-Criteria for Community-Friendly Outdoor Sports Lighting are stringent, and likely will not be met if older technologies and design

parameters are used, but holistic lighting modernizations of legacy applications are possible under this guidelines.

7. Does IDA intend to formally certify and recognize facilities that fully comply with the standards established in the criteria?

It is anticipated that in, the next several months, IDA will establish a program that certifies outdoor facilities that fully comply with IDA-Criteria for Community-Friendly Outdoor Sports Lighting. We are currently developing software that will provide preliminary evaluations of facilities and that can be used to guide their design, or retrofit, so that they meet the program's strict standards. Once a field has been constructed, or retrofit, to these standards, IDA will conduct an on-site verification test to ensure that the facility still complies with the criteria and, if so, will be certified and recognized by IDA as compliant with IDA-Criteria for Community-Friendly Outdoor Sports Lighting.

Interstate 70

Off-Leash Dog Area

(Seasonal Pond)

Irrigation Pond
(NO SWIMMING)

Baseball Field

Bookcliff
Field

Warm
Up
Mt.
Garfield
Field

Liberty
Cap
Field

Warm
Up
Thunder
Mountain
Field

Red
Field

Dominquez
Field

Burro
Field

Prairie
Field

Tennis
Complex

Main Entrance

Private
Property

Play
Ground

Irrigation Pond
(NO SWIMMING)

Gunnison
Shelter

Bear

Field

Yellow
Jacket

Field

Rattlesnake

Field

Ruby

Field

Horsethief

Field

Handball Court
& Shelter

Pollock

Field

Bangs

Field

Maverick

Field

G Road

CANYON VIEW PARK

Interstate 70

Off-Leash Dog Area
(Seasonal Pond)

Main Entrance

Private Property

Gunnison Shelter

Handball Court & Shelter

G Road

Bookcliff Field

Warm Up

Mt. Garfield Field

Liberty Cap Field

Warm Up

Thunder Mountain Field

Play Ground

Irrigation Pond
(NO SWIMMING)

Irrigation Pond
(NO SWIMMING)

Red Field

Dominquez Field

Burro Field

Prairie Field

Baseball Field

Tennis Complex

Bear Field

Yellow Jacket Field

Rattlesnake Field

Ruby Field

Horsethief Field

Pollock Field

Bangs Field

Maverick Field

CANYON VIEW PARK



Purchasing Division

ADDENDUM NO. 2

DATE: March 2, 2021
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: Design/Build Canyon View Lighting Replacement Project RFP-4864-21-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Q. Does the city have any illuminance requirements that the new lighting system has to meet?

A. A minimum of 30 footcandles per field.

2. Q. Will the City be sharing the Site Visit Sign In Sheet after the mandatory site visit meeting is held?

A. Yes. It will be post on the City's webpage and on the Rocky Mountain E-Purchasing System, aka Bidnet Direct.

3. Q. Are you requiring stamped electrical and foundation drawings with bid?

A. Stamped electrical and foundation drawings are not required to be submitted with your bid response. A geotechnical report was provided in order to give enough information to assist the proposer in providing a more firm design concept, and proposal pricing.

4. Q. What are the light levels the city is requesting?

A. See answer 1 of this addendum.

5. Q. What length of warranty is being requested?

A. Reference Section 4.2.5 Warranty: Contractor shall submit manufacturer warranty information for Owner's approval, prior to product ordering. Additionally, Contractor shall provide a minimum 1 year Contractor's warranty.

Per Section 6.2 Intent, Warranty and Service Plan is an element of the evaluation criteria. The City is looking for the Contractor to propose a warranty package and service plan that provides the best value to this scope and size of project.

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

A handwritten signature in black ink, appearing to read 'Duane Hoff Jr.', written in a cursive style.

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado



Purchasing Division

ADDENDUM NO. 3

DATE: March 2, 2021
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: Design/Build Canyon View Lighting Replacement Project RFP-4864-21-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Q. Does Park & Recreation have an activity schedule?
 - A. Due to COVID-19, activities being scheduled are sporadic. As league and scheduling take place, we will contact the awarded contractor and work with them for project scheduling.
2. Q. Does the City have a specific bid bond form?
 - A. No, contractors may utilize any standard forms provided by their surety.
3. Q. When can we start?
 - A. Contractor may start upon notice to proceed once signed contract, payment & performance bonds, and insurance certificate are in place. As per solicitation document, the tentative contract signing date is April 22, 2021.
4. Q. When do we need to be finished?
 - A. Entire project (full design and construction) must be completed no later than December 13, 2021.
5. Q. Will we be able to close a field for trench work?
 - A. For any trench work that may be required, the City will work with the awarded contractor to coordinate trenching requirements necessary. Most trenches are outside the fields. The preference is to minimize any closures, if any are necessary.
6. Q. Can we bring our subs back out to this site?

- A. Yes, contractors may revisit the site with their subs. Note that certain areas may be closed. No questions are to be asked to any City staff beside the senior buyer of the project. No formal second site visit will be offered.

7. Q. Where will the staging area be?

- A. The City will provide an area for equipment storage. This will be coordinated with the City project manager and the awarded contractor.

8. When contractors develop their strategy and implementation plan for this project, please note that the month of July is considered a “rest period for the park” and no sporting events will be scheduled.

9. Q. Can the city please provide electrical drawings and/or as builds?

- A. Please see the attached as-built drawings for bidding purposes. Actual/current conditions will need to be verified in the field prior to construction.

10. Q. Are there any problems with the current electrical?

- A. There are no current problems and the City expects/desires to utilize as much of the existing electrical infrastructure (underground cabling) as possible but will be relying on contractors' recommendations if upgrades or replacements are needed.

11. Q. What needs to be done about the nest in the one light?

- A. CPW has been contacted. At this time, we do not believe that there will be any special requirements for the bidders. Any protective measures/time restrictions will be communicated to the bidders/contractors as information is received.

12. Q. Is this RFP only for the field lighting?

- A. Per the solicitation document, this RFP is for field lighting, infrastructure, and equipment for operation of new system.

13. Q. What is the City's tree protection guidelines?

- A. Please see the following attached Grand Junction City Forester (GJCF) Tree Protection Specifications.

14. Q. For trenching and/or damaged grass agrees, what does the City want to use? Sod, seeding, or turf?

- A. In the high traffic areas sod shall be utilized, in the low use areas seed shall be utilized.

15. Q. Can you provide additional information on cell tower on pole lighting lease agreements fir the following:

- a. Can we add the new lighting to the pole? Who with Verizon would give us that approval?
 - A. A structural analysis will be required for any additional loading to the pole. If it passes, lighting can be added.
- b. If the lighting cannot go back on the pole, what is the clearance needed for the new pole away from the cell tower?

- A. The answer to this is still being researched. It will be provided to the awarded Contractor.
- c. Do we work directly with Verizon or do we work with Front Range Wireless?

- A. Verizon's property management group.

- A. The City waiting to hear back from Verizon on this question. As soon as they provide a response, we will provide that information.

16. Q. Can the City confirm the thickness of the sidewalk that the equipment will be driving on?

- A. Typical Sidewalk is presumed to be 4 inches of non-reinforced concrete. The decorative/scored concrete around the core/center of the ball fields is presumed to be 5 inches of concrete with #4 rebar 18 inches on center – both ways. Each of these concrete thicknesses will need to be confirmed by the contractor prior to driving equipment on them.

17. Q. Can the City provide marking verification of all sprinkler heads and lines?

- A. Please see the attached as-builts. Additionally, we will mark out the irrigation mainline and do our best to mark laterals and irrigation heads.

18. Q. Can trenches remain open overnight?

- A. Per the City specifications, no open trenches are to remain overnight or when work is not being conducted. However, if the project requires some trenches to remain open for some time period, the contractor is responsible for coordinating and communicating with City project manager and providing safety measures necessary to maintain public and property safety.

19. Q. Major water line map

- A. Please see attached as-built drawings and please reference the City GIS mapping for assumed locations.

20. Q. Can the City provide location of storm drains?

- A. For storm drain locations, contractors may utilize the City's GIS system on the City's webpage at <https://www.gjcity.org/maps>.

21. Q. How much of the foundations does the City want removed when a pole is removed?

- A. Minimum of 2 feet below the existing surface elevations.

22. Q. Is it the contractors responsibly to dispose of the poles?

- A. Per the solicitation document, it is the contractor's responsibility to provide removal and disposal of all materials, products, etc. They City recommends that contractors reach out to local little leagues that have shown interest in reusing these items. Monument Little League showed some interest.

23. Q. What is the voltage on current lighting?

- A. The City believes this to be 480 volt. Please reference attached as-built drawings.

24. Q. What does the City want done with the spoils?

A. The City shall provide a site located near the project site.

25. Q. Do you want to maintain/keep the one switch light controls?

A. Yes, however the City is also interested in having phone app controls as well.

26. Q. Is there an active network?

A. There is currently no active wireless network at Canyon View Park.

27. Q. Does the City have an existing software?

A. The City of Grand Junction does not currently have any software running the sports field lighting at this time.

28. Q. How is the existing field lighting metered? Locations?

A. We believe all associate meters are in the Grand Shelter Electrical Room.

29. Q. Does the City want the contractor to provide a contingency fee line item when pricing this project?

A. This is a Guaranteed Maximum Price (GMP) proposal. It is at the Contractor's discretion if they include any contingency with their GMP.

30. Q. Can the City provide pole boxes for wiring?

A. No. The contractor shall be responsible for providing any pole boxes required for the project.

31. Q. Please confirm that IBC 2018, 115MPH is to be used for structural criteria per the City of Grand Junction and Mesa County building department?

A. The City will default to the Mesa County Building Department's criteria. It is the Contractor's responsibility to confirm with Mesa County Building Department.

32. Q. Must lighting manufacturers provide a minimum number of project references utilizing the same technology within the state of Colorado? 5 is a typical number for similar scope bids.

A. Contractor references do not need to be for the same technology, and do not have to be within the state of Colorado. Per Section 4.3, Successfully completed three (3) similar projects of scope and size within the last five (5) years.

33. Q. Must IDA Dark Skies compliance approval letter be submitted to the City as part of preproduction submittal?

A. No approval letter is required as part of the preproduction submittal. However, as per the solicitation documents, Contractor must obtain IDA Dark Skies certification for the project upon completion.

34. Q. Is IDA Dark Skies on site audit required post lighting installation? This will provide the City true accreditation. Will both the manufacturer and installing contractor be responsible to make any necessary changes at their own cost should the facility fail on site audit?

A. Contractor shall meet all IDA Dark Skies requirements necessary for the City to obtain proper accreditation. If IDA Dark Skies require modification/correction to the project in order for the City to receive proper accreditation, all modifications/corrections shall be at the expense of the Contractor.

35. Q. Light levels listed in Addendum 2 do not meet industry recommended standards for recreation sporting facilities. Confirm that the lighting requirements are 50/30FC for softball and 30FC for soccer per IESNA recommendations for recreational sports lighting. These will meet requirements for hosting tournaments.

A. Light levels for both softball and soccer fields shall meet the IESNA recommendations for recreational sports lighting.

36. Q. Will direct buried steel poles be allowed? These face similar corrosion issues associated with the existing structures that have failed. Must all proposed poles utilize either anchor bolt foundations or pre-cast foundations that remove all steel components of the pole from being below grade in a corrosive environment?

A. The City would prefer a non-corrosive system however the City will consider other options.

37. Q. Must communication costs associated with any controls system be included for the entire length of manufacturer's warranty period per industry standard?

A. Reference question and answer #5 of Addendum 2.

38. Q. Will integrated drivers be allowed or must all fixtures provide remote drivers at 10' above grade for easy access for maintenance. This would replicate the current set up with remoted ballast for easy access.

A. 10' above grade shall be the maximum height for remote drivers. Integrated drivers shall not be allowed.

39. Q. Must manufacturers provide on-site testing and training once system is installed? If testing reveals that promised light levels are not being met must contractors and manufacturers make appropriate repairs/replacements at own cost to meet submitted performance?

A. Yes, manufacture must provide on-site testing and training upon project completion. If testing reveals proper lighting levels are not being met, the Contractor shall be responsible for modifications/corrections to bring lighting levels to IESNA and IDA Dark Skies requirements.

40. Q. Must all poles be hot dipped galvanized? This galvanizes the pole inside and out eliminating the previous lighting systems corrosion issues. Spray on galvanization usually will not coat every exposed surface of steel, inside and out.

A. The City prefers a non-corrosive system, but will consider other options.

41. Q. Permit(s) are to be issued through which municipality?

A. Any permit(s) required for the project should be obtained through the Mesa County Building Department.

42. Q. Other than the electrical portion of permitting, what other permits will be required?

A. It is the Contractor's responsibility to verify what permits may be required for the project.

43. Q. Page 25 of the Request for Proposal package states we are to furnish "audited" financial statements. Is this corrected that they must be "audited"?

A. Contractor may furnish "reviewed" or "audited" financial statements for this project.

44. Q. Are there any specific potholing requirements?

A. The Contractor is responsible for researching and following any federal, state, and county rules and regulations pertaining to this. Refer to the City's Standard Contract Documents.

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

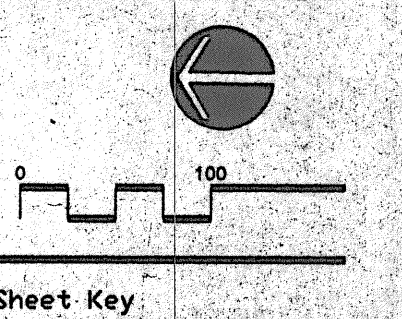
Respectfully,

A handwritten signature in black ink, appearing to read "Duane Hoff Jr.", with a stylized flourish at the end.

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO

CLAVONNE & ASSOCIATES
SITE PLANNING
LANDSCAPE ARCHITECTS
844 GRAND AVENUE
GRAND JUNCTION, CO
PHONE (970) 241-0746 FAX (970) 241-0747



Sheet Key

Sheet Title

AS-BUILT F

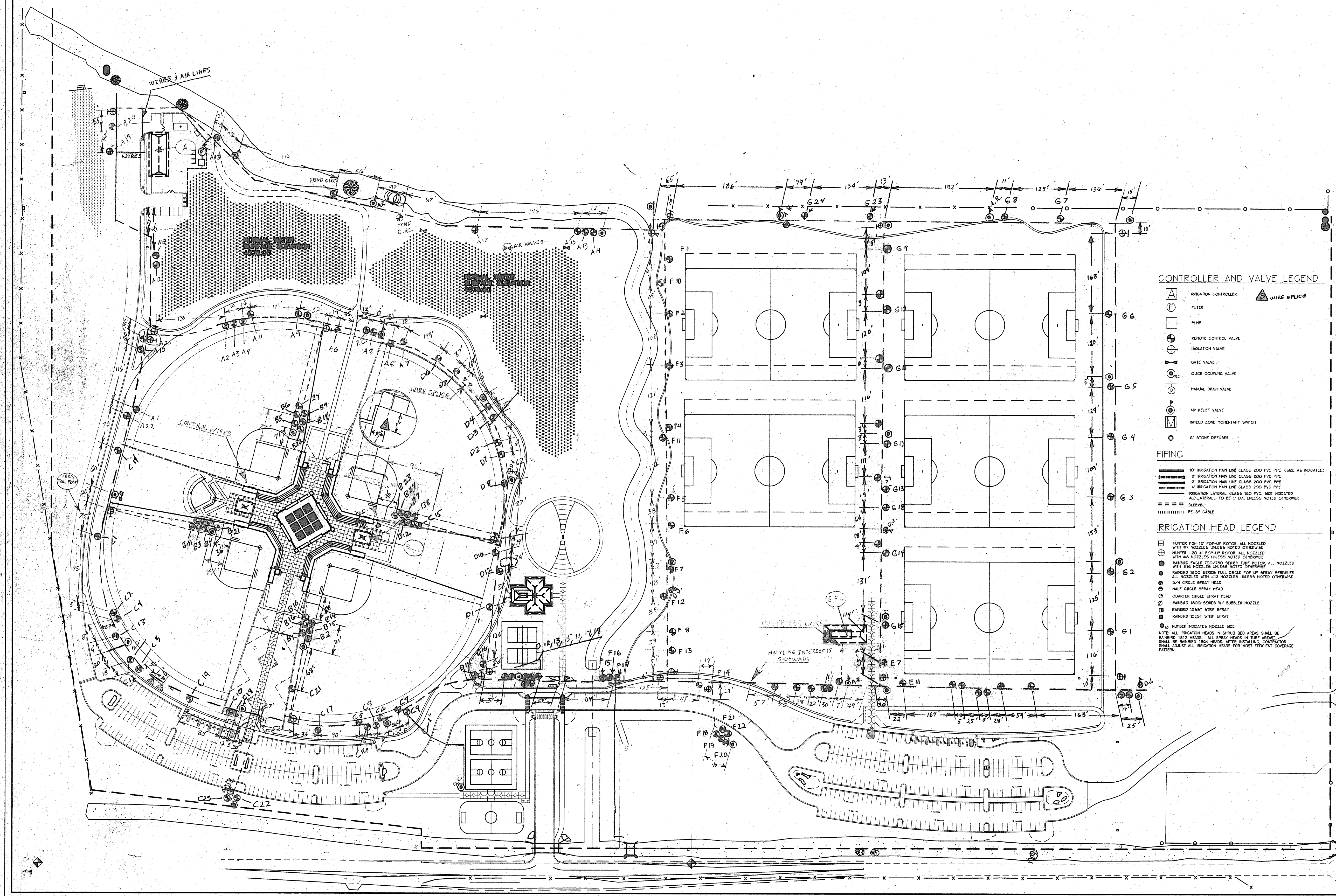
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Drawn By:

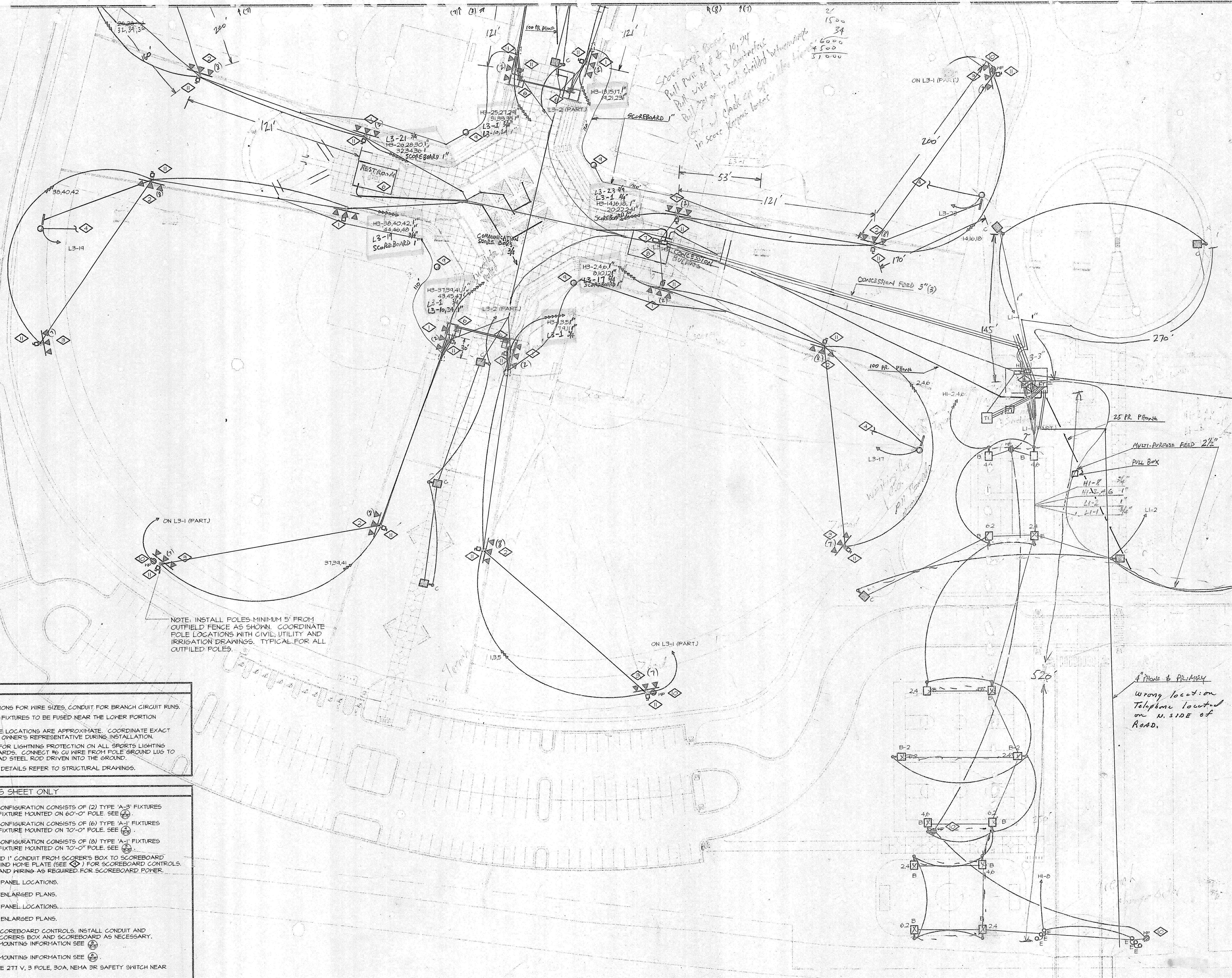
Checked By:

Project Number 7240

Sheet Number



INTERSTATE



- GENERAL NOTES
1. REFER TO SPECIFICATIONS FOR WIRE SIZES, CONDUIT FOR BRANCH CIRCUIT RUNS.
 2. ALL SPORTS LIGHTING FIXTURES TO BE FUSED NEAR THE LOWER PORTION OF POLES.
 3. SPORTS LIGHTING POLE LOCATIONS ARE APPROXIMATE. COORDINATE EXACT POLE LOCATIONS WITH OWNER'S REPRESENTATIVE DURING INSTALLATION.
 4. PROVIDE GROUNDING FOR LIGHTNING PROTECTION ON ALL SPORTS LIGHTING POLES AND SCOREBOARDS. CONNECT #6 CU WIRE FROM POLE GROUND LUG TO 3/4" X 10' COPPER GLAND STEEL ROD DRIVEN INTO THE GROUND.
 5. FOR ALL FOUNDATION DETAILS REFER TO STRUCTURAL DRAWINGS.

- DETAIL NOTES: THIS SHEET ONLY
- ① SPORTS LIGHTING CONFIGURATION CONSISTS OF (2) TYPE 'A-3' FIXTURES AND (1) TYPE 'A-2' FIXTURE MOUNTED ON 60'-0" POLE. SEE ②.
 - ② SPORTS LIGHTING CONFIGURATION CONSISTS OF (6) TYPE 'A-1' FIXTURES AND (1) TYPE 'A-2' FIXTURE MOUNTED ON 70'-0" POLE. SEE ③.
 - ③ SPORTS LIGHTING CONFIGURATION CONSISTS OF (8) TYPE 'A-1' FIXTURES AND (1) TYPE 'A-2' FIXTURE MOUNTED ON 70'-0" POLE. SEE ④.
 - ④ PROVIDE J-BOX AND 1" CONDUIT FROM SCORER'S BOX TO SCOREBOARD AND LOCATION BEHIND HOME PLATE. SEE ⑤ FOR SCOREBOARD CONTROLS. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR SCOREBOARD POWER.
 - ⑤ SEE SHEET E3 FOR PANEL LOCATIONS.
 - ⑥ SEE SHEET E3 FOR ENLARGED PLANS.
 - ⑦ SEE SHEET E4 FOR PANEL LOCATIONS.
 - ⑧ SEE SHEET E4 FOR ENLARGED PLANS.
 - ⑨ CONNECTION FOR SCOREBOARD CONTROLS. INSTALL CONDUIT AND CONNECTIONS TO SCORER'S BOX AND SCOREBOARD AS NECESSARY. FOR RECEPTACLE MOUNTING INFORMATION SEE ⑩.
 - ⑩ FOR RECEPTACLE MOUNTING INFORMATION SEE ⑪.
 - ⑪ PROVIDE LOCKABLE 277 V, 3 POLE, 30A, NEMA 3R SAFETY SWITCH NEAR BOTTOM OF POLE.

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PHONE: (303) 441-1500
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SHALL NOT
OTHERWISE
CONSENT OF
Issue Record
Purpose

PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO

CONSULTANTS
LERO, ADRIAN, RICHARDSON, & ASSOCIATES
CONSULTANTS

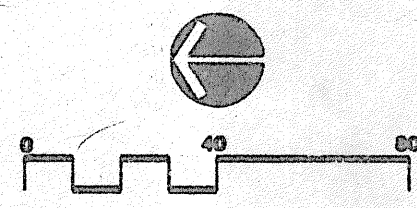
Sheet Title
LIGHTING AND POWER PLAN
CONSTRUCTION DOCUMENT SET

Date: 12-22-95
Drawn By: CLF
Checked By: LEY
Project Number: 72401
Sheet Number: E2-1

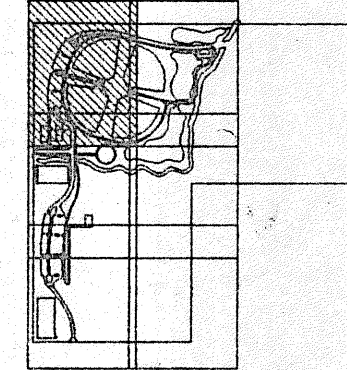
Issue Record/Revision

Purpose	Date

PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO



Sheet Key



Sheet Title

LIGHTING AND POWER PLAN
CONSTRUCTION DOCUMENT SET

Date: 12-22-95

Drawn By: CLF

Checked By: LEY

Project Number 72401

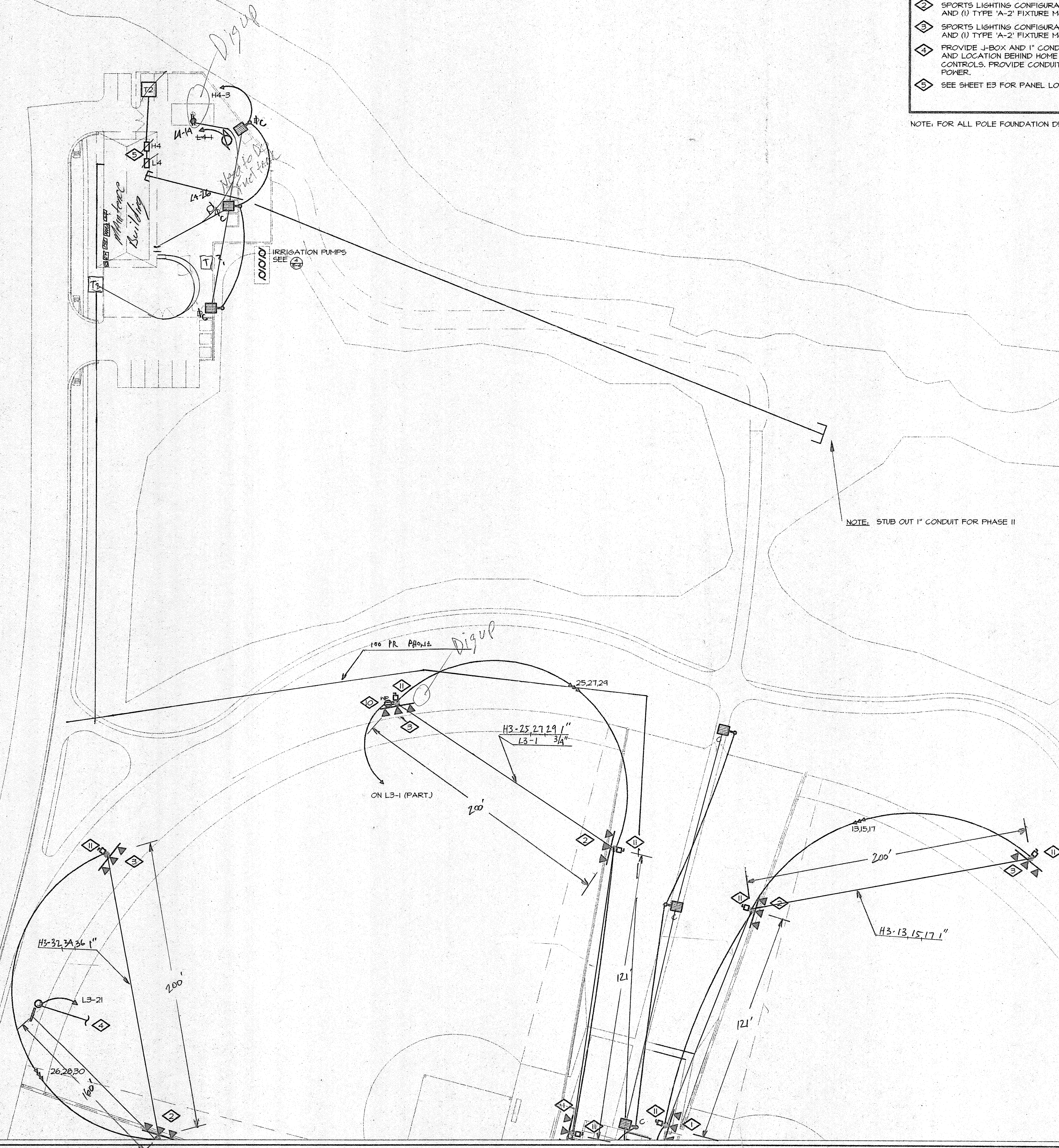
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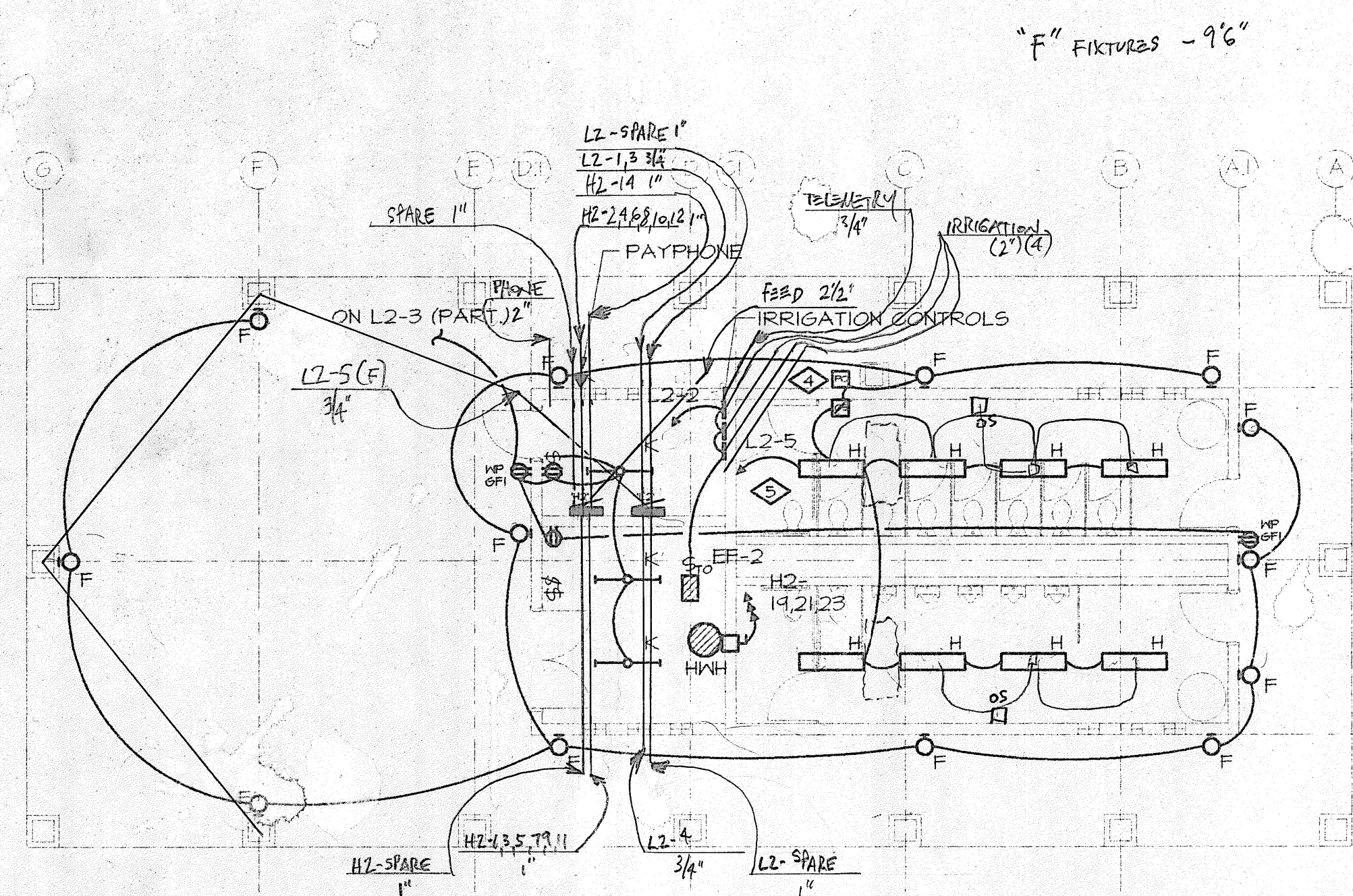
DETAIL NOTES

- 1 SPORTS LIGHTING CONFIGURATION CONSISTS OF (2) TYPE 'A-3' FIXTURES AND (1) TYPE 'A-2' FIXTURE MOUNTED ON 60'-0" POLE.
- 2 SPORTS LIGHTING CONFIGURATION CONSISTS OF (6) TYPE 'A-1' FIXTURES AND (1) TYPE 'A-2' FIXTURE MOUNTED ON 10'-0" POLE.
- 3 SPORTS LIGHTING CONFIGURATION CONSISTS OF (8) TYPE 'A-1' FIXTURES AND (1) TYPE 'A-2' FIXTURE MOUNTED ON 10'-0" POLE.
- 4 PROVIDE J-BOX AND 1" CONDUIT FROM SCORER'S BOX TO SCOREBOARD AND LOCATION BEHIND HOME PLATE (SEE 1 ON E2-1) FOR SCOREBOARD CONTROLS. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR SCOREBOARD POWER.
- 5 SEE SHEET E3 FOR PANEL LOCATIONS.

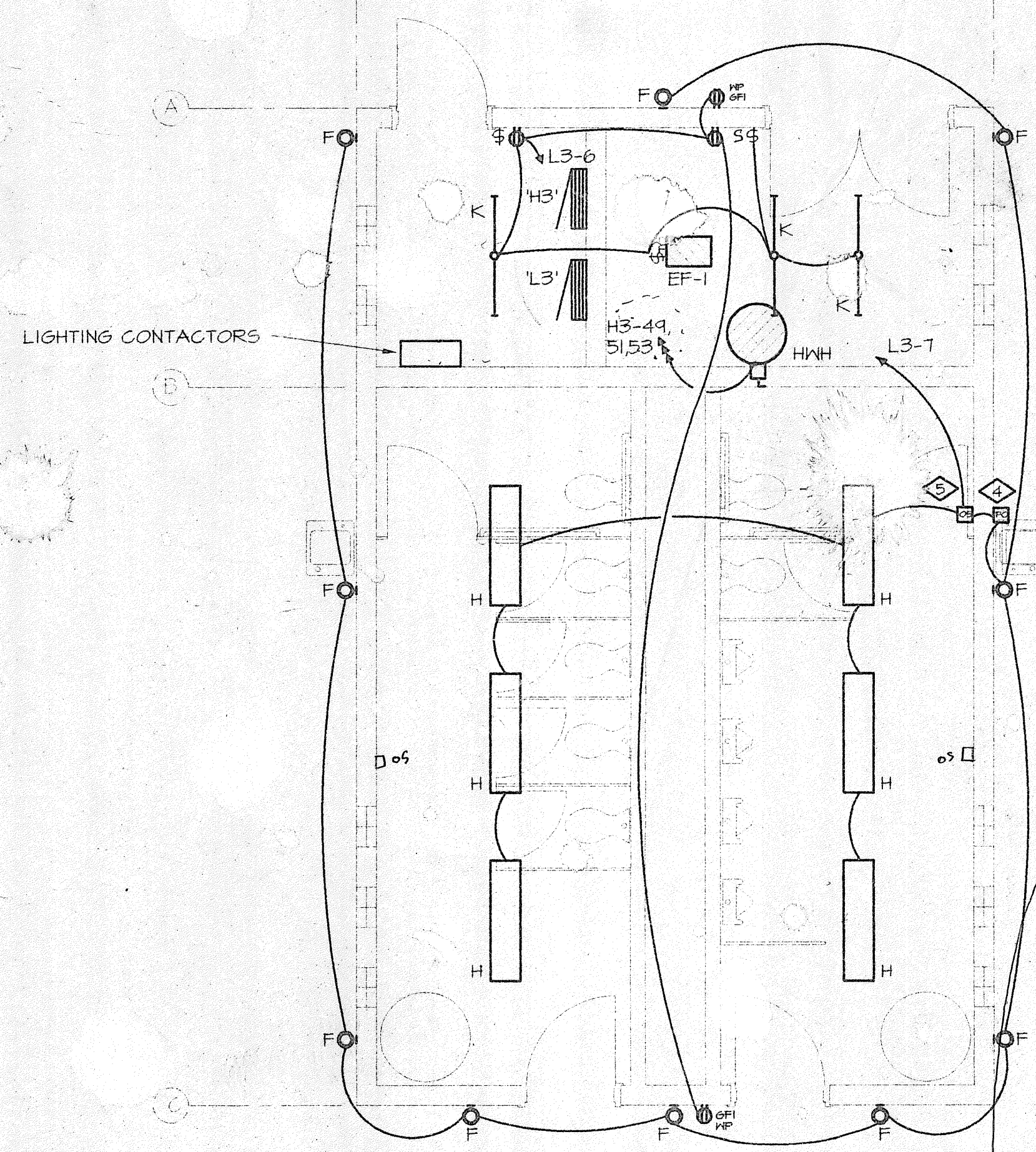
NOTE: FOR ALL POLE FOUNDATION DETAILS REFER TO STRUCTURAL DRAWING.

NOTE: STUB OUT 1" CONDUIT FOR PHASE II

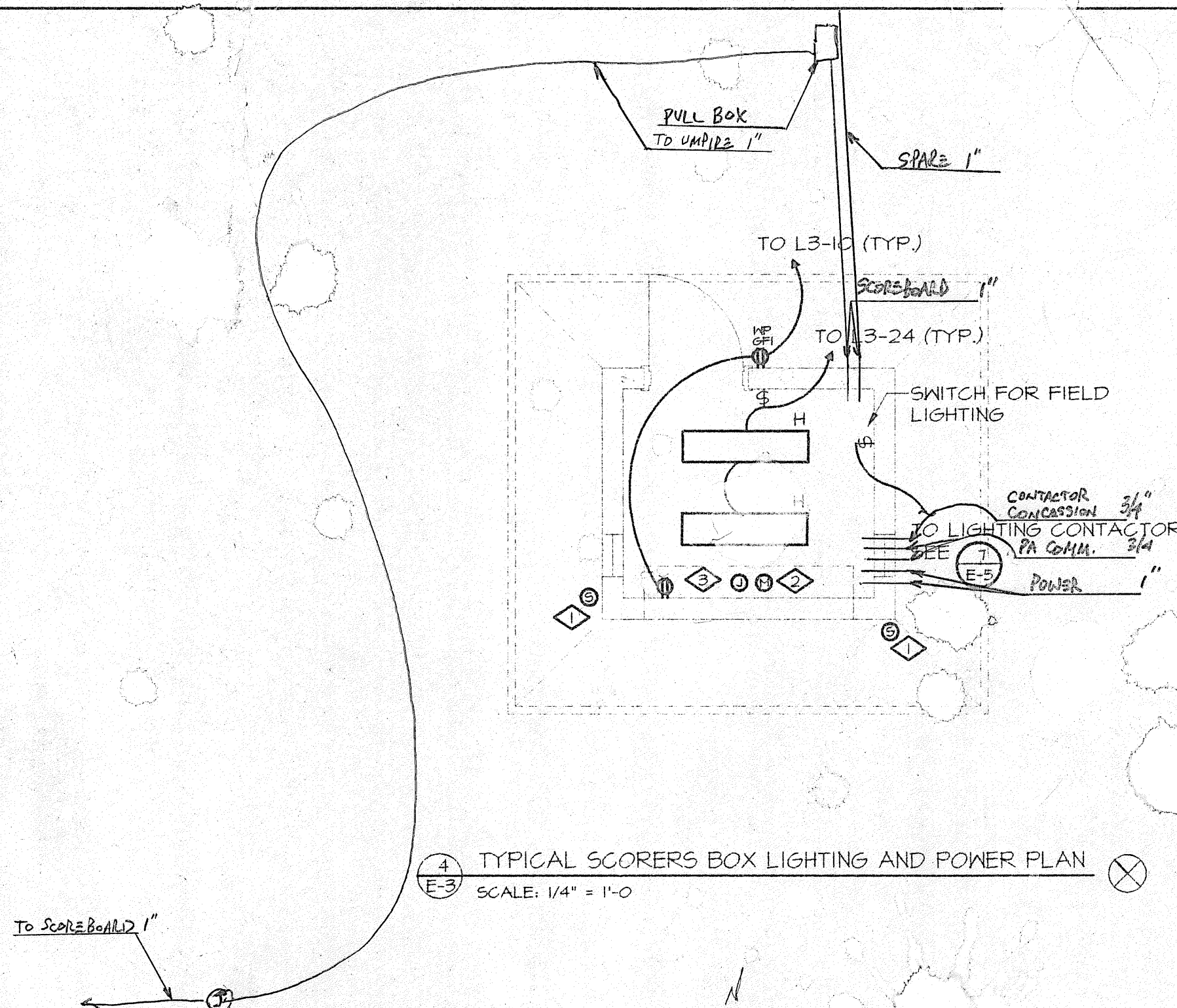




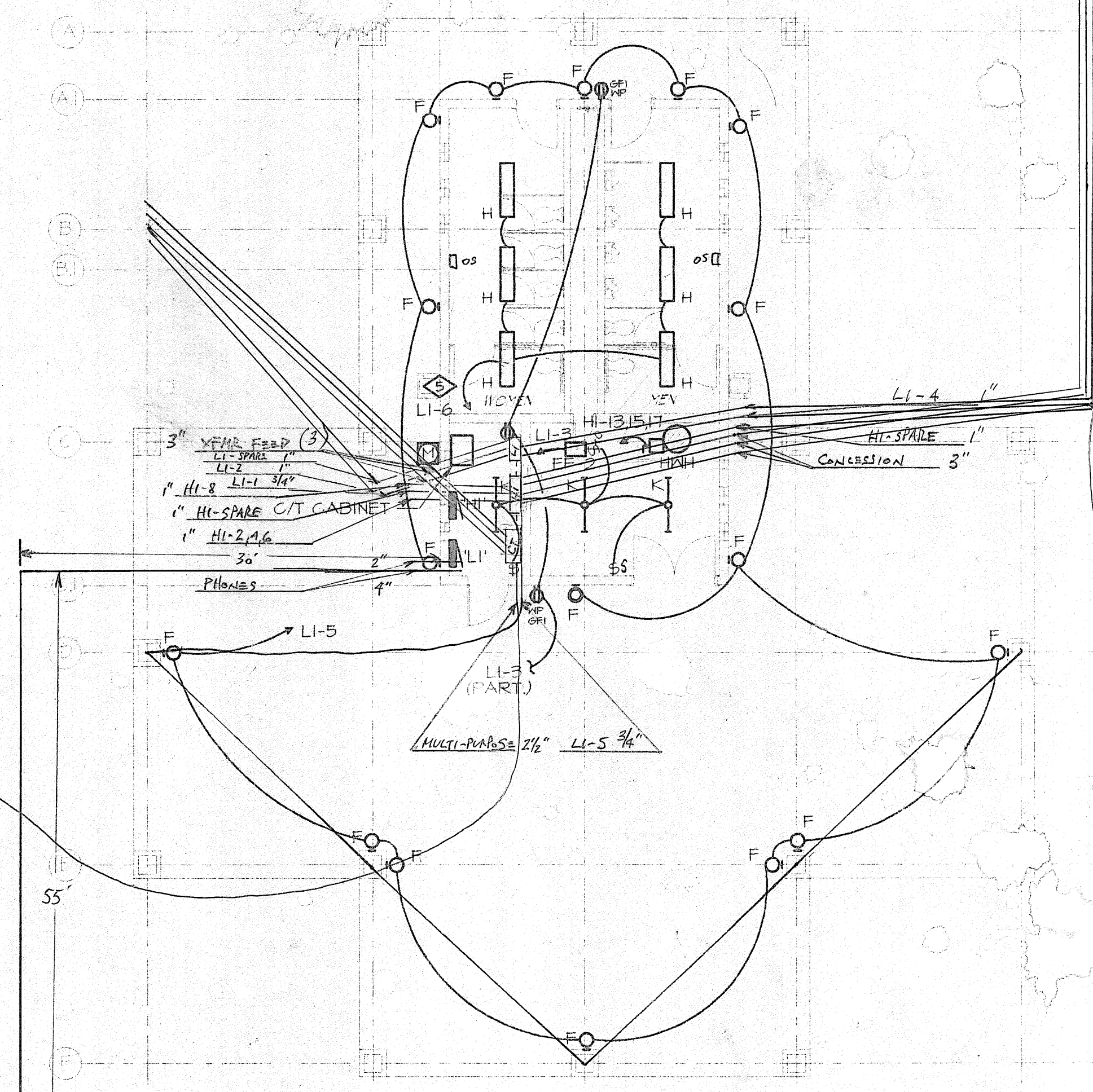
3 MULTIPURPOSE FIELDS SHELTER LIGHTING AND POWER PLAN
E-3 SCALE: 1/8" = 1'-0"



2 RESTROOM LIGHTING AND POWER PLAN
E-3 SCALE: 1/4" = 1'-0"



4 TYPICAL SCORERS BOX LIGHTING AND POWER PLAN
E-3 SCALE: 1/4" = 1'-0"



1 GROUP SHELTER LIGHTING AND POWER PLAN
E-3 SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. COORDINATE ELECTRICAL EQUIPMENT LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO INSTALLATION.
2. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL VARIATIONS.

DETAIL NOTES

1. SPEAKER FOR PUBLIC ADDRESS SYSTEM FOR INFORMATION ON PUBLIC ADDRESS SYSTEM REFER TO DETAIL E-5
2. MICROPHONE FOR PUBLIC ADDRESS SYSTEM FOR INFORMATION ON PUBLIC ADDRESS SYSTEM REFER TO DETAIL E-5
3. J-BOX FOR SCOREBOARD CONTROLS FOR INFORMATION ON SCOREBOARD CONTACT SCOREBOARD MANUFACTURER
4. TYPE 'F' FIXTURES TO BE CONTROLLED BY PHOTOCELL.
5. TYPE 'H' FIXTURES TO BE CONTROLLED BY OCCUPANCY SENS.

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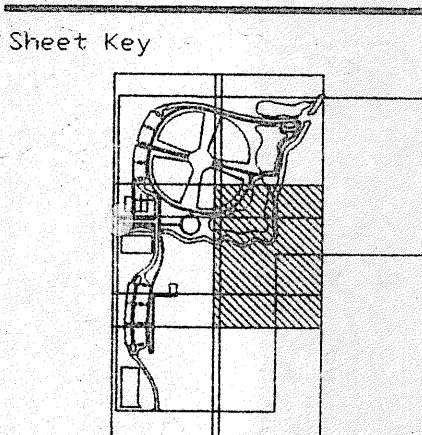
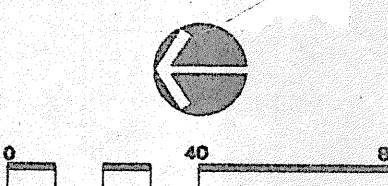
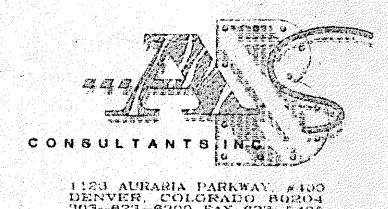
PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO



Sheet Title
ENLARGED ELECTRICAL PLANS
CONSTRUCTION DOCUMENT SET
Date: 12-22-05
Drawn By: CLF
Checked By: LEY
Project Number: 72401
Sheet Number: E-3

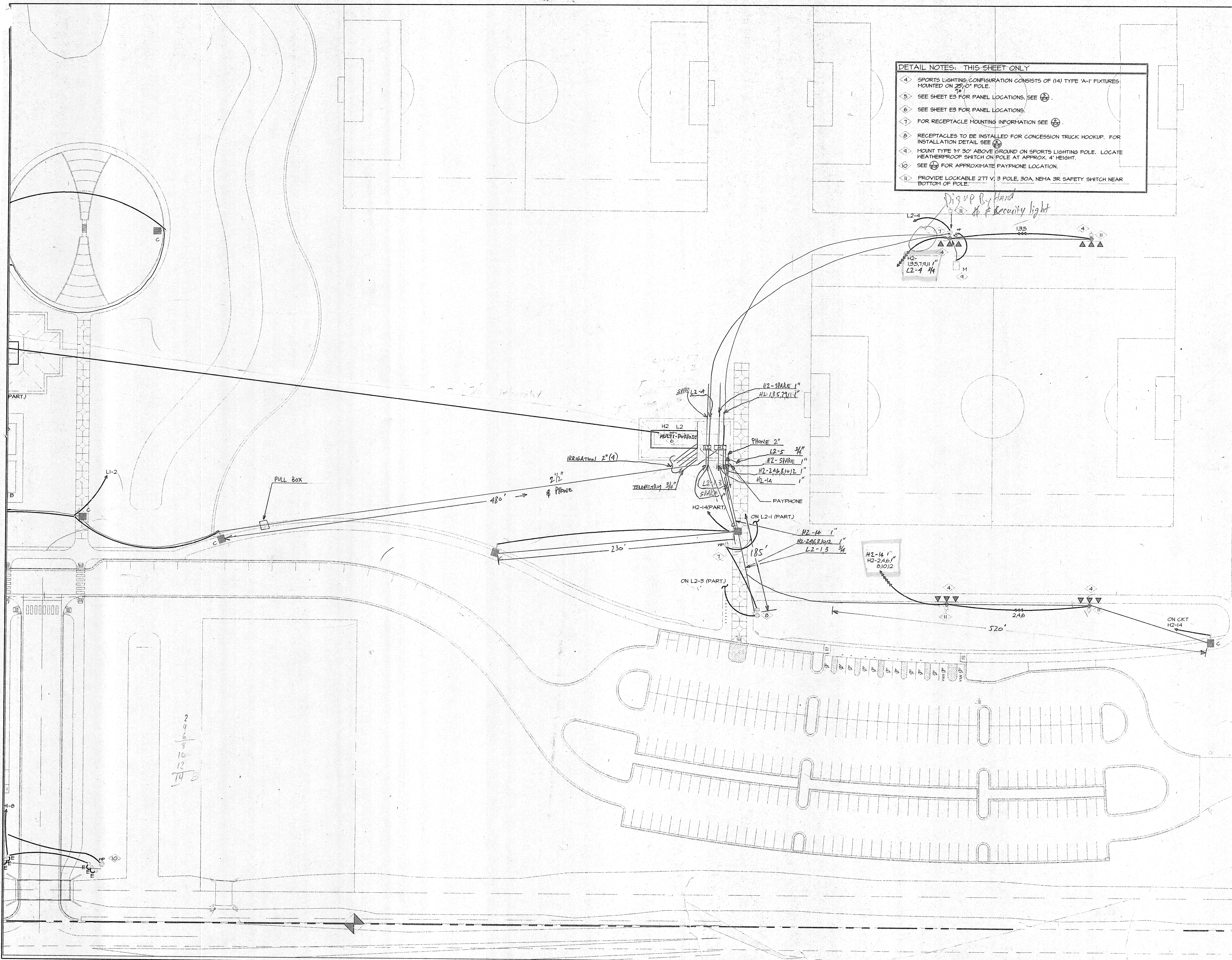
Issue Record/Revision	
Purpose	Date

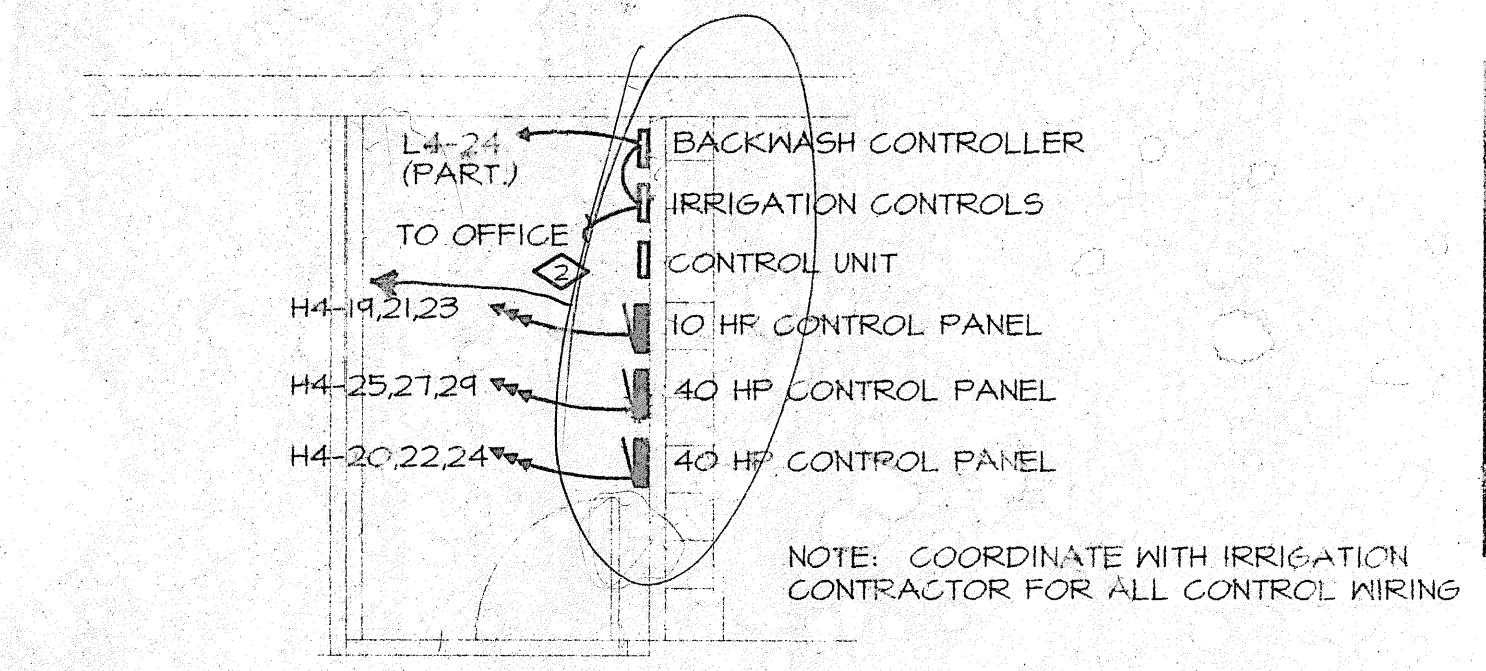
PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO



Sheet Title	LIGHTING AND POWER PLAN
Construction Document Set	CONSTRUCTION DOCUMENT SET
Date:	12-22-95
Drawn By:	CLF
Checked By:	LEY
Project Number	72401
Sheet Number	E2-4

- DETAIL NOTES: THIS SHEET ONLY
- SPORTS LIGHTING CONFIGURATION CONSISTS OF (14) TYPE 'A-1' FIXTURES MOUNTED ON 25'-0" POLE.
 - SEE SHEET E3 FOR PANEL LOCATIONS.
 - SEE SHEET E3 FOR PANEL LOCATIONS.
 - FOR RECEPTACLE MOUNTING INFORMATION SEE E3.
 - RECEPTACLES TO BE INSTALLED FOR CONCESSION TRUCK HOOKUP. FOR INSTALLATION DETAIL SEE E3.
 - MOUNT TYPE 'M' 30" ABOVE GROUND ON SPORTS LIGHTING POLE. LOCATE WEATHERPROOF SWITCH ON POLE AT APPROX. 4' HEIGHT.
 - SEE E3 FOR APPROXIMATE PAYPHONE LOCATION.
 - PROVIDE LOCKABLE 277 V, 3 POLE, 30A, NEMA 3R SAFETY SWITCH NEAR BOTTOM OF POLE.






GENERAL
COORDINATE ELECTRICAL EQUIPMENT &
CONNECTIONS WITH MECHANICAL DRAW
PRIOR TO INSTALLATION.

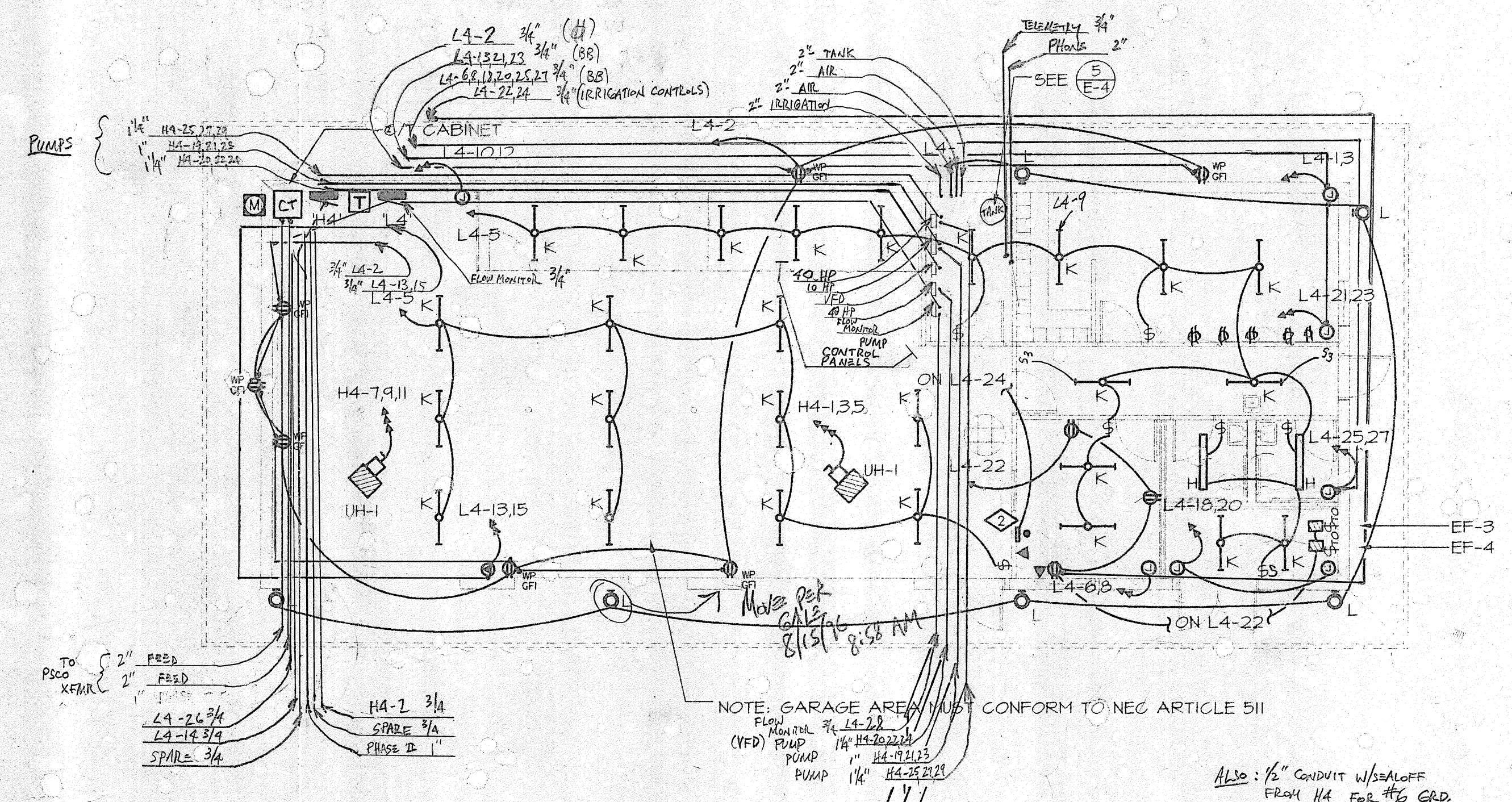
DETAIL NOTES

- ◇ PROVIDE BOXES AND RECEPTACLES AS SHOWN FOR FUTURE VENDORS.
- ◇ CONNECTIONS FOR CLUSTER CONTROL UNIT. REFER TO IRRIGATION DRAWINGS FOR EQUIPMENT REQUIREMENTS/ LOCATIONS.
- ◇ TYPE "P" FIXTURES TO BE CONTROLLED BY PHOTOCELL.

WINSTON ASSOCIATES, INC.
120 PEARL STREET, N.C.
DURHAM, N.C. 27601
Phone: (303) 440-0200 (303) 440-8000

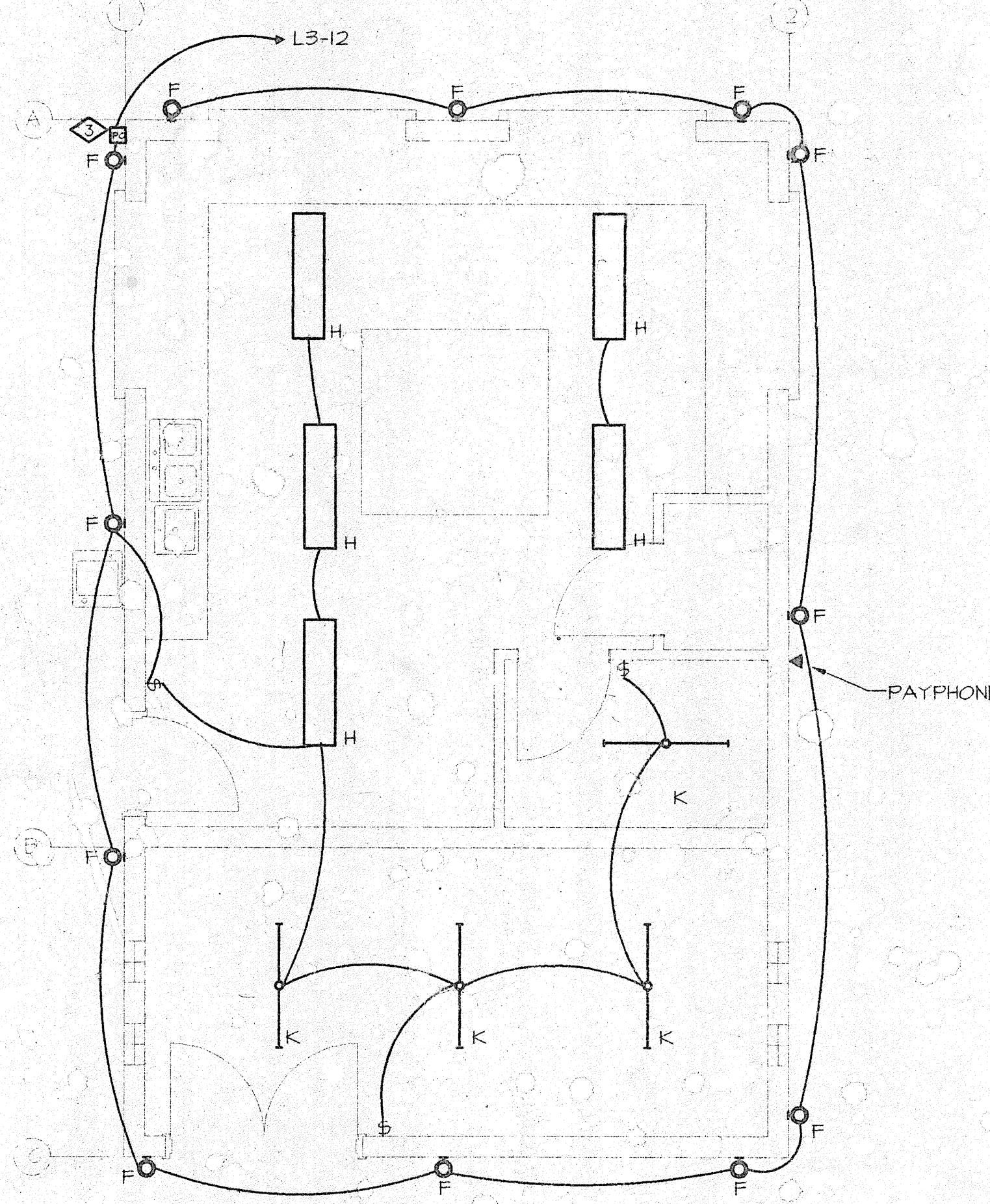
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4 MAINTENANCE AREA SITE PLAN
E-4 SCALE: 1/16" = 1'-0" 

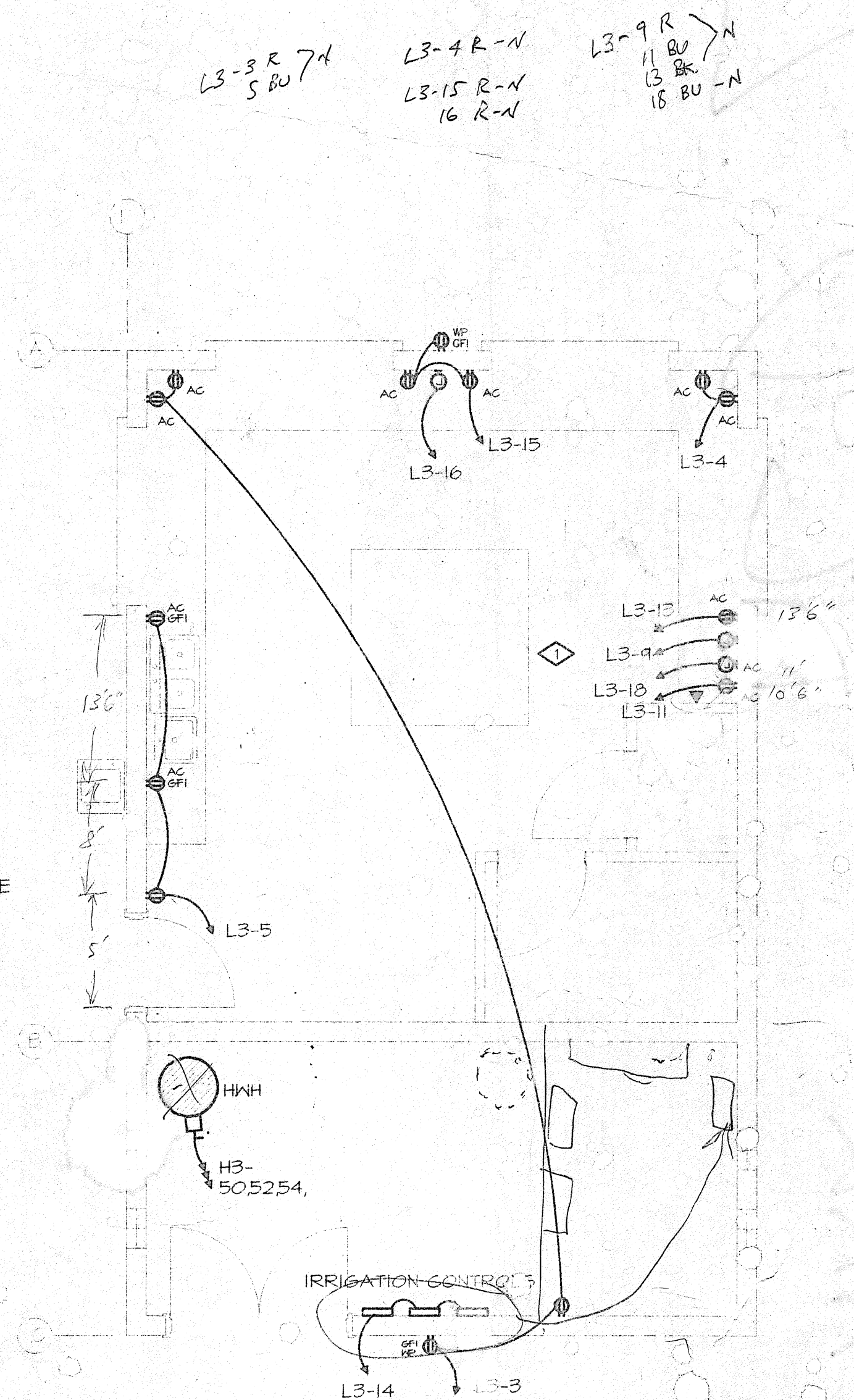


3 MAINTENANCE BUILDING LIGHTING AND POWER PLAN
E-4 SCALE: 1/8" = 1'-0"

5 ENLARGED EQUIPMENT ROOM PLAN
B-4 SCALE: 1/8" = 1'-0"



2 CONCESSIONS LIGHTING PLAN
E-4 SCALE: 1/4" = 1'-0"



1 CONCESSIONS POWER PLAN
E-4 SCALE: 1/4" = 1'-0"

PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO



AEC
CONSULTANTS INC.

1100 AVENUE PARADISE
SUITE 1100, COLOMBIA, MONTREAL
QUEBEC H3T 2G2 CANADA
514-393-9292 FAX 514-393-9400

Sheet Title

ENLARGED ELECTRICAL

CONSTRUCTION DOC

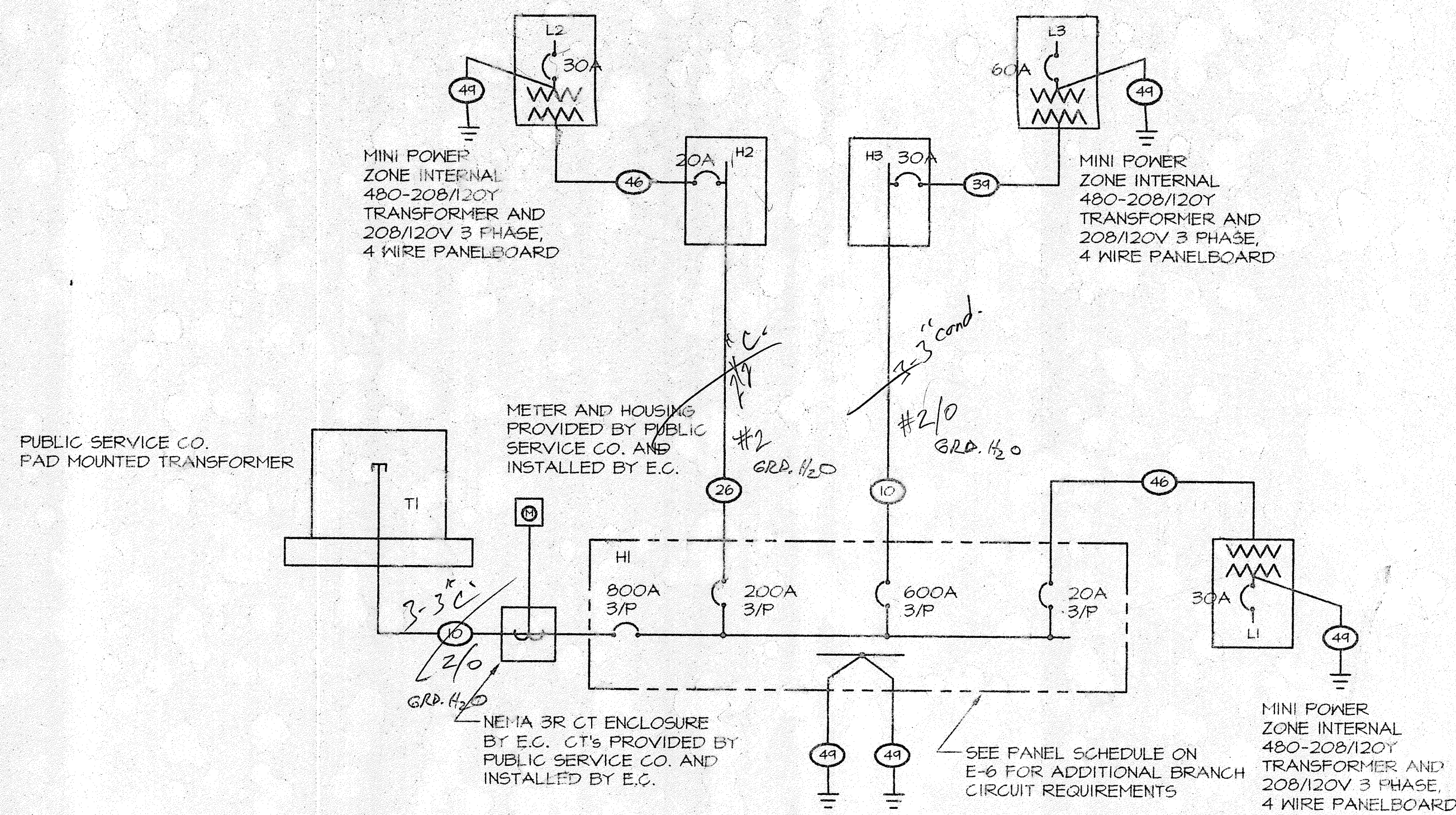
Date:

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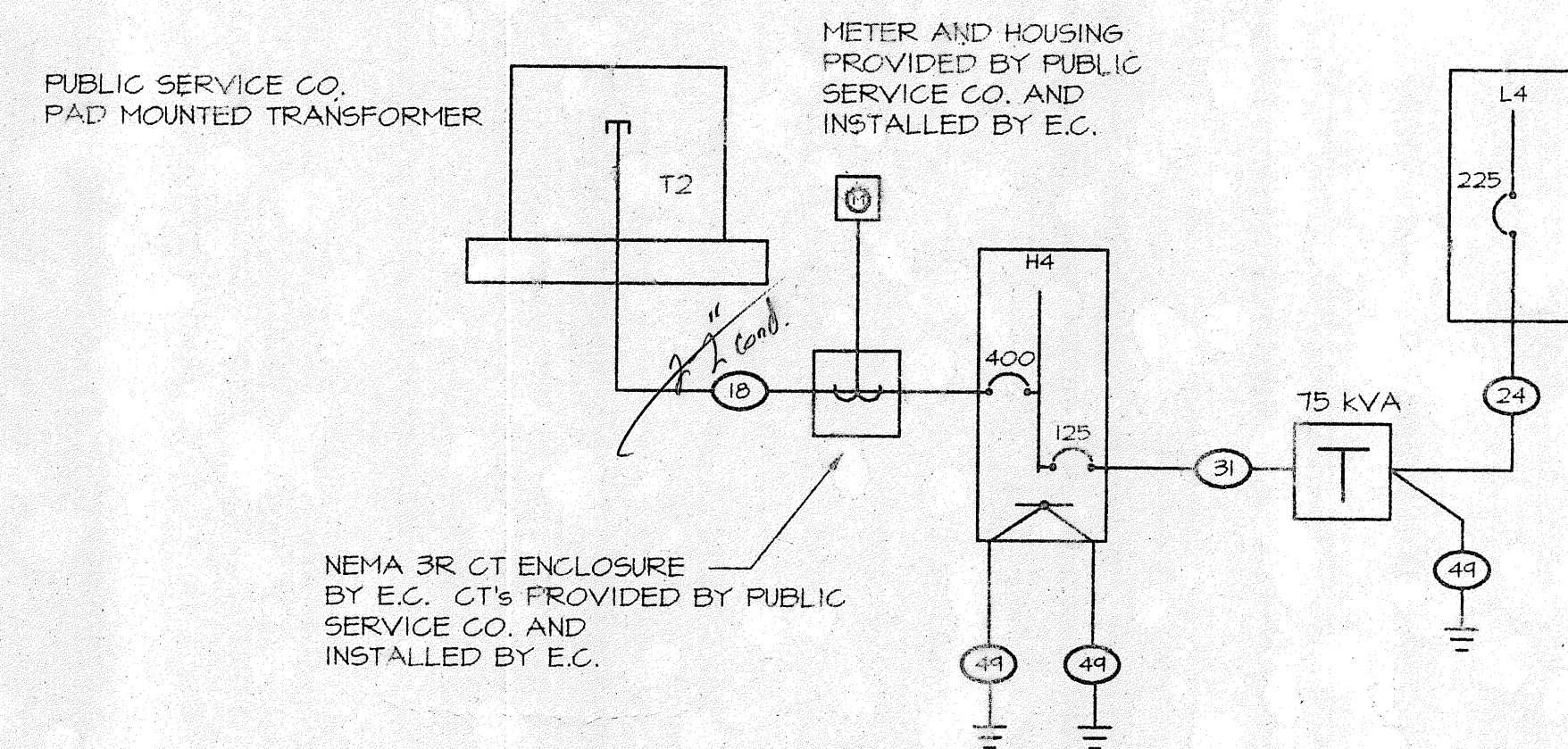
Project

Sheet



PARK AREA ELECTRICAL ONE-LINE DIAGRAM

NO SCALE



MAINTENANCE AREA ELECTRICAL ONE-LINE DIAGRAM

NO SCALE

FEEDER NO.	FEEDER CONDUCTORS	PHASE	AMPERES
1	UNASSIGNED		
2	UNASSIGNED		
3	6(4-500MCM, 3-1/2")	3-4W	3000
4	6(4-400MCM, 1-250MCM, 3-1/2")	3-4W	2000
5	4(3-350MCM, 1-3/0-3")	3-4W	1200
6	4(4-350MCM, 1-3/0-3")	3-4W	1200
7	5(3-400MCM, 1-2/0-3")	3-4W	1000
8	5(4-400MCM, 1-2/0-3")	3-4W	1000
9	3(3-300MCM, 1-3/0-2 1/2")	3-4W	800
10	3(4-300MCM, 1-1/0-3")	3-4W	800
11	3(3-250MCM, 1-1/0-3")	3-4W	750
12	3(4-250MCM, 1-1/0-3")	3-4W	750
13	2(5-350MCM, 1#6-3")	3-4W	600
14	2(4-350MCM, 1#6-3")	3-4W	600
15	2(3-250MCM, 1#2-3")	3-4W	500
16	2(4-250MCM, 1#2-3")	3-4W	500
17	2(3-3/0, 1#3-2")	3-4W	400
18	2(4-3/0, 1#3-2")	3-4W	400
19	2(3-2/0, 1#3-2")	3-4W	350
20	2(4-2/0, 1#3-2")	3-4W	350
21	3-350MCM, 1#4-3"	3-4W	300
22	4-350MCM, 1#4-3"	3-4W	300
23	3-250MCM, 1#4-3"	3-4W	250
24	4-250MCM, 1#4-3"	3-4W	250
25	3-4/0, 1#4-2"	3-4W	225
26	4-4/0, 1#4-2 1/2"	3-4W	225
27	3-3/0, 1#3-2"	3-4W	200
28	4-3/0, 1#3-2"	3-4W	200
29	3-2/0, 1#3-2"	3-4W	175
30	4-2/0, 1#3-2"	3-4W	175
31	3-1/0, 1#3-2"	3-4W	125-150
32	4-1/0, 1#3-2"	3-4W	125-150
33	3#1, 1#3-1 1/2"	3-4W	100-110
34	4#1, 1#3-1 1/2"	3-4W	100-110
35	3#2, 1#3-1 1/4"	3-4W	90
36	4#2, 1#3-1 1/4"	3-4W	90
37	3#3, 1#3-1 1/4"	3-4W	80
38	4#3, 1#3-1 1/4"	3-4W	80
39	3#4, 1#3-1 1/4"	3-4W	60-70
40	4#4, 1#3-1 1/4"	3-4W	60-70
41	3#6, 1#10-1"	3-4W	50
42	4#6, 1#10-1"	3-4W	50
43	3#8, 1#10-1"	3-4W	40
44	4#8, 1#10-1"	3-4W	40
45	3#10, 1#10-3/4"	3-4W	30
46	4#10, 1#10-3/4"	3-4W	30
47	3#12, 1#12-3/4"	3-4W	20
48	4#12, 1#12-3/4"	3-4W	20
49	1-#26-1/2"		5
50	3#2/0, 2#2/0 N, 1#6-2"	3-4W	150
51	3-250MCM, 2-250MCM N, 1#4-3"	3-4W	250
52	2(3-3/0, 2-3/0 N, 1#3-2 1/2")	3-4W	400

NOTE: ALL CONDUCTORS ARE 1/2-TWNY-COPPER UNLESS NOTED OTHERWISE

ELECTRICAL LEGEND

NOTE: ALL ITEMS MAY NOT APPEAR ON DRAWINGS

- ⊖ GROUNDED SWITCHED DUPLEX RECEPTACLE
- ⊖ GROUNDED SPLIT-WIRED RECEPTACLE
- ⊖ GROUNDED DUPLEX RECEPTACLE
- ⊖ GROUNDED QUADRAPLEX RECEPTACLE
- ⊖ SPECIAL PURPOSE RECEPTACLE
- ⊖ FLOOR MOUNTED RECEPTACLE
- ⊖ FLOOR MOUNTED DATA OUTLET
- ⊖ FLOOR MOUNTED TELEPHONE OUTLET
- ⊖ DATA OUTLET
- ⊖ TELEPHONE/DATA OUTLET
- ⊖ TELEPHONE OUTLET
- ⊖ JUNCTION BOX
- ⊖ WALL MOUNTED JUNCTION BOX
- ⊖ EQUIPMENT DISCONNECT SWITCH
- ⊖ EQUIPMENT FUSED DISCONNECT SWITCH
- ⊖ THERMAL OVERLOAD SWITCH
- ⊖ ELECTRICAL PANEL BOARD
- ⊖ TELEPHONE TERMINAL BOARD
- ⊖ TRANSFORMER
- HOMERUN TO PANEL - ARROWS INDICATES NUMBER OF CIRCUITS
- ⊖ FIRE ALARM PANEL
- ⊖ FIRE ALARM REMOTE ANNUNCIATOR PANEL
- ⊖ MANUAL PULL STATION
- ⊖ SMOKE DETECTOR
- ⊖ FIRE ALARM HORN & LIGHT
- ⊖ DUCT FIRE DETECTOR
- ⊖ REMOTE INDICATING LIGHT
- ⊖ EXIT SIGN - SHADED INDICATES FACE
- ⊖ FIRE STROBE

- ⊖ FIRE HORN OR SPEAKER WITH STROBE
- ⊖ PORCELAIN LAMP HOLDER
- ⊖ RECESSED LIGHT FIXTURE
- ⊖ EMERGENCY FIXTURE - SHADED
- ⊖ SURFACE MOUNTED LIGHT FLUORESCENT
- ⊖ CEILING FIXTURE
- ⊖ WALLWASHER
- ⊖ STRIPLIGHT
- ⊖ POLE MOUNTED AREA LIGHT
- ⊖ POLE MOUNTED SPORTS LIGHT
- ⊖ LARGE MOUNTED SPORTS LIGHT
- ⊖ WALL MOUNTED FIXTURE
- ⊖ BATTERY PACK EMERGENCY LIGHT
- ⊖ SINGLE POLE SWITCH
- ⊖ DIMMER SWITCH
- ⊖ SPEAKER-PAGING AND OR SOUND SYSTEM
- ⊖ PLUGMOLD
- ⊖ ELECTRIC WATER COOLER
- ⊖ EXHAUST FAN
- ⊖ GROUND FAULT INTERRUPTING
- ⊖ CIRCUIT
- ⊖ FLEXIBLE CONTRACTOR
- ⊖ ABOVE COUNTER - VERIFY HEIGHT
- ⊖ WEATHER PROOF
- ⊖ TELEPHONE TERMINAL BOARD
- ⊖ ABOVE FINISH FLOOR
- ⊖ UNLESS OTHERWISE NOTED
- ⊖ EXISTING TO REMAIN
- ⊖ EXISTING TO BE RELOCATED
- ⊖ EXISTING TO BE REMOVED

KEY	DESCRIPTION	LAMP	MOUNTING	MFR. & CATNO.	VOLTS	NOTE	MAX WATT
A-1	SPORT LIGHTING FIXTURE	1500MH	70' POLE	LITHONIA TV-1500M-NEMA4	480	2	1575
A-2	SPORT LIGHTING FIXTURE	1500MH	60' OR 70' POLE	LITHONIA TV-1500M-NEMA5	480	2	1575
A-3	SPORT LIGHTING FIXTURE	1500MH	60' POLE	LITHONIA TV-1500M-NEMA6	480	2	1575
B	SPORT LIGHTING FIXTURE	1000MH	30' POLE	LITHONIA KSF3-1000M-R4	480		1070
B-2	DOUBLE HEAD SPORTS LIGHTING FIXTURE	(2)1000MH	30' POLE	LITHONIA KSF3-1000M-R4	480		2140
C	WALKWAY LIGHT ON 12' POLE	150MH	12' POLE	STERNE FT A 10 3D P	480	5	215
E	SIGNAGE UPLIGHT	MH150	GROUND	HYDREL 45'0A-MH150/DUL	277		215
F	BUILDING FLOOD LIGHT	F26DBX/SPX35	SURFACE 9'-6" ON WALL	HUBBELL EURLUXE BRF-02 WITH BR-G2	120	3	30
H	VANDAL RESISTANT FLUORESCENT STRIP LIGHT	F32	SURFACE CEILING	LITHONIA VRI 2 32 AR 120	120	1	64
K	INDUSTRIAL STRIP LIGHT WITH WIREGUARD	(2)F32T8	SURFACE CEILING	LITHONIA S132 HKS 120 WITH REFLECTORS SM40 & WGR WIREGUARD	208	1	64
L	INDUSTRIAL BUILDING FLOOD LIGHT	100MH	SURFACE 9'-6" ON WALL	HUBBELL EURLUXE BRS-01 WITH BR-G2	277		
M	SECURITY FLOODLIGHT	400MH	AT POLE	LITHONIA TFG400MTA120	120	4	460

NOTES:

1. COLD WEATHER BALLAST.
2. SPORTS FIELD LIGHTING DESIGN IS BASED ON LITHONIA FIXTURES. SEE ELECTRICAL SPECIFICATIONS FOR REQUIREMENTS FOR OTHER MANUFACTURERS.
3. MOUNT FIXTURE 8'-6" AT COLUMN LOCATIONS.
4. TO BE MOUNTED ON SOCCER FIELD LIGHTING POLE. COORDINATE MOUNTING WITH POLE MANUFACTURER.
5. FIXTURES TO HAVE INDIVIDUAL PHOTOCCELL CONTROL SUPPLIED BY CONTRACTOR. POLE AND FIXTURE FINISH TO MATCH PARKING LOT FIXTURES.

WINSTON ASSOCIATES
PLANNING & LANDSCAPE ARCHITECTURE

WINSTON ASSOCIATES, INC.
1320 PEARL STREET, SUITE 100
BOULDER, COLORADO 80502
PHONE (303) 440-9200 FAX (303) 440-9911

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Issue Record/Revision
Purpose Date

PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO

AS
CONSULTANTS

Sheet 11

ELECTRICAL
SCHEDULE

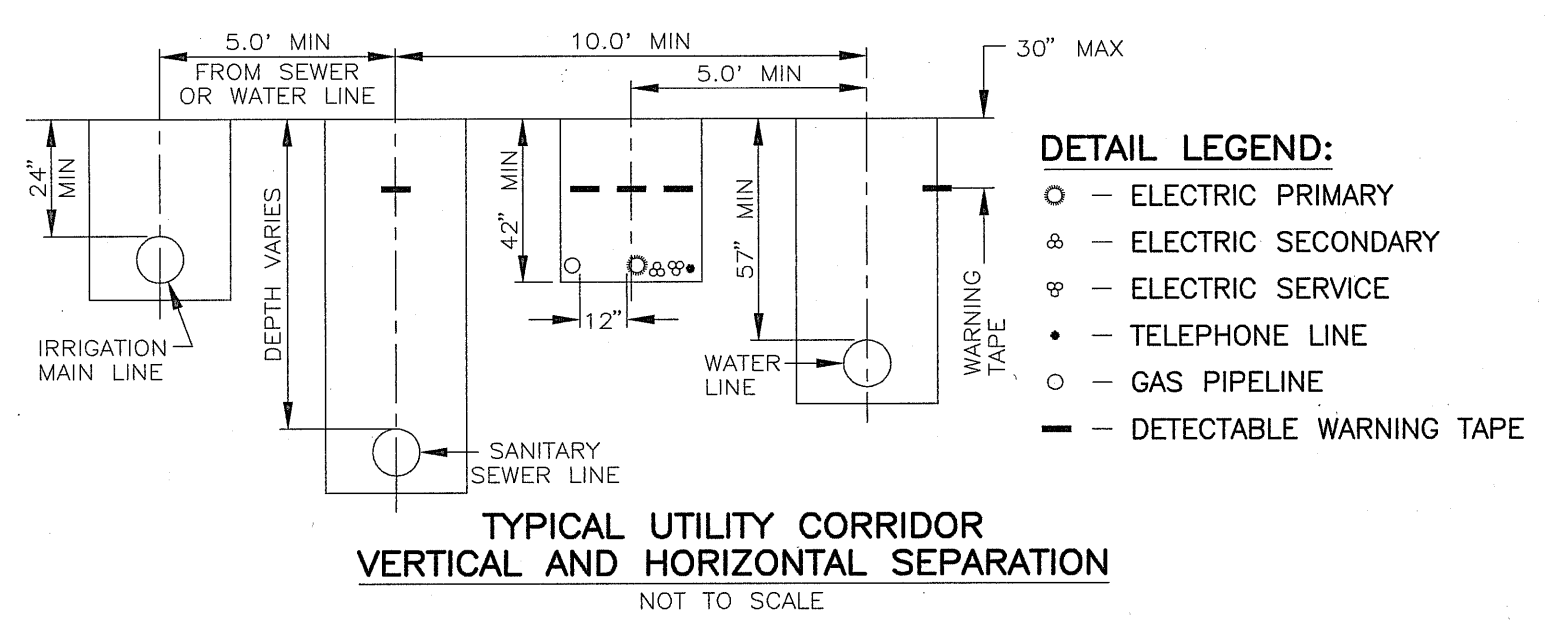
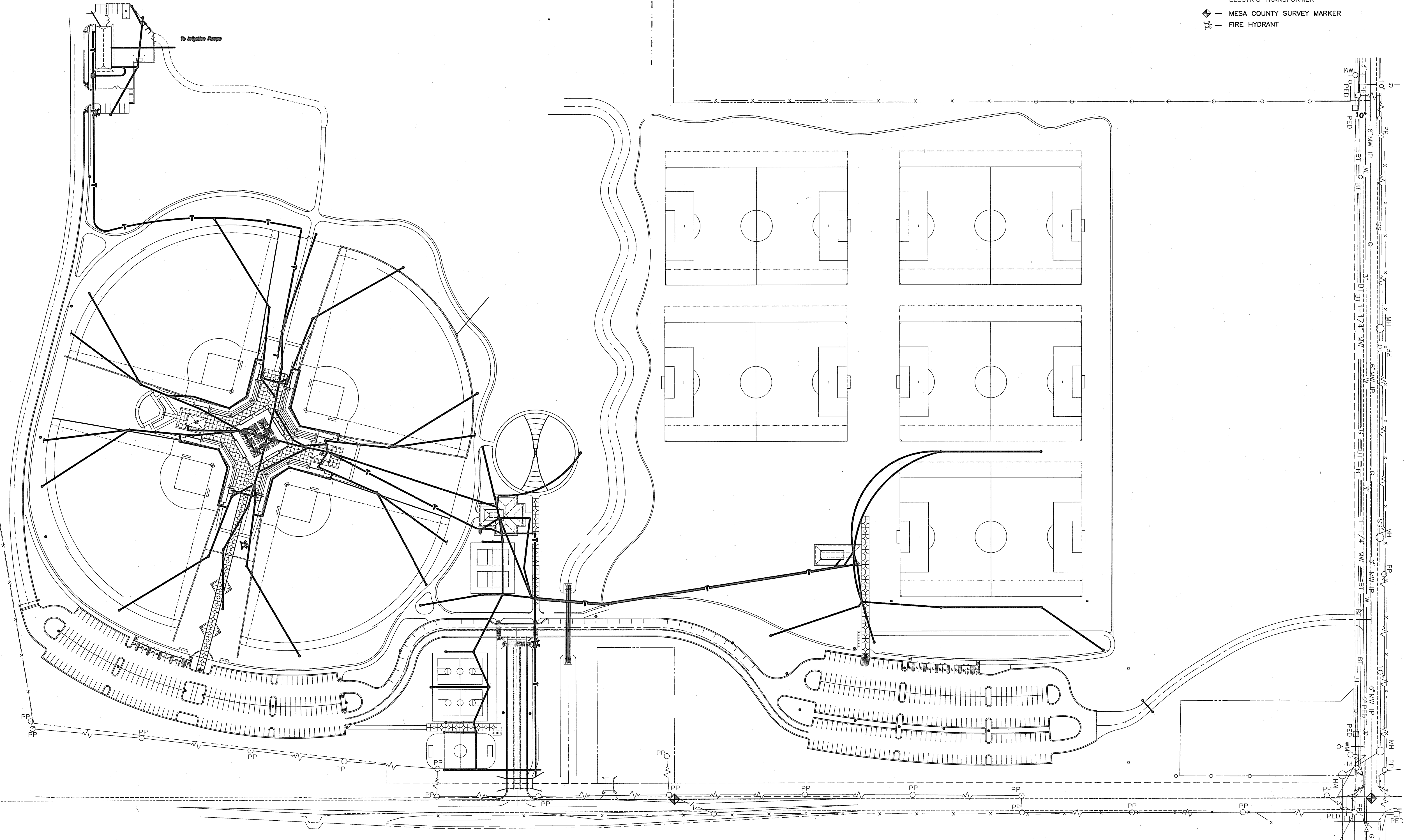
COPIES

FOR ROAD PLAN AND PROFILES SEE SHEETS C2-1, C2-3, C2-4, C2-6.1 AND C2-6.2.
FOR SOCCER FIELD PARKING LOT GRADING AND DRAINAGE PLAN SEE SHEET C2-2.2.
FOR SOFTBALL FIELD PARKING LOT GRADING AND DRAINAGE PLAN SEE SHEET C2-5.2.
FOR SOCCER FIELD TRENCH DRAIN PLAN AND DETAILS SEE SHEET C4-5.
FOR GENERAL DRAINAGE DETAILS SEE SHEET C4-4.
FOR IRRIGATION POND 1 DETAILS, SEE SHEET C6-1.
FOR IRRIGATION LINES, SEE SHEET I-1 THROUGH I-13.

- EXISTING OVERHEAD POWER LINE
EDGE OF EXISTING ASPHALT
SS SEWER LINE
T BURIED TELEPHONE LINE
W BURIED WATER LINE
X EXISTING WIRE FENCE
O EXISTING CHAIN LINK FENCE
O EXISTING DECORATIVE FENCE
IRRIGATION

- SECTION LINE
DEEDED ROW
DEEDED PROPERTY LINE
GRADE BREAK
FINISH GROUND 10 ft CONTOUR
FINISH GROUND 2 ft CONTOUR
FINISH GROUND 1 ft CONTOUR
EXISTING GROUND 10 ft CONTOUR
EXISTING GROUND 2 ft CONTOUR
FINISH SPOT ELEVATION

- Q_{WM} EXISTING WATER METER
Q_W EXISTING WATER VALVE
Q_{PP} EXISTING POWER POLE
Q_{GA} EXISTING GUY ANCHOR
Q_{MH} SANITARY SEWER MANHOLE
S₁ EXISTING SIGN
P_{ED} EXISTING PUBLIC SERVICE PEDESTAL
P_{TEL} EXISTING TELEPHONE PEDESTAL
P_{LP} EXISTING LIGHT POLE
E_{TR} ELECTRIC TRANSFORMER
M_{SC} MESA COUNTY SURVEY MARKER
F_H FIRE HYDRANT



- DETAIL LEGEND:
O - ELECTRIC PRIMARY
O - ELECTRIC SECONDARY
O - ELECTRIC SERVICE
O - TELEPHONE LINE
O - GAS PIPELINE
- - - DETECTABLE WARNING TAPE

WESTERN ENGINEERS, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
2150 HIGHWAY 6 & 50, GRAND JUNCTION, CO. (970)242-5202

PHASE 1
ELECTICAL

WEI PROJECT #: 3773.00 U1-1.DWG

WINSTON ASSOCIATES
PLANNING AND LANDSCAPE ARCHITECTURE

WINSTON ASSOCIATES, INC.
1320 PEARL STREET MALL
BOULDER, COLORADO 80302
PHONE: (303) 440-9200 FAX: (303) 448-8911

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Issue Record/Revision

Purpose	Date
ASBULT	00-00-97

PHASE 1
CANYON VIEW PARK
CITY OF GRAND JUNCTION, COLORADO

WESTERN ENGINEERS, INC.
CONSULTING ENGINEERS/SURVEYORS
2150 HIGHWAY 6 & 50
GRAND JUNCTION, COLORADO
PHONE: (970)242-5202
FAX: (970)242-1672

0 100 200

Sheet Key

Sheet Title

UTILITY COMPOSITE

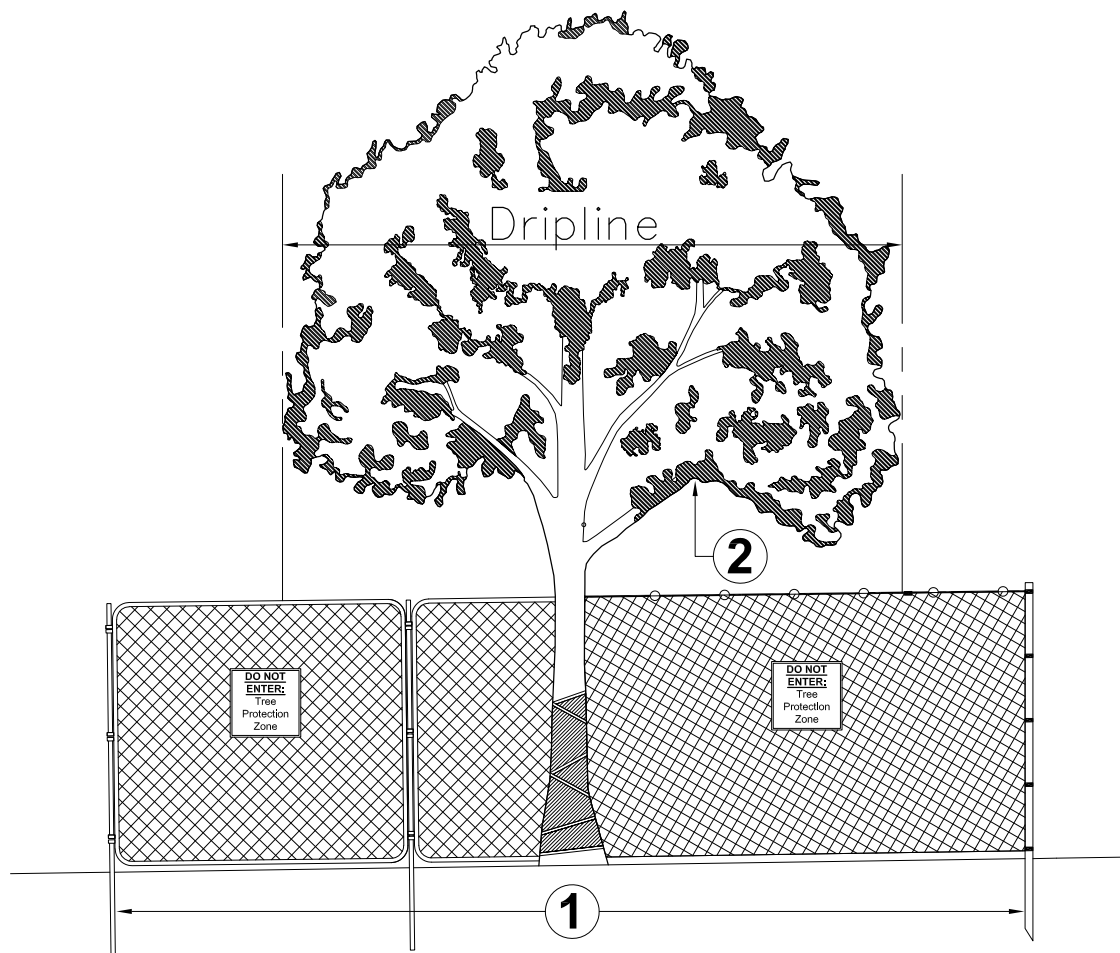
Date: 12/20/95

Drawn By: C.E.A.

Checked By: G.L.L.

Project Number: 72401

Sheet Number: U1-1



Any work in these areas require approval from Grand Junction City Forester (GJCF) prior to activity. Contact GJCF for instruction.

Area 1: Tree Protection Zone and Critical Root Zone Protection

- The Tree Protection Zone (TPZ) shall be equal to dripline or 1.5 feet radially from the tree for every one inch of trunk diameter at breast height (DBH = 4.5' above soil line), whichever is greater.
- The Critical Root Zone (CRZ) shall be equal to one foot radially from the tree for every one inch of trunk diameter at breast height.

- A. Minimum 6' In height steel chain link fence is required unless otherwise approved by the GJCF. Steel chain link fence panels or rolls are acceptable.
 1. When chain link rolls are installed, it shall be fastened to heavy duty steel posts with safety caps at minimum five (5) attachment points with 12-gauge wire, including points at top and bottom. Weave wire through top of roll to eliminate sag.
 2. Posts shall be driven 2' to 3' below grade and spaced at max. five to ten foot (5' - 10') o.c. intervals. Fencing must be kept taut at all times.
 3. "Tree Protection Zone" signs shall be placed one (1) per each tree protection zone minimum or more per direction of GJCF; maintain in the location and condition in which approved.
 4. TPZ, including signage, shall be maintained in the location and condition in which approved.

Area 2: Canopy Protection

Contact GJCF if potential for damage exists and/or if pruning is needed for any clearance issues prior to performing work.

Notes

1. GJCF Tree Protection Specifications shall be followed throughout duration of work.
2. After TPZ is approved;
 - A. TPZ shall not be resized, modified, removed, or altered in any manner without prior written approval. TPZ shall be maintained in place as approved until removal is authorized by GJCF.
 - B. Entrance/access to the TPZ is not permitted without prior written approval from the GJCF.
 - C. No materials, debris, equipment, or site amenities shall be stored within the TPZ without prior written approval from the GJCF.
3. While TPZ fencing is in place, trees shall be deep-root watered at an interval of once every two weeks when temperatures are at or above 40 degrees F. Trees shall be watered at the rate of twenty-five (25) gallons per inch DBH. GJCF may ask for proof of watering.
4. Violation of TPZ or damage to protected trees is subject to penalty per City Ordinance.
5. **Responsible party for tree removal or damage shall be responsible for lost value based on industry standard tree appraisal methods as determined by GJCF.**

DRAWN BY KA DATE 01/2021
DESIGNED BY RD DATE 01/2021

HORIZONTAL: 1" = ###
0 ## N/A
VERTICAL: 1" = ##
0 #### N/A

*PARKS AND RECREATION
FORESTRY DIVISION*

**TREE PROTECTION ZONE
FENCING DETAIL**

**CITY OF
Grand Junction
COLORADO**

Grand Junction City Forester (GJCF) Tree Protection Specifications

1. Existing trees to be preserved in public rights of way (ROW) or public places shall be protected per GJCF standards and practices. Tree protection shall be:
 - A. Installed prior to commencement of demolition and/or construction activities
 - B. Inspected and approved by GJCF staff
 - C. Remain in place and as approved until Certificate of Occupancy or Substantial Completion and Final Acceptance is issued
2. Tree protection requirements:
 - A. Tree Protection Zone (TPZ) shall be installed at the dripline, furthest extent of tree canopy, or is equal to eighteen inches radially from the tree for every one inch of trunk diameter at breast height (DBH = 4.5' above soil line), whichever is greater
 - Reduced TPZ areas must be approved by GJCF
 - B. Install six foot (6') chain link fencing prior to commencement of project construction activities
 - With approval of GJCF, 4' orange construction fencing may be acceptable in place of chain link depending on potential impacts of activity
 - C. GJCF staff shall inspect and approve boundaries of tree protection zone(s) prior to commencement of demolition or construction activities
 - D. Once TPZ is in place, the following are not permitted within TPZ without prior written approval from GJCF:
 - Entrance and/or access
 - Moving, resizing, removing, or altering in any manner
 - Storage of materials/debris/equipment
 - Construction activities including but not limited to: rototilling, trenching, grading, installation of underground utilities and/or site improvements, landscaping, irrigation work
 - Irrigation line work shall be completed by directional bore or hand-dig method
 - E. "Tree Protection Zone" signs shall remain in place as posted by GJCF and shall be maintained in the condition in which they were installed
 - F. Tree Pruning for clearance issues must have prior authorization by GJCF staff
 - G. No root 2 inches or larger shall be cut; consult with GJCF staff
3. Existing ROW or public place trees approved for removal by OCF must be protected in place until removed by an GJCF-licensed tree contractor to avoid structural failures:
 - A. A GJCF tree removal permit is required
 - B. Tree removal permits are not included with building permits and/or plan approval and must be obtained separately from the GJCF
4. Clear visibility into TPZ must be maintained. All construction banners, screens, barriers, and/or signs (except GJCF-posted TPZ signs) must be semi-transparent and not impede inspection of TPZ by GJCF staff
5. For projects with a duration of 5 days or longer:
 - A. Protected trees shall be deep-root watered at a minimum interval of once every two weeks when temperatures are at or above 40-degrees
 - B. Trees shall be watered at the rate of 20 gallons per inch caliper
 - OCF may ask for documented proof of watering and/or treatment.
6. Tree removal without permit and damages to public trees may be subject to the following:
 - A. Responsible party for tree removal or tree damage shall be responsible for lost value based on industry standard tree appraisal methods as determined by GJCF



Purchasing Division

ADDENDUM NO. 4

DATE: March 10, 2021
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: Design/Build Canyon View Lighting Replacement Project RFP-4864-21-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Q. Please confirm striped field size for soccer. Typical recreation soccer fields are 360'x225', however, the current pole locations suggest a smaller field.

A. See attached field dimensions.

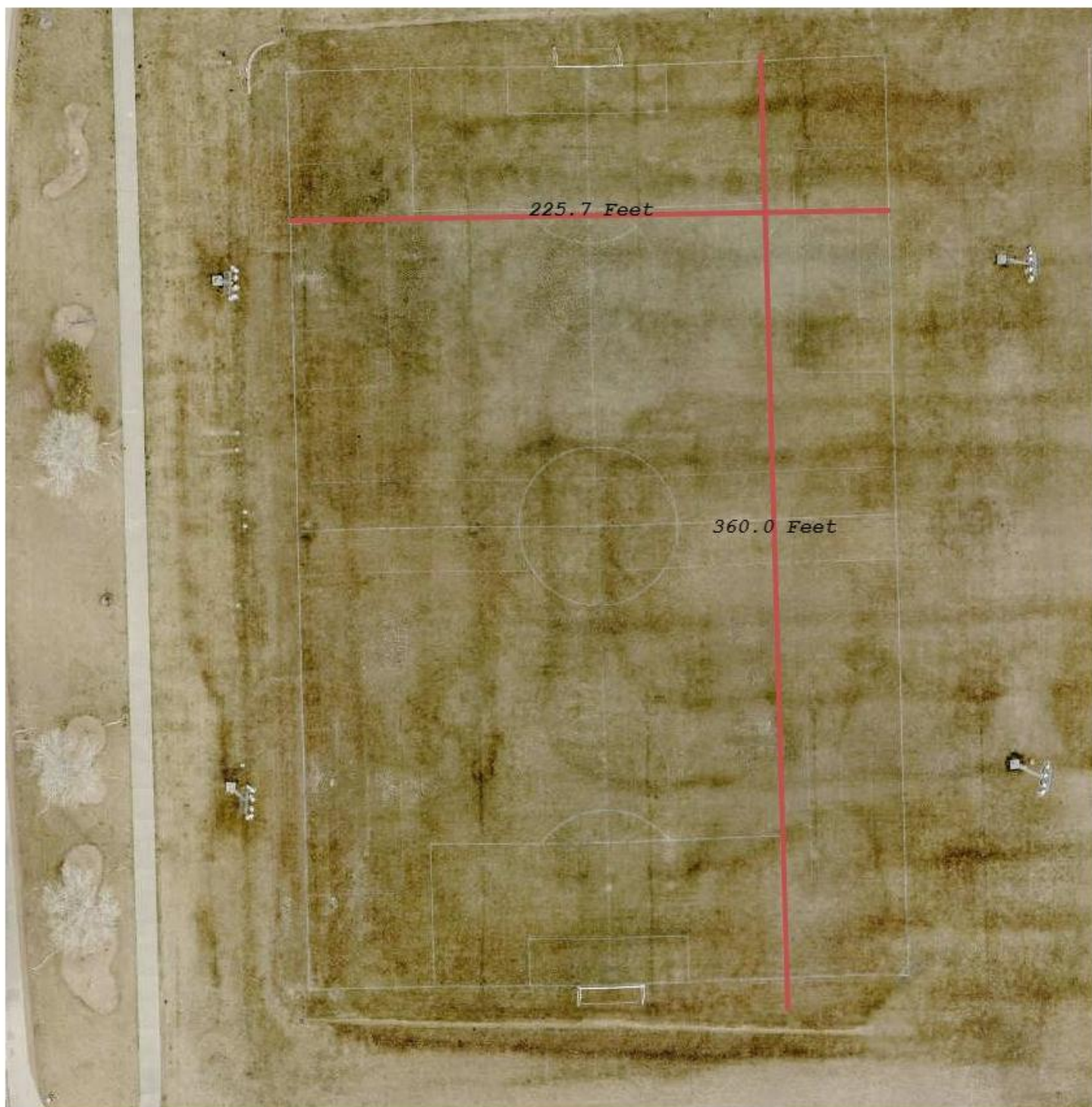
The original solicitation for the project noted above is amended as noted.

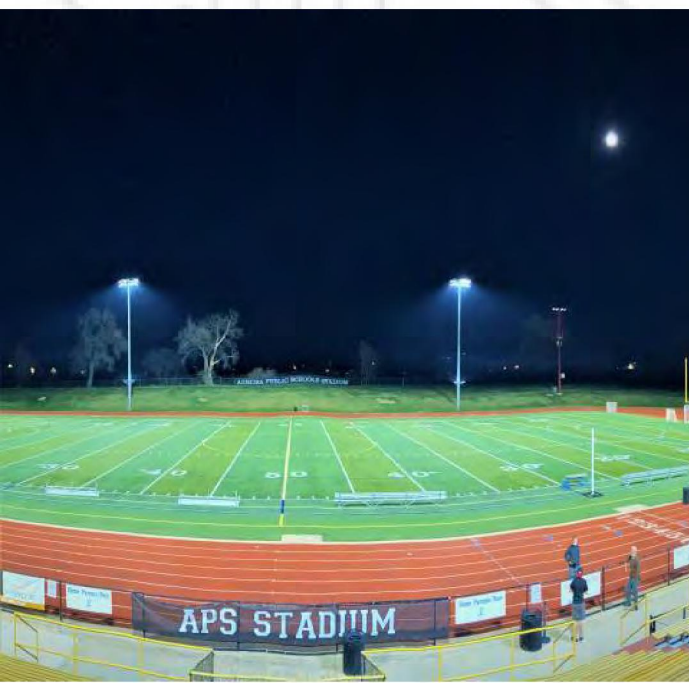
All other conditions of subject remain the same.

Respectfully,

A handwritten signature in black ink, appearing to read "Duane Hoff Jr.", written over a horizontal line.

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado





CANYON VIEW PARK LIGHTING UPGRADE

RFP#: 4864-21-DH
DUE: MARCH 18, 2021 PRIOR
TO 3:00 PM MST

TO:
DUANE HOFF JR., SENIOR BUYER
GRAND JUNCTION PURCHASING DEPARTMENT
CITY OF GRAND JUNCTION
333 WEST AVENUE, BUILDING C
GRAND JUNCTION, COLORADO 81501



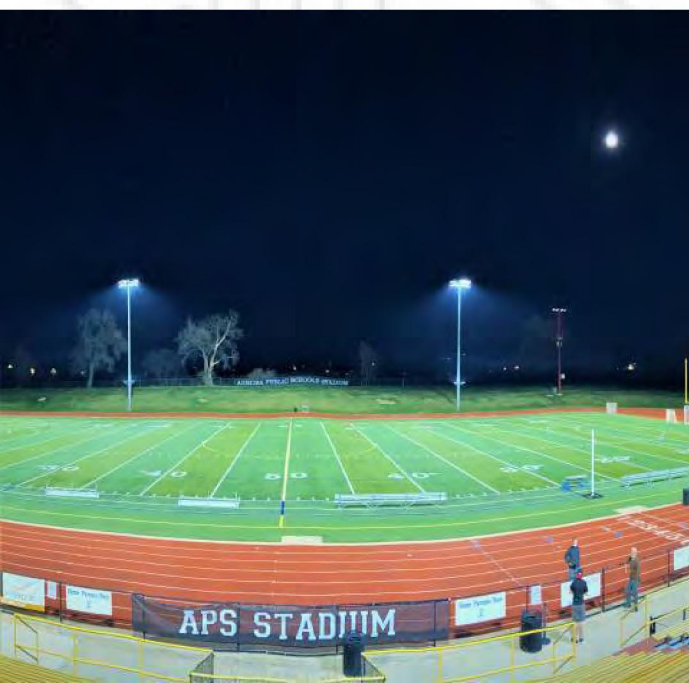
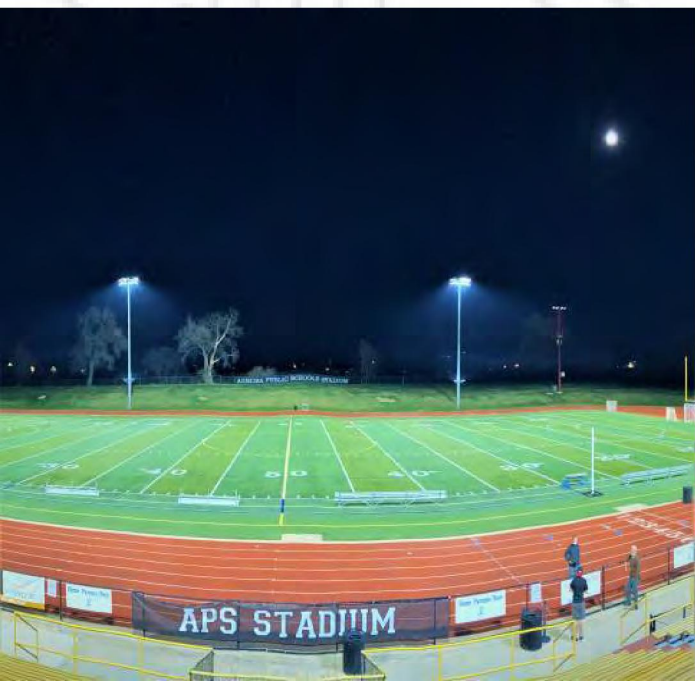


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 - B. QUALIFICATIONS/EXPERIENCE/CREDENTIALS**
 - C. STRATEGY AND IMPLEMENTATION PLAN**
 - D. REFERENCES**
 - E. BID BOND AND CERTIFICATE OF INSURANCE**
 - F. FEE PROPOSAL**
 - G. ADDITIONAL DATA**
 - H. FINANCIAL STATEMENTS**
-





COVER LETTERS (SECTION A.)





3450 N. Nevada Ave #100 • Colorado Springs, CO 80907
P.O. Box 7286 • Colorado Springs, CO 80933-7286
Phone: (719) 632-7683 • Fax: (719) 471-9660
www.berwickelectric.com • mnorman@berwickelectric.com

3/18/2021

Mr. Duane Hoff Jr.
Senior Buyer
City of Grand Junction Purchasing Division
333 West Ave. Building C
Grand Junction, Colorado 81501

Re: Design/Build Canyon View Lighting Replacement Project **RFP-4864-21-DH**

Dear Mr. Hoff,

Berwick Electric has been in business since 1921, in 2021 celebrating 100 years, we hold Colorado electrical contractor license # 11.

For your convenience of navigation, our submitted proposal has hyperlinks included to help you work through it.

I have personally been involved as estimator and project manager at Berwick Electric on no less than 14 successful sports lighting projects in Colorado; all but three have been Musco projects. I have been project manager and estimator on (7) Musco Sports Lighting projects in the last 5 years (since 2016). The three non-Musco projects were several years ago, all had challenges we had to deal with that can be discussed if requested. I will say that one of those non-Musco projects was a pole weld failure that happened approximately two years post installation after the manufacture warranty period expired; this was a high school football stadium, the lighting structures were removed and replaced with a Musco product. We have a history of successful out of town Musco sports lighting projects to include a tornado damage replacement project in at Plainview HS in Sheridan Lake Colorado, near the Kansas border. Additionally, we did a very tricky removal and replacement project in late 2019 early 2020 at Aurora public school's 70-year-old district stadium. I have included a few recommendation letters from past projects.

Based on our experience, we now choose to only propose the use of Musco sports lighting products and are confident that this will best serve the needs and expectations of the City of Grand Junction's Canyon View Park. When we work outside of our base area of Colorado Springs, we always attempt to use local subcontractors and specialty resources when available and as required to meet the project demands. Hotels, restaurants, concrete services, equipment rental, crane services, landscape repair, and some local labor as needed to supplement our core team to name a few. Keep in mind that these as well as the lighting product are by far the major part of the project's expense; therefore, most of the cost goes to the local economy. I will personally be on site as needed to oversee design and construction as I have with all of our sports lighting projects and we have several key trained field personnel that have been involved with previous Musco projects that we will dedicate to the project.

Our preliminary plan is to order Locates and mobilize immediately upon award to develop an AutoCAD drawing of the related complex by using our Trimble total station. This will be used for the detail design required by Berwick, the electrical engineer we will hire, and Musco to maximize the efficiency of the finished product expectations of the project. The Trimble unit is accurate to the one sixteenth of an inch and will give the city of Grand Junction a very accurate file that can be used for future needs. We will harvest not only existing conditions, but also any discoveries during construction such as underground wire routing, junction boxes, sprinkler lines, sprinkler head locations, existing pole locations that will be covered by 24 inches of dirt after demo and ground repair, and all the new work installation. We will

SERVICE • CONTRACT • DESIGN/BUILD • RESIDENTIAL
POWER QUALITY • DATACOMM • INDUSTRIAL



3450 N. Nevada Ave #100 • Colorado Springs, CO 80907
 P.O. Box 7286 • Colorado Springs, CO 80933-7286
 Phone: (719) 632-7683 • Fax: (719) 471-9660
www.berwickelectric.com • mnorman@berwickelectric.com

implement information from the previous electrical drawings in our design as we verify the accuracy of the information provided to give you an electronic, as well as hard copies as desired to be used for future project or maintenance purposes.

Ideally our plan is to receive a notice to proceed on around April 30, mobilize for design in early May and obtain substantial completion by the end of July as shown in the attached schedule; utilizing the July rest period of the park to lessen the impact of program and tournament use for the fields. The Electrical Engineer we plan to use has assisted Berwick Electric with design of several Colorado sports lighting projects and can be verified if desired. We will work directly with the City's project manager and team to develop the best flow and safety for the project and City of Grand Junction. The schedule is directly dependent on approval and cooperation by the City of Grand Junction for facility needs and closures; this project schedule can be delayed as desired by the City of Grand Junction. Weather and rainfall are always an uncontrollable factor as well as heat and its effect on the existing related grounds. We plan to utilize the existing electrical infrastructure to feed the new lighting and controllers. The Musco product has a mobile control Ap that is included as well as their 25-year product assurance and warranty included in the attached submittal package. We will fence in our laydown yard with approximately 500 linear feet of 6' high temporary chain link fence. We will rent storage containers including a project office facility that will be located in our laydown yard. As of addendum #4, I have not seen an answer to the Verizon Cell Tower question asked at the site meeting, addendum 3 question 15, we plan to utilize the existing cell tower for a "C" pole on that field; we have figured the coordination and installation with Verizon in our pricing. We have pricing included for certified cell tower climbers that are (National Association of Tower Erectors) NATE Certified for not only the Verizon pole work, but for rigging and removal of the (26) poles that are related to the project demo. They are approved to work on Verizon towers as well as AT&T, T-Mobile, CenturyLink, and Dish Network towers to name a few, and have worked on towers in Grand Junction; they have OSHA30, tower rescue, and CPR certifications and can be provided if requested. As per the site meeting I attended, we will plan to coordinate and move the soil spoils from drilling to the onsite location mentioned during the meeting. We will use a drilling and concrete caisson placement company that has many years of experience and has done several similar successful projects with us.

We would like to discuss some **"Value Engineering" options** that could substantially decrease our GMP listed in our proposal in order to keep the project within a budget allowed for the construction. One thing included in our proposal that may or may not be desired is a "Musco Show Controller" for the softball (4) fields; this carry's a value of approximately \$30,000.00 and can be taken out of the GMP. Some of the other VE items include but are not limited to reusing some of the existing light pole bases that would minimize potential damage and repair to concrete, grounds, etc. this would be a very substantial savings. I have reached out to a Grand Junction based structural engineer familiar with the facility and have included their fees in my GMP; this savings potential ranges between \$250,000.00 and \$300,000.00. Additionally, over \$125,000.00 of our GMP is related to anticipated grounds repairs that can be minimized through coordination with the city's project manager; maybe this is something that the city's staff may have the capabilities to do or would want to contract out separately. These are some of the items worth discussing to reduce the GMP if desired.

I sincerely look forward to working with the City of Grand Junction on this time, money, and safety sensitive project and am committed to its absolute success!

Respectfully,

Mark Norman

SERVICE • CONTRACT • DESIGN/BUILD • RESIDENTIAL
POWER QUALITY • DATACOMM • INDUSTRIAL



3450 N. Nevada Avenue, Suite 100 • Colorado Springs, CO 80907
P.O. Box 7286 • Colorado Springs, CO 80933-7286
Phone: (719) 632-7683 • Fax: (719) 471-9660
www.berwickelectric.com

Duane Hoff Jr., Senior Buyer
Grand Junction Purchasing Department
City of Grand Junction
333 West Avenue, Building C
Grand Junction, Colorado 81501

Dear City of Grand Junction:

Thank you for the opportunity to conduct business with City of Grand Junction. We have analyzed the RFP and are pleased to submit our proposal for the **Canyon View Lighting Replacement Project**.

The following individuals, together or individually, are authorized as signatories and to negotiate on behalf of Berwick Electric Co. relating to terms, conditions, pricing and presentations:

Name: Doug Berwick
Title: President
Address: 3450 N. Nevada Avenue, Suite 100 Colorado Springs, CO 80907
Phone: (719) 632-7683
Fax: (719) 471-9660
Email: dberwick@berwickelectric.com

Name: Mark Norman
Title: Project Manager
Address: 3450 N. Nevada Avenue, Suite 100 Colorado Springs, CO 80907
Phone: (719) 632-7683
Fax: (719) 471-9660
Email: mnorman@berwickelectric.com

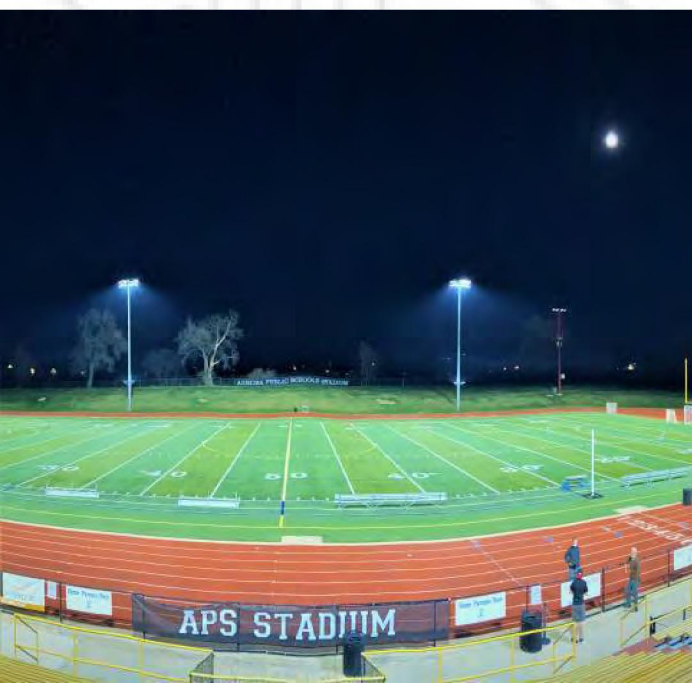
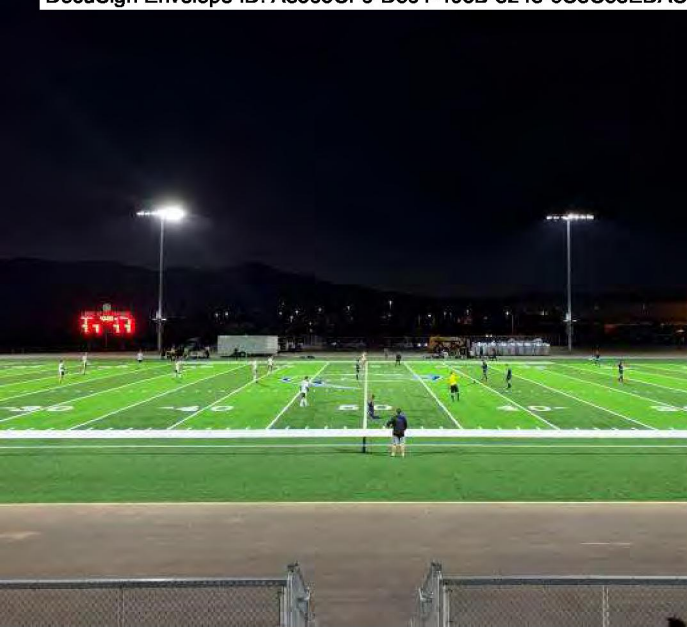
Berwick Electric Co. has been in business for 100 years and has been performing electrical work and lighting projects for many of those years.

This proposal will remain valid for ninety (90) days from the closing date of March 18th, 2021.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Doug Berwick', is written over a faint, larger version of the same signature.

Doug Berwick
President
Berwick Electric Co.
3450 N. Nevada Avenue, Suite 100
Colorado Springs, CO 80907
(719) 632-7683
dberwick@berwickelectric.com



QUALIFICATIONS, EXPERIENCE, CREDENTIALS (SECTION B.)

**A. SPORTS FACILITY LIGHTING DESIGN EXPERIENCE
AND CAPABILITIES**

B. CONTRACTOR EXPERIENCE AND CAPABILITIES

C. START-UP, COMMISSIONING, PERFORMANCE

VERIFICATIONS, AND TRAINING



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SPORTS LIGHTING EXPERIENCE AND CAPABILITIES

- A. DESIGN EXPERIENCE OF KEY PERSONNEL**
 - B. KEY PERSONNEL EXPERIENCE WORKING TOGETHER (RESUMES)**
 - C. GOALS AND CHALLENGES**
 - D. CHANGE ORDERS OVER 5% (N/A)**
-



[HOME](#)

DESIGN EXPERIENCE OF KEY PERSONNEL (SECTION A.)

(SEE PROPOSAL COVER LETTER BY MARK NORMAN)



[HOME](#)

KEY PERSONNEL EXPERIENCE WORKING TOGETHER (SECTION B.)





Mark Norman

Project Manager

Years in Electrical Field: 38

Years with Berwick Electric Co: 27

Areas of Expertise

- Federal Government/Military
- USACE Project Management
- Industrial
- Municipal
- Commercial
- Educational

Responsibilities

- Secret security clearance
- Assist in Estimating/Preconstruction
- Manage construction phase through commissioning and closeout paperwork.
- Assist to verify project design conforms to the government's RFP by the most cost-effective means.
- Orchestrate electrical submittal process.
- Evaluate and order critical materials
- Support General Foreman for efficient performance of Berwick scope
- Attend owner and contractor meetings
- Manage construction phase to verify we are maintaining schedule expectations
- Manage close-out, final submittals, O&M manuals, etc.
- Assure customer satisfaction

Education/Specialization

2009- Present	Management Representative on Joint Apprenticeship and Training Committee
1995-1999	NJATC Instructor Training Institute for Joint Apprentice and Training Instructors
1991-2000	JATC Instructor
1983-1986	JATC Electrical Apprenticeship
1980-1981	University of Colorado, Colorado Springs; Math, Science, Architectural Engineering
1979-1980	Fort Lewis College, Durango, CO

Additional Relevant Employment History

1986-1994	Apprentice/Journeyman/Foreman, Whitney Electric Co. Power Distribution, Motor Controls Installation & Troubleshooting, Fire Alarm Systems, Cleanroom, Computer Rooms. <u>Projects as Foreman:</u> Security Post Office, Golden Horseshoe Casino, Penrose/St. Francis Health Care System including: Namaste Alzheimer's Center Remodel, ICU/CCU Renovation, Special Procedures Lab, Birthing Center Nursery Remodel
1984-1986	Apprentice, Berwick Electric Co. Projects: Miscellaneous; services: all phases of electrical work.
1983-1984	Apprentice, Whitney Electric Co. Projects: Miscellaneous; services: all phases of electrical work.



Mark Norman Project Listing

City of Colorado Springs Colorado Springs, CO
Monument Valley Park Pickleball Courts
 LED sports lighting install for public park pickleball courts. 2020

Aurora Public Schools Aurora, CO
Hinkley Stadium & Cell Tower Fixtures
 Demo 1964 Stadium Lighting and poles and install New Musco LED Stadium Lights to include Field Lighting, RGBW color changing lighting for bleachers, and ball tracker lights. Upgraded power as part of this project.
\$269,217 2019

Colorado Springs Airport Colorado Springs, CO
Novo Coffee & Bristol Brewing Reconstruction
 Renovate kitchen and dining area damage by fire
\$101,768 2019

Colorado College Colorado Springs, CO
Colorado College Soccer Stadium Lighting
 New Musco LED Stadium Lighting and 200a 480v 3 ph electric service
\$191,454 2019

Widefield School District #3 Widefield, CO
Talbot Elementary School Summer Upgrades
 Upgrades include 1200 amp 3 phase 120/208 Electrical Service Upgrade, Classroom Power, DataComm, Security Cameras, LED Lighting, and Fire Alarm
\$461,916 2019

10 CONS Air Force Academy, CO
US Air Force Academy Heat Plant
 Remove and replace switchgear and VFD's for 15 circulation system pumps
\$281,215 2019

James Irwin Charter Academy Colorado Springs CO
James Irwin Charter Academy Stadium Lighting
 Install new Musco LED Stadium Lights for a new artificial turf Football/Track/Soccer Field for the K-12 School.
\$100,518 2019

Widefield School District #3 Colorado Springs, CO
North Pre-School Summer Upgrades
 Upgrades include 1200 amp 3 phase 120/208 Electrical Service Upgrade, Classroom Power, DataComm, Security Cameras, LED Lighting, and Fire Alarm
\$303,044 2019

Colorado Springs Airport Colorado Springs, CO
Colorado Springs Airport Modernization
 Modernize the 2nd floor ticketing area to include power and new LED lights
\$451,977 2019

City of Colorado Springs Colorado Springs, CO
Colorado Springs Airport Fire Restoration 3Phases
 Restore and Rebuild 2nd & 3rd floor spaces of active airport damaged by fire
\$480,941 2019

Army Contracting Command Rock Island Pueblo, CO
Beckrich - Pueblo Chemical Depot
 New stationary Rail Crossing signals and associated control building
\$335,822 2018

Manitou School District Manitou Springs, CO
Manitou High School Field Lighting
 Removed old and Installed new stadium lighting on artificial turf multi-use High School lacross/football/soccer field
\$102,294 2017

Kiowa School District RE-2, Sheridan Lake CO
Plainview High School Sports Lighting
 Removed old fixtures after tornado and Installed new stadium lighting on multi-use High School baseball/football/track field.
2017

First Presbyterian Church Colorado Springs, CO
First Presbyterian Church Family Worship Center
 Renovation of the Family Worship Center to included high tech RGBW LED lighting that will be controled via. a DMX system and Stage System
\$311,953 2017

Garden of the Gods Club Colorado Springs, CO
Garden of the Gods Tennis Pavilion
 Electrical power and new LED lighting or a new (4) court indoor tennis facility that will also be used as a 300 to 1000 occupancy event center
\$159,822 2017

US Army Engineer District Omaha, NE
Omaha - Iron Horse Park Lighting
 Renovation of Iron Horse Park to include all new site lighting, cathodic protection, medium voltage wiring, and new special event power install
\$404,597 2016

Colorado Jetcenter, Inc. Colorado Springs, CO
Colorado Springs Jet Center Renovation
 Renovated a private Aviation passenger terminal to included reconfiguring the office and a LED lighting retrofit
\$129,682 2016



US Army Engineer District Omaha, NE
Omaha – BCTC Athletic Field Lighting Project
 Installed Musco Sports Lighting System for two baseball fields and one new football field including medium voltage and service equipment
\$673,250 2016

US Federal Government, GSA Colorado Springs, CO
Paint Booth Replacement
 Removed old paintbooth and install a new high tech paint booth and installed new LED lighting for the US Bureau of Reclamation use
\$111,246 2016

United States Olympic Committee
 Colorado Springs, CO
US Olympic Center Visitor Center Renovation
 Renovation of the United State Olympic Training Center Visitor Center Building to include RGBW LED Lighting, DataComm, & Lighting control
\$234,771 2016

Compassion International Colorado Springs, CO
Compassion Int. General Mail Facility DCR
 Renovation of Compassion Internationals Mail Distribution Center, upgrade the high bay lighting to LED, and install a grid cable tray system
\$156,020 2016

Fountain Fort Carson School District Fountain, CO
Fountain Fort Carson Multi-Use Field Lighting
 Installed Musco Sports Lighting System for two new multi-use fields to include concessions, score booths, sound system, & Electrical System
\$482,310 2016

El Pomar Foundation Colorado Springs, CO
El Pomar Sports Complex Lighting
 Installed new stadium lighting on artificial turf multi-use lacross/football/soccer field
\$74,950 2015

Compassion International Colorado Springs, CO
Compassion Int. West Generator Replacement
 Upgrade generator from 80 KW to 400 KW, install additional 600 amp generator B/U panel and replace data center UPS and electrical equipment
\$338,500 2015

United States Olympic Committee
 Colorado Springs, CO
U.S. Olympic Center Swimming FA Upgrade
 Retrofit the existing building's Fire Alarm System with a Fire Alarm/Mass Notification System
\$120,171 2015

The Broadmoor Hotel Colorado Springs, CO
Broadmoor Hotel Fishing Camp
 Remote fishing outfitter and lodging to include 11 buildings (Lodge, Bath-house, maintenance, cabins and fish house)
\$176,814.00 2015

US Federal Properties Co., LLC Colorado Springs, CO
Veteran Affairs Outpatient Clinic
 Construction of a new 96,000 square-foot, 1,322-occupancy clinic for U.S. military veterans with state-of-the-art medical care set against awe-inspiring views of Pikes Peak. Installed a wide variety of electrical, data communications, life safety and security systems. All of the electrical activity is now supported by a 3,000 amp, 277/480-volt electrical service which required nine electrical rooms, an emergency generator for the smoke evacuation system, mechanical equipment, a sophisticated lighting control system, and other electrically-related items. It also can support the radiology suite, which contains three x- ray rooms as well as MRI, CT and mammography equipment and site lighting
\$4,033,020 2014

U.S. Olympic Committee Colorado Springs, CO
Building 7 Fire Alarm Upgrade
 Retrofit existing building's fire alarm system with a fire alarm and mass notification system
\$117,800 2014

U.S. Olympic Committee Colorado Springs, CO
Cimino Fire Alarm Upgrade
 Retrofit existing building's fire alarm system with a fire alarm and mass notification system
\$45,800 2014

U.S. Army Corps of Engineers, Omaha District
 Fort Carson, CO
Building 1860 Boiler #2 Replacement
 Replacement of boiler unit #2
\$186,220 2014

Widefield School District #3 Widefield, CO
Widefield Community Center Field Lighting Project
 Install baseball field lighting with remote control capabilities
\$257,311 2013

U.S. Olympic Committee Colorado Springs, CO
Building 6 Fire Alarm Upgrade
 Retrofit existing building's fire alarm system with a fire alarm and mass notification system
\$100,596 2013



U.S. Olympic Committee Colorado Springs, CO
USOTC Communications & Generator
 Install communications ductbank, and relocate generator for demo of existing building and construction of new building addition
\$44,773 2013

Department of the Army Fort Carson, CO
CMS - Central Issue Facility
 Repurpose B-1525 (old commissary) to CIF - Central Issue (Power, Lighting, OSP Comm, Data/Comm, SIPRNet, & FA/MNS)
\$432,752 2013

U.S. Army Corps of Engineers Fort Carson, CO
Brigade Complex (L) Phase 1B COF
 Company Operations Facility (COF) located at Fort Carson
\$1,487,156 2013

U.S. Olympic Committee Colorado Springs, CO
U.S. Olympic Training Center Building 2 Fire Alarm
 Retrofit the existing building's fire alarm system with a Mass Notification System
\$129,827 2013

U.S. Federal Government Lakewood, CO
Denver Federal Center Complex - Building 1A
 Office renovation for the FCC
\$35,497 2013

U.S. Olympic Committee Colorado Springs, CO
U.S. Olympic Training Center Entry Control Point
 Site and building work for new entry control point for U.S. Olympic Training Complex
\$140,232 2013

U.S. Olympic Committee Colorado Springs, CO
Building 85 Fire Alarm
 Design-assist retrofit of existing fire alarm system at the Olympic training facilities dormitory Building 85 with an upgraded fire alarm and mass notification system
\$65,506 2012

U.S. Army Corps of Engineers Fort Carson, CO
Soldier Family Care and Behavioral Health Clinics
 Administrative offices and new behavioral healthcare facility for military base. Project included nurse call, fire alarm, primary, secondary, grounding, security, tele/data and structured cabling
\$2,614,989 2012

U.S. Olympic Committee Colorado Springs, CO
Buildings 8, 9 & 10
 Design-assist installation of fire alarm/mass notification system in buildings 8, 9 and 10 of the nonprofit Olympic training facility, including dormitories
\$217,022 2012

U.S. Army Corps of Engineers Fort Carson, CO
Building 1860 Boiler #1 Replacement
 Replacement of boiler unit #1. Project included automation, controls, mechanical upgrade, power upgrade, boiler wiring, motor connections and industrial automation
\$106,816 2012

U.S. Olympic Committee Colorado Springs, CO
USOTC Building 85 Fire Alarm Upgrade
 Retrofit the existing fire alarm system at the Olympic Training Facilities Dorm Building 85 with an upgraded fire alarm and mass notification system
\$65,506 2012

U.S. Olympic Committee Colorado Springs, CO
USOTC Building 83
 Retrofit the existing building's fire alarm system with a fire alarm and mass notification system
\$65,850 2012

U.S. Army Corps of Engineers Fort Carson, CO
Waste Water Treatment
 Upgrade service and wire three new blower motors and VFD starters at existing military waste water treatment facility
\$126,589 2011

Standard Sales Colorado Springs, CO
 14,600 sq. ft. two-story office and warehouse remodel including fire alarm, tele/data and structured cabling
\$79,081 2011



Eric Norman

Service Manager

Years in Electrical Field: 12

Years with Berwick Electric Co: 12

Areas of Expertise

- Electrical Installation
- Site Supervision
- Industrial Installation
- Trimble Applications
- Medium Voltage Terminations Cable
- Electrical Service department

Responsibilities

- Site Supervision
- Ensure On-Site Safety
- Oversee Project Schedule
- Assure Customer Satisfaction
- BIM/Trimble Installation
- Pre-fabrication design and lay-out
- Service department management
- Work Orders
- Assure customer satisfaction

Education/Specialization

- 2014 - 2018** Foreman
- 2012 - 2014** Journeyman Wireman, State of CO
- 2008-2012** NECA/IBEW Apprenticeship Program
- 2007** Colorado State University

Additional Relevant Employment History

- 2020 – Present** Service Manager – Berwick Electric Co.
- 2014 - 2020** Journeyman Wireman, Martin Drake Power Plant Fire Recovery Project
- 2013 - 2014** Foreman, VA Clinic
- 2012 - 2013** Journeyman Wireman, Operator, Total Station (TRIMBLE)
- 2008 - 2012** NJATC Apprentice, Berwick Electric Co.
- 2007 - 2008** VDV Installer



Eric Norman Project Listing

District #3 – Grand Mountain PK-8 School – Widefield, CO \$2,244,912 - Power, Lighting, Fire Alarm, Mechanical Equipment Hookup, Site Lighting, and Kitchen electrical for Pre Kindergarten thru 8th grade School. 2019

Musco – Aurora Public Schools Hinkley Stadium & Cell Tower Fixtures – Aurora, CO \$269,217 – Demo 1964 Stadium Lighting and poles and install New Musco LED Stadium Lights to include Field Lighting, RGBW color changing lighting for bleachers, and ball tracker lights. Upgraded power as part of this project. 2019

Musco - James Irwin Charter Academy – Colorado Springs, CO \$100,518 – Installed new stadium lighting on artificial turf multi-use football/soccer field. 2019

Musco – Colorado College Stewart Field – Colorado Springs, CO \$198,740 - New Musco LED Stadium Lighting and 200A 480V 3PH electric service. 2019

GEJ – Olson P&H – Colorado Springs, CO – Primary Service, Secondary lateral, Main Distribution and Sub Distribution Panelboards, Branch Power and Lighting, Mechanical Hookups, Light Fixtures, Fire Alarm and TeleData for Heating and Plumbing Offices, Warehouse, and Fabrication Shop. 2018

Beckrich – USAFA Heat Plant – Colorado Springs, CO – Electrical equipment update to support the new pumps, VFD's, temporary boilers and fuel for the temporary boilers during the shutdown. 2018

Musco – Manitou High School Field Lighting – Manitou, CO \$102,294 – Removed old and installed new stadium lighting on artificial turf multi-use High School lacross/football/soccer field. 2017

Musco – Kiowa School District RE-2 Plainview Highschool – Sheridan Lake CO - Removed old after tornado and Installed new stadium lighting on multi-use High School baeball/football/track field. 2017

Colorado Springs Utilities - R.D. Nixon Power Plant Unit #1 Scrubber, Colorado Springs, CO - \$3,511,274, 2017.

Myron Stratton Estate - Myron Stratton Winfield Residence, Colorado Springs, CO - \$247,000 Addition to the Winfield Residence, dining room remodel and new south entrance gatehouse, 2017.

Manitou School District - Manitou High School Field Lighting, Manitou Springs, CO - \$102,294 Removed old and Installed new stadium lighting on artificial turf multi-use High School lacross/football/soccer field, 2017.

US Army Engineer District, Omaha - Iron Horse Park Lighting, Fort Carson, CO - \$404,597 Renovation of Iron Horse Park to include all new site lighting, cathodic protection, medium voltage wiring, and new special event power install, 2016.

US Army Engineer District, Omaha - BCTC Athletic Field Lighting Project, Fort Carson, CO - \$673,250 Installed Musco Sports Lighting System for two baseball fields and one new football field including medium voltage and service equipment, 2016.

Kentucky Power and Light - Cane Run - Louisville, KY, \$361,900 Provide and install an electrical system on a 10-cell cooling tower at the LG&E Cane Run site in Louisville, KY, 2014.

Colorado Springs Utilities, Martin Drake Power Plant Unit 6B Boiler LowNOx - Colorado Springs, CO, \$141,250 Provide and install low NOx burner electrical installation at Martin Drake Power Plant, 2014.

Colorado Springs Utilities, Martin Drake Power Plant Unit Fire Restoration - Colorado Springs, CO, \$544,000 Restore power plant after fire damage, 2014.



US Federal Properties, Co, LLC, Veterans Affairs Outpatient Clinic- Colorado Springs, CO, \$3,422,122 Construction of a new 90,000 square-foot VA outpatient clinic build by a private developer with the intent to lease the building back to the VA, 2014.

Widefield School District #3 - Widefield Community Center Field Lighting Project - Widefield, CO, \$257,311 Install baseball field lighting with remote control capabilities, 2013.

Memorial Hospital - Paralleling Switchgear Colorado Springs, CO - \$2,894,197 Provide and install generator paralleling gear at operating hospital and replace 27 automatic transfer switches. Healthcare project included: bed tower, commissioning, controls, generator and power upgrade, 2013.

U.S. Army Corps of Engineers - Building 1860 Boiler #2 Replacement - Ft. Carson, CO, 2013.

Tri-State Generation & Transmission Association - Craig Station Unit #2 Exciter, Craig, CO - \$490,000 Replace existing exciter equipment with new solid-state exciter equipment. Included PPT's, Iso-Phase Bus, Non-Seg Bus, controls, and instrumentation, 2013.

Alliant Energy - Columbia Energy Center Unit 2B -Pardeeville, WI - \$206,500 Rebuild of 8 cell cooling tower. Included motor raceways, controls, lightning protection, and lighting, 2013.

Broadmoor Hotel - Central Utility Plant, Colorado Springs, CO - \$143,500 Design, provide, and install new switchgear and zig-zag transformer grounding system in operational central utility plant, 2013.

U.S. Army Corps of Engineers - Soldier Family Care and Behavioral Health Clinics, Fort Carson, CO - \$2,614,989 Administrative offices and new behavioral healthcare facility for military base. Project included nurse call, fire alarm, primary, secondary, grounding, security, tele/data and structured cabling, 2012.

PacifiCorp - Jim Bridger Unit #3 FGD Upgrade and ID Fans, Point of Rocks, WY - \$1,080,850 Install two new 11,000 HP ID fans with VFD's and all associated power, control and instrumentation, 2011.

Tri-State Generation & Transmission Association - Craig Station Unit #1 Exciter, Craig, CO - \$509,202 Replace existing exciter equipment with new solid state exciter equipment. Included PPT's, Iso-Phase Bus, Non-Seg Bus, controls, and instrumentation, 2011.

PacifiCorp - Jim Bridger Unit #3 Exciter, Point of Rocks, WY - \$554,140 Install GE EX2100 Exciter on existing unit. Included PPT's, Iso-Phase Bus, Non-Seg Bus, controls, and instrumentation, 2011.

Evans Army Community Hospital - Nutritional Care Remodel, Fort Carson, CO - \$1,272,618 16,666 sq. ft. hospital remodel of nutrition center including transition building with temporary wiring and communications for active military hospital. Project also included nurse call, telephone, fire alarm, lightning protection, lighting retrofit, mechanical upgrade, secondary, grounding, tele/data, TVSS and structured cabling. 2010



Joe Hanika

BIM/VDC Coordinator

Years in BIM/VDC: 8

Years in Electrical Field: 3

Years with Berwick: 3

Areas of Expertise

- Revit
- AutoCAD
- Navisworks
- Bluebeam
- Trimble RTS

Responsibilities

- Trimble field points
- Trimble layout
- Prefab construction drawings
- Field installment construction drawings
- As-built drawings
- BIM
- Coordination

Education/Specialization

2018 Revit Productivity Certification

2017 Associate of Applied Science specializing in Drafting & Design, Washburn University - Topeka, KS

2011 Drafting and Design, Washburn Institute of Technology - Topeka, KS

1,400 documented apprentice hours

Certification for boom, scissor, and fork lifts

Industrial construction experience

Additional Relevant Employment History

2018 – present BIM/VDC Coordinator, Berwick Electric

Develop BIM & VDC standards and implement procedures
Design & model submittal, prefabrication, and construction drawings and assemblies
Coordinate with general contractors, engineers, subcontractors, field personnel

2016-2018 Electrical Detailer/BIM Coordinator, P1 Group – Manhattan, Kansas

National Bio & Agricultural Defense Facility (NBAF)

Assist in pre-construction coordination meetings (clash detection) with the general contractor, sub-contractors along with Project managers and foreman of all construction trades. Layout in Revit and export Trimble Field Points to the Trimble handheld for precision embed placements for conduits, supports, and boxes.

Design detailed construction drawings for conduit supports including all-thread length and diameter, and trapeze length and elevation

Design detailed on-site constructible construction drawings with conduit lengths, sizes, offset degrees and elevations.

Notable Projects

NBAF – Manhattan, KS

Bill Snyder Family Stadium – Manhattan, KS

Kansas University Dormitories – Lawrence, KS

Washburn University Dormitories – Topeka, KS

Mars Chocolate Factory – Topeka, KS



Joe Hanika Major Project List

Musco – Monument Valley Park Pickleball Courts – Monument, CO – Created lighting layout using the Trimble Total Station, and verified contractor provided points. As-built locations created in Revit. **2020**

Hensel Phelps – Grandview MOB – Colorado Springs, CO – Created 3-D Revit models for core and shell electrical rooms to prevent clash of trade equipment. **2020**

Musco – Hinkley Stadium & Cell Tower Fixtures – Aurora, CO \$269,217 – Created lighting layout using the Trimble Total Station, and verified contractor provided points. As-built locations created in Revit. **2019**

Musco - James Irwin Charter Academy – Colorado Springs, CO \$100,518 – Created lighting layout using the Trimble Total Station, and verified contractor provided points. As-built locations created in Revit. **2019**

Musco – Colorado College Stewart Field – Colorado Springs, CO \$198,740 - Created lighting layout using the Trimble Total Station, and verified contractor provided points. As-built locations created in Revit. **2019**

PLS Mechanical – PLS Mechanical East Office – Colorado Springs, CO – Designed a full 3-D model between Revit and Navisworks. This provided pre-fab designs, prevented clash detection, and cut build time down significantly. **2019**

District #3 - Grand Mountain PK-8 School – Widefield, CO \$2,244,912 – CAD Design for Power, Lighting, Fire Alarm, Mechanical Equipment Hookup, Site Lighting, and Kitchen electrical for Pre Kindergarten thru 8th grade School. **2019**



[HOME](#)



Mike Fernandez

Foreman

Years in Electrical Field: 10

Years with Berwick Electric Co: 10

Areas of Expertise

- Site Supervision
- Electrical Installation
- Federal and Military Projects
- Educational Projects
- Nonprofit Projects
- Residential Projects
- Commercial Projects
- Industrial Projects

Responsibilities

- Plan, implement and manage construction tasks in accordance with priorities and goals.
- Adhere to relevant safety regulations.
- Manage and guide the use of machinery and equipment.
- Oversee manpower and ensure on-site safety.
- Work with teaming partners and subs to deliver job on time, on budget.
- Participate in site coordination/scheduling.
- Project material management
- Coordinate activities with Program Management, and with other trades
- Oversee startup and commissioning.
- Assure customer satisfaction

Education/Specialization

2016 Licensed Journeyman

2011 - 2016 NJATC 113 Apprenticeship Program

Additional Relevant Employment History

2017-Present Foreman at Berwick Electric Co.

2016 Licensed Journeyman



Mike Fernandez Project Listing

GH Phipps – CO Public Radio Renovation – Colorado Springs, CO Radio Station Renovation including backup power. Includes Power distribution upgrades, includes new fixtures, devices, and fire alarm. **2020/2021**

Hensel Phelps – Grandview MOB Tenant Improvements – Colorado Springs, CO Medical office building improvements including: Imaging, Multi-Specialty, Orthographic, Primary Care, and Rehab facilities. **2019/2020**

Hensel Phelps – Grandview MOB – Colorado Springs, CO Medical office core and shell including feeder and branch power distribution installation. This includes gear and panel installations in electrical rooms. **2019**

Komada – PCD SDC Balance of Plant – Pueblo, CO Chemical Destruction Plant including site lighting, air scrubber hookup, and wiring of sensitive systems. **2019**

Musco – Hinkley Stadium & Cell Tower Fixtures – Aurora, CO \$269,217 – Demo 1964 Stadium Lighting and poles and install New Musco LED Stadium Lights to include Field Lighting, RGBW color changing lighting for bleachers, and ball tracker lights. Upgraded power as part of this project. 2019

Reliant – COS Airport Escalator Replacement – Colorado Springs, CO – Removal of old escalator and installation of new escalator electrical components. **2019**

Musco - James Irwin Charter Academy – Colorado Springs, CO – Installed new stadium lighting on artificial turf multi-use football/soccer field. **2019**

Art Klein – Novo Coffee & Bristol Reconstruction – Colorado Springs, CO – Removal and reinstallation of devices and fixtures as needed. **2019**

Musco – Colorado College Stewart Field – Colorado Springs, CO \$198,740 - New Musco LED Stadium Lighting and 200A 480V 3PH electric service. 2019

Memorial Hospital – Chillers #1 and #2 – Colorado Springs, CO – Installation of two main chiller units to run essential systems. **2018**

GEJ – Olson P&H – Colorado Springs, CO – Primary Service, Secondary lateral, Main Distribution and Sub Distribution Panelboards, Branch Power and Lighting, Mechanical Hookups, Light Fixtures, Fire Alarm and TeleData for Heating and Plumbing Offices, Warehouse, and Fabrication Shop. **2018**

Beckrich – USAFA Heat Plant – Colorado Springs, CO – Electrical equipment update to support the new pumps, VFD's, temporary boilers and fuel for the temporary boilers during the shutdown. **2018**

Bryan – COS Airport Modernization – Colorado Springs, CO \$451,977 – Modernize the 2nd floor ticketing area to include power and new LED lights. **2018**

Bryan – COS Airport Build Back – Colorado Springs, CO - Rebuilding of Colorado Springs Airport after fire damage ruined electrical equipment, devices, and fixtures. This included non-essential damage for the airport to operate. **2018**

Bryan – COS Airport 2nd Floor Fire Damage – Colorado Springs, CO – Refurbishing of Colorado Springs Airport after fire damage ruined electrical equipment, devices, and fixtures. **2018**

School District 12 – Cheyenne Mountain Elementary Lighting Upgrade – Colorado Springs, CO – Installation of modernized lighting fixtures and wire as needed. **2017**



JJ Kirlin– Evans Army Hospital AHU 3 & 4 - Fort Carson, CO \$855,794 - Installation of new air handling units and Operating Room lighting upgrade at Evans Army Hospital. 2017

Memorial Hospital - Memorial Hospital Patient Tower Phase 5 - Colorado Springs, CO \$474,107 - Patient Bed Tower remodel semi-private rooms to private rooms, new fixtures, devices, fire alarm, nurse call. 2017

Basin Electric Power Cooperative - Laramie River Station Unit #3, Laramie, WY \$182,759 - Miscellaneous Power, Lighting, Fire Alarm Work in existing areas, 2016/2017.

Memorial Hospital - Memorial Hospital Patient Towers Phase 2 - Colorado Springs, CO \$795,500 - Patient Bed Tower remodel semi-private rooms to private rooms, new fixtures, devices, fire alarm, nurse call. 2015

US Army Engineer District, Omaha – SOF Group Support Battalion - Fort Carson, CO \$2,172,505 - Group Support Battalion. 2014



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Nate Brockway

Foreman

Years in Electrical Field: 25

Years with Berwick Electric Co: 6

Areas of Expertise

- Site Supervision
- Electrical Installation
- Federal and Military Projects
- Educational Projects
- Nonprofit Projects
- Residential Projects
- Commercial Projects
- Industrial Projects
- High Voltage Work

Responsibilities

- Plan, implement and manage construction tasks in accordance with priorities and goals.
- Adhere to relevant safety regulations.
- Manage and guide the use of machinery and equipment.
- Oversee manpower and ensure on-site safety
- Work with teaming partners and subs to deliver job on time, on budget
- Participate in site coordination/scheduling
- Project material management
- Coordinate activities with Program Management, and with other trades
- Oversee startup and commissioning
- Assure customer satisfaction

Education/Specialization

2000	Licensed Journeyman
1996-2000	NJATC Apprenticeship Program IBEW 903
1989-1991	Huntsville Center for Technology
1987-1981	Butler Highschool

Additional Relevant Employment History

2015-Present	Berwick Electric Co. (JW/Foreman)
2014-2015	PAE Fort Carson (JW)
2007-2014	Ch2mhill Academy Services AFA (JW)
2002-2007	J+J Maintenance AFA (JW)
2001	Rosendin Electric (JW)
2001	Coughlin Electric (Journeyman)
2000-2001	Luduik Electric (Journeyman)
2000	Mississippi Phosphate
1999-2000	Friede Goldman (Yard Electrician)
1999	Beau Rivage Casino (Casino Electrician)
1998-1999	Biloxi, Mississippi (ABC Electrical Apprenticeship)
1996-1998	Huntsville Center for Technology (ABC Electrical Apprenticeship)



Nate Brockway Project List

Hensel Phelps – Grandview MOB Tenant Improvements – Colorado Springs, CO Medical office building improvements including: Imaging, Multi-Specialty, Orthographic, Primary Care, and Rehab facilities. **2019/2020**

Musco – Monument Valley Park Pickleball Courts – Colorado Springs, CO – LED sports lighting install for public park pickleball courts. 2020

Hensel Phelps – Grandview MOB – Colorado Springs, CO Medical office core and shell including feeder and branch power distribution installation. This includes gear and panel installations in electrical rooms. **2019**

Musco – Hinkley Stadium & Cell Tower Fixtures – Aurora, CO \$269,217 – Demo 1964 Stadium Lighting and poles and install New Musco LED Stadium Lights to include Field Lighting, RGBW color changing lighting for bleachers, and ball tracker lights. Upgraded power as part of this project. 2019

Musco - James Irwin Charter Academy – Colorado Springs, CO \$100,518 – Install new Musco LED Stadium Lights for a new artificial turf Football/Track/Soccer Field for the K-12 School. 2019

Musco – Colorado College Stewart Field – Colorado Springs, CO \$198,740 New Musco LED Stadium Lighting and 200A 480V 3PH electric service. 2019

District #3 - Grand Mountain PK-8 School – Widefield, CO \$2,244,912 - Power, Lighting, Fire Alarm, Mechanical Equipment Hookup, Site Lighting, and Kitchen electrical for Pre Kindergarten thru 8th grade School. 2019

PAFB – Clinic Modernization – Colorado Springs, CO – Multi-phase modernization of a military clinic. This includes gear, fixtures, and devices. 2018

Beckrich – USAFA Heat Plant – Colorado Springs, CO – Electrical equipment update to support the new pumps, VFD's, temporary boilers and fuel for the temporary boilers during the shutdown. 2018

Nunn – Otero Elementary Renovation – Colorado Springs, CO – Includes demolition of old devices, fixtures, and electrical equipment. Demolished parts replaced with updated devices, fixtures, and equipment. 2018

Fort Carson Military Base Building 9621 - MEDAC/ Evans Army Hospital, - Fort Carson, CO \$438,409 - Repurpose of existing 20,000 sq. ft. building to house transitional warrior medical services. 2018

Fort Carson Military Base Building 9622 - MEDAC/ Evans Army Hospital, - Fort Carson, CO \$482,004 - Repurpose of existing 20,000 sq. ft. building to house transitional warrior medical services to include x-ray. 2017

School District #11 - Palmer High School Fire Alarm Upgrade, - Colorado Springs, CO \$389,315 - Complete fire alarm upgrade completed over the school's summer break., 2017

US Army Engineer District, Omaha - BCTC Athletic Field Lighting Project, Fort Carson, CO - \$673,250 Installed Musco Sports Lighting System for two baseball fields and one new football field including medium voltage and service equipment, 2016.

Fountain Fort Carson School District - Fountain Fort Carson Multi-Use Field Lighting – Fountain, CO \$482,310 Installed Musco Sports Lighting System for two new multi-use fields to include concessions, score booths, sound system, & Electrical System. 2015.

US Army Engineer District, Omaha – SOF Group Support Battalion - Fort Carson, CO \$2,172,505 - Group Support Battalion. 2014


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Paul Heinzen

Journeyman

Years in Electrical Field: 11

Years with Berwick Electric Co: 8

Areas of Expertise

- Site Supervision
- Electrical Installation
- Federal and Military Projects
- Educational Projects
- Nonprofit Projects
- Residential Projects
- Commercial Projects
- Industrial Projects

Responsibilities

- Plan, implement and manage construction tasks in accordance with priorities and goals.
- Adhere to relevant safety regulations.
- Manage and guide the use of machinery and equipment.
- Oversee manpower and ensure on-site safety.
- Work with teaming partners and subs to deliver job on time, on budget.
- Participate in site coordination/scheduling.
- Project material management
- Coordinate activities with Program Management, and with other trades
- Oversee startup and commissioning.
- Assure customer satisfaction.

Education/Specialization

- | | |
|------------------|------------------------------|
| 2014 | Licensed Journeyman |
| 2010-2014 | NJATC Apprenticeship Program |

Additional Relevant Employment History

- | | |
|---------------------|-----------------------------------------------------------------------|
| 2021 | Continuing Lockheed Martin Facility Remodels (Journeyman) |
| 2020 | H.E.M.P. Filter Install in Greenland (Journeyman) |
| 2015-Present | ICT and Evaptech Cooling Tower Construction (Journeyman) |
| 2015-Present | GE Exciter, Mark VI-E, and Aero Turbine Upgrade Packages (Journeyman) |
| 2013 | CSU – Matin Drake Fire Recovery (Journeyman) |



Paul Heinzen Project List

Saunders Construction – Lockheed RSM Facility Remodel B002 – Colorado Springs, CO 2021

Musco – Monument Valley Park Pickleball Courts – Colorado Springs, CO – LED sports lighting install for public park pickleball courts. 2020

Hensel Phelps – Grandview MOB – Colorado Springs, CO Medical office core and shell including feeder and branch power distribution installation. This includes gear and panel installations in electrical rooms. 2019

Art Klein - Novo Coffee & Bristol Brewing Reconstruction – Colorado Springs, CO \$101,768 - Renovate kitchen and dining area damage by fire. 2019

Musco – Colorado College Stewart Field – Colorado Springs, CO \$198,740 - New Musco LED Stadium Lighting and 200A 480V 3PH electric service. 2019

GEJ – Olson P&H – Colorado Springs, CO – Primary Service, Secondary lateral, Main Distribution and Sub Distribution Panelboards, Branch Power and Lighting, Mechanical Hookups, Light Fixtures, Fire Alarm and Teledata for Heating and Plumbing Offices, Warehouse, and Fabrication Shop. 2018

Beckrich – USAFA Heat Plant – Colorado Springs, CO – Electrical equipment update to support the new pumps, VFD's, temporary boilers and fuel for the temporary boilers during the shutdown. 2018

3G Venture II LLC - Bit Coin BSGS Facility, Colorado Springs, CO \$1,749,819.00 – Installation of bitcoin mining computers and cabling. 2018

Lockheed Martin – Lockheed Martin Sustaining Support, Colorado Springs, CO - \$694,623, 2018.

Lockheed Martin – Lockheed Martin EADGE-T AP II & PK Lab, Colorado Springs, CO - \$336.975, 2017.

Xcel Energy – Jones Station Cooling Tower, Lubbock, TX - \$423,100, 2017.

Lockheed Martin – Lockheed Martin Sustaining Support, Colorado Springs, CO - \$310,362, 2017.

Musco – Manitou High School Field Lighting – Manitou, CO \$102,294 – Removed old and installed new stadium lighting on artificial turf multi-use High School lacrosse/football/soccer field. 2017

Lockheed Martin - Lockheed Martin Sustaining, Colorado Springs, CO - \$719,858 Annual sustaining contract for electrical and datacom support services, 2016.

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GOALS AND CHALLENGES (SECTION C.)





3450 N. Nevada Ave #100 • Colorado Springs, CO 80907
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Phone: (719) 632-7683 • Fax: (719) 471-9660
www.berwickelectric.com • mnorman@berwickelectric.com

3/17/2021

Mr. Duane Hoff Jr.
Senior Buyer
City of Grand Junction Purchasing Division
333 West Ave. Building C
Grand Junction, Colorado 81501

Re: Design/Build Canyon View Lighting Replacement Project **RFP-4864-21-DH (B)**

Dear Mr. Hoff,

Goal: To have a satisfied customer and provide the best customer service possible.

Challenges: Every project has its unique challenges; this project is no different. See letters of recommendation, and feel free to contact any of the customers for any project listed. Challenges unique to this project can be discussed during the interview process if not covered in our cover letter.

Respectfully,

Mark Norman

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PROJECTS WITH CHANGE ORDERS OVER 5% OR 1-MONTH TIME DELAYS (N/A) (SECTION D.)



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CONTRACTOR EXPERIENCE AND CAPABILITIES

A. RECENT SIMILAR PROJECTS LIST

B. PROJECTS WITH CHANGE ORDERS OVER 5% OR 1-MONTH TIME DELAYS (N/A)

C. CIRCUMSTANCES THAT LED TO CHANGE ORDERS OR DELAYS (N/A)

D. CONTRACTOR SAFETY INFORMATION

E. INFORMATION ON MAJOR SUBCONTRACTORS



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RECENT SIMILAR PROJECTS LIST (SECTION A.)



BERWICK ELECTRIC SPORTS LIGHTING PROJECTS (PAST 5 YEARS)

##	Project	Project Address	Location	Owner	Owner Rep	OR phone	General Contractor	GC Contact	GC Phone	Project Manager	Superintendent	Orig Contract	Electrical Contract	Start	Completed	Days	Description
20.02.Q01	Colorado Springs Park & Rec. Pickleball Court Lighting	220 Mesa Road	Colorado Springs, CO	Colorado Springs Park & Recreation	Steve Bodette	719.322.6749	Musco Sports Lighting, LLC	Chad Jaquay/Stephen Baker	563.263.2281 & 720.614.1115	Mark Norman	Justin McMahon & Nathan Brockway	\$ 100,580	\$ 107,577	3/20/2020	8/1/2020	134	Install new Musco LED sports lighting on existing pickleball courts in Historical Monument Valley Park
1902009	Musco - Hinkley Stadium and Cell Tower Fixtures	12500 Chambers Rd.	Aurora, CO	Aurora Public Schools	Craig Wright	303 367-3000 ext 28644	Musco Sports Lighting, LLC	Chad Jaquay/Stephen Baker	563.263.2281 & 720.614.1115	Mark Norman	Mike Fernandez & Nathan Brockway	\$ 269,217	\$ 269,217	15-Dec-19	31-Mar-20	107	Demo 1964 Stadium Lighting and poles and install New Musco LED Stadium Lights to include Field Lighting, RGBW color changing lighting for bleachers, and ball tracker lights. Upgraded power as part of this project.
1902006	Musco - James Irwin Academy Stadium Lights	5525 Astrozon Blvd	Colorado Springs	James Irwin Charter School	Mike Prusinowski	719 576-8055	Musco Sports Lighting, LLC	Chad Jaquay/Richard Wadlow/Stephen Baker	563.263.2281 & 720.614.1115	Mark Norman	Eric Norman & Nathan Brockway	\$ 100,518	\$ 100,518	15-May-19	15-Dec-19	214	Install new Musco LED Stadium Lights for a new atrificial turf Football/Track/Soccer Field for the K-12 School.
1902003	Colorado College Soccer Stadium Lighting	Stewart Field; 117 W. Uintah St.	Colorado Springs, CO	Colorado College	Josh Oriz	719.332.5991	Musco Sports Lighting, LLC	Chad Jaquay/Stephen Baker	563.263.2281 & 720.614.1115	Mark Norman	Eric Norman, Mike Fernandez & Paul Heinzen	\$ 198,740	\$ 198,740	20-May-19	15-Nov-19	179	New Musco LED Stadium Lighting and 200a 480v 3 ph electric service.
15203	El Pomar Sports Complex	2230 Executive Circle	Colorado Springs	El Pomar Foundation	Eric Parthen	719.630.0168	Musco Sports Lighting, LLC	Chad Jaquay/Richard Wadlow	563.263.2281	Mark Norman	Duane Dunblazier	\$ 74,950	\$ 80,175	09-Feb-15	30-Mar-15	49	Installed new stadium lighting on artificial turf multi-use lacross/football/soccer field.
1702Q03	Manitou School District Stadium Lighting	401 El Monte Place	Manitou, CO	Manitou School District	Danny Gieck	719.499.4591	Musco Sports Lighting, LLC	Chad Jaquay/Richard Wadlow	563.263.2281	Mark Norman	Shawn Tilkins	\$ 102,294	\$ 106,309	6/15/2017	11/15/2017	153	Removed old and Installed new stadium lighting on artificial turf multi-use High School lacross/football/soccer field
1702Q01	Plainview High School Stadium Lighting	13997 County Road 71	Sheridan Lake, CO	Plainview High School			Musco Sports Lighting, LLC	Richard Wadlow	303.909.7411	Mark Norman	Eric Norman	\$ 34,710	\$ 34,710	6/15/2017	9/1/2017	78	Removed old fixtures after tornado and Installed new stadium lighting on multi-use High School baseball/football/track field
1502008	Fountain Fort Carson High School Field Lighting	10655 Jimmy Camp Road	Fountain, CO	Fountain Fort Carson High School	Athletic Director-Kelly Eichman		Art Klein Construction	Kevin Klein	719.570.6060	Mark Norman	Matt Swift	\$ 482,310	\$ 482,310	11/15/2015	12/15/2017	761	Installed Musco Sports Lighting System for two new multi-use fields to include concessions, score booths, sound system, & Electrical System
1602005	Fort Carson BTCH	Iron Horse Park	Fort Carson, CO	Fort Carson BTCH	US Army Corps of Engineers		Dawson	Brendon Loucks		Mark Norman	Eric Norman & Nathan Brockway			4/11/2016	1/1/2017	265	Installed Musco Sports Lighting System for two baseball fields and one new football field including medium voltage and service equipment

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PROJECTS WITH CHANGE ORDERS OVER 5% OR 1-MONTH TIME DELAYS (N/A) (SECTION B.)



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CIRCUMSTANCES THAT LED TO CHANGE ORDERS OR DELAYS (N/A) (SECTION C.)



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SAFETY POLICY

(Section D.)

2021

BERWICK ELECTRIC CO.

Colorado Springs, CO

Safety Manager
Contact: Adam Fahrenbruch
Direct: (719) 389-1546
Email: afahrenbruch@berwickelectric.com

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SAFETY POLICY STATEMENT

Berwick Electric Co. enforces this Safety Policy for three important reasons: humanitarian, economic and legislative.

Our employees are considered valuable assets and their safety is of vital concern.

We seek to gain an edge over our competition by operating effectively and efficiently. Accidents that result in injury, illness, or damage to property hinder operations and increase costs. We are able to reduce overhead costs by keeping our insurance premiums to a minimum by maintaining an active on-going safety program.

In 1970, Congress passed the Occupational Safety & Health Act. This established safety and health standards that must be met along with a penalty system for noncompliance.

The personal safety and health of each employee of this company is of primary importance. The prevention of occupational-induced injuries and illness is of such consequence that it will be given precedence over operating productivity. To the greatest degree possible, management will provide mechanical and physical facilities required for personal safety and health in keeping with the highest standards. This company-wide policy has the total support of the owners and managers of Berwick Electric Co.

At the discretion of management, serious, willful and/or repeated safety or health violations will result in immediate discharge.

I have received a copy of the Berwick Electric Co. Employee Safety Handbook and understand that in accepting employment with Berwick Electric Co., I am expected to abide by these rules.

I have also received a hard hat from Berwick Electric Co. for my personal protection and use, and agree to keep it in my possession at all times and use it in accordance with the guidelines of the above mentioned safety policy.

I, _____ have read and understand the
Berwick Electric Co. Safety Policy.

Signature: _____

Date: _____

This document becomes a permanent part of your personnel file.

RESPONSIBILITIES

Safety Manager

1. Provide safety control as required by all contract documents as well as all federal, state and local regulations.
2. Inspect and ensure compliance with the Berwick Electric Co. Safety Program. Corrective action, where indicated shall be taken immediately. Berwick Electric Co. expects each Project Manager, Field Manager and Foreman to cooperate with the Safety Manager in ensuring compliance.
3. The safety manager is Chairman of the Berwick Electric Co. Safety Board, which meets on a regular basis to ensure that the Safety Program is actively implemented, maintained and enforced. This Board reviews any accident (or near accident) that has occurred and is responsible for the corrective measures taken to prevent any recurrences. This Board is comprised of the following: Safety Manager, a Company owner, Company Shop Steward, IBEW Local 113 representative, NECA Chapter Manager and a local insurance representative.
4. Ensure that all personnel of the Company, its subcontractors, employees, vendors and visitors comply with being equipped with all protective and safety devices necessary.
5. Conduct "safety talks" on a regular basis for each foreman and crew to keep workers safety conscious and provide an opportunity to hear comments and suggestions.
6. Conduct a meeting with the crew if an accident or near accident occurs as soon as possible to discuss causes of the accident and how to prevent a recurrence.
7. Complete an investigation of every accident producing damage or injury and file a report immediately for the next Safety Board Meeting.
8. Maintain appropriate safety records and insure immediate reporting of accidents, near accidents and safety violations.

RESPONSIBILITIES

Field Manager

1. Be responsible for the safety of the workers under their supervision as well as the quality and quantity of work produced by them.
2. Select and train competent safety minded foremen.
3. Plan the work in such a manner as to eliminate hazards.
4. Obtain location of all underground utilities prior to breaking ground on any project.
5. Investigate hazardous work with foremen and after discussion outline a method to do the work in the safest manner.
6. See that immediate medical attention is given to anyone who is injured.
7. Report all accidents immediately to the Safety Manager.
8. By working through the foremen encourage employees to report all accidents, no matter how minor they seem at the time.
9. See that all equipment is in safe working condition and necessary repairs are made before equipment is put back into operation.
10. Upon project commencement, indoctrinate each employee as to the scope of the safety program. Each worker will be charged with the responsibility of acting within its framework and individuals flagrantly violating safety rules may be subject to dismissal.

RESPONSIBILITIES

Foreman

1. Be responsible for the safety of the workers under their supervision as well as the quality and quantity of work produced by them.
2. Believe in safety and transmit this belief to their crew.
3. Be accountable for all accidents and employee actions unless investigation shows they were due to conditions beyond their control.
4. Be responsible for the training and instruction of new employees and other employees transferred to their supervision.
5. Instruct all employees on the reporting of accidents and prompt seeking of First Aid and/or Medical attention.
6. Fully understand and comply with the company Safety Policies. They shall insure that the workers under their supervision understand the Safety Policies.
7. Be responsible for the proper use of equipment and safety devices by the workers under their supervision.
8. Be responsible for the regular inspection of all tools and equipment, including the personal tools of workers under their supervision.
9. Make certain that no work is assigned to an individual unqualified or unable to do the work safely.
10. Be responsible for work and equipment being in a safe condition at the end of the day so that no hazard exists to the general public.
11. Acquaint themselves with principles of First Aid and resuscitation.

RESPONSIBILITIES

Employee

1. Conduct themselves at work so as to insure:
 - a. Safety for themselves
 - b. Safety for their fellow workers
 - c. Protection of the public
 - d. Protection for company property and for public and private property.
2. Get plenty of nightly rest and observe a balanced diet. Get periodic medical check-ups.
3. Remember their health and lives are very important to both them and the company. Follow all safety rules and regulations and make sure the workers around them are safety minded also.
4. Wear clothing suitable for the weather and their work. Torn or loose clothing, cuffs and neckwear are hazardous.
5. Take pride in themselves and their job. Help keep all areas clean, organized and as safe as possible.
6. Report to their foreman or supervisor all unsafe acts or conditions seen on the job.
7. When called upon to do work under conditions they believe unsafe, call these conditions to the attention of their foreman and then thoroughly understand the foreman's instruction as to the best possible way to do the job.
8. Acquaint themselves with the principles of First Aid and resuscitation.
9. Attend all safety meetings and take an active part in the Safety Program.
10. Know and understand the company Safety Policy as it applies to the work they are performing.
11. Properly use all safety devices and equipment (including hard hats and safety glasses as required).
12. Remember that they are a representative of the company and that their words and actions should create only a favorable opinion of the Company.

RESPONSIBILITIES

Subcontractor

1. Our subcontractors agree formally when they sign our subcontract form to live up to Company Safety Policies.
2. Before they commence work, Subcontractor employees should be informed in as much depth as possible of our Safety Policy along with working features of their specific work as it is integrated into our work. This should be handled much the same as a new-hire employee with written instructions, verbal explanations and showing the physical area and hazards as much as practicable.
3. Subs should be in attendance at project weekly safety meetings.
4. We want them to work safe alongside us - in the same way that we expect and enforce our men to operate. Berwick Electric Company Project Management shall be responsible for ensuring Subcontractor compliance with safety procedures and policies.

ACIDS, GASES, VAPORS, FUMES, DUSTS, MISTS AND SOLVENTS

1. Whenever harmful airborne contaminants exist or are produced in the course of construction work in quantities that expose employees to inhalation, ingestion, skin absorption or contact, such hazards shall be controlled by:
 - a. General ventilation
 - b. Local exhaust ventilation
 - c. Goggles and face protection
 - d. Wearing of applicable protective clothing.
2. When handling caustics or battery acids, goggles shall be worn as splashing can cause serious eye injuries.
3. If all containers are not properly identified as to the type of acid, gas or solvent contained therein, the contents shall not be used or the container handled.
4. All flammable liquids and gases shall be stored in approved containers having positive identification of the contents.
5. All areas that are to be used for the storage of flammable liquids or gases shall be conspicuously designated as such and "No Smoking" signs posted and vigorously enforced.
6. Suitable fire extinguishers, type ABC Dry Chemical shall be located within the area and adjacent to it. The outside extinguisher shall be sufficiently removed to assure accessibility should a fire break out, but near enough to be used.
7. All personnel engaged in the handling of flammable liquids must be made aware of the importance of insisting that no sources of ignition be brought within the designated area.
8. Dispensing from drums shall be only by means of an approved mechanical pump at a location away from open flames.
9. No more than 25 gallons of flammable or combustible liquids shall be stored in a room outside of an approved storage cabinet. No more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in any one storage cabinet. No more than three storage cabinets may be located in a single storage area.

CONFINED SPACES

The purpose of this procedure is to establish guidelines for the proper and safe entry and work within closed vessels and confined spaces.

This procedure applies to all Berwick Electric Co. personnel required to enter confined spaces for work or inspection.

Responsibility:

- A. It shall be the responsibility of the Project Manager to insure the implementation of this procedure.
- B. It is the responsibility of the Safety manager to supervise and insure compliance with this procedure.
- C. It is the responsibility of all Berwick Electric Co. personnel involved in work in confined spaces to be familiar and comply with this procedure.

Definitions:

By definition, a **permit required confined space** is any space where a worker has limited or restricted entry or exit, is large enough to enter and perform their work duties, could have a toxic or hazardous atmosphere, may have limited or no oxygen supply, and is not normally occupied or inhabited. **Examples:** tanks, vessels, vaults, man-ways, tunnels, open pits, excavations, pipelines, bins, silos, boilers and similar structures. In order to prevent possible injury or death, a permit system will be required when above conditions occur.

By definition, a **non-permit required confined space** is a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Procedure:

- 1. Determine if a work area is a confined space.
- 2. If determined to be a closed vessel or a confined space, immediately contact the Safety Manager or the Project Manager. An assessment shall be made to determine if there are air contaminants, lack of oxygen and any physical safety hazards that need to be addressed before entry.
- 3. Provide adequate natural air movement or forced ventilation to remove any air contaminants that may exist and provide a sufficient amount of oxygen (the oxygen level of the area should not be less than 19.5% of the makeup air).
- 4. No person shall enter a closed vessel or confined space without a safety harness or belt with a lifeline attached. A person assigned outside the vessel or space shall attend this lifeline.
- 5. No smoking shall be permitted nor shall the use of gasoline or other internal combustion engines within a closed vessel or a confined space.
- 6. Provisions shall be made for adequate rescue procedures, including rescue equipment specifically designed for a rescue from a confined space.

CRANES

1. All machinery and equipment shall be visually inspected by a competent person prior to and during each shift. All deficiencies must be repaired before the equipment is used.
2. Manufacturer's specifications and limitations applicable to each crane or hoist shall be followed.
3. Operators must take signals from only one person; in an emergency; however, a stop signal can be given by anyone.
4. If two-way radios are available, they are to be used to enhance signaling operations.
5. Only standard hand signals will be acknowledged. These hand signals are included as part of this safety policy.
6. Routine maintenance, fueling or repairs must not be performed while the equipment is in use or the power is on.
7. When handling or recharging batteries or using jumper cables, wear a face shield.
8. Accessible areas within the swing radius of all cranes must be barricaded to prevent persons from being injured by the counterweight.
9. All personnel are prohibited from riding the hook or load.
10. No crane or other equipment will be operated within ten feet of energized electrical transmission or distribution lines.
11. Only authorized persons shall operate a crane.

ELECTRICAL

Safe Work Practices

Before work is begun, you shall ascertain by inquiry or direct observation or by instruments whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool or machine into physical or electrical contact with the electric power circuit.

Post and maintain proper warning signs where such a circuit exists and advise other employees of the location of such lines, the hazards involved and protective measures to be taken.

Sufficient space shall be provided and maintained in the area of electrical equipment to permit ready and safe maintenance and operation of such equipment.

Suitable barriers or other means of guarding shall be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.

Working spaces, walkways, and similar locations shall be kept clear of cords so as not to create a hazard to employees.

In existing installations, no changes in circuit protection shall be made to increase the load in excess of the load rating of the circuit wiring.

Energized wiring in junction boxes, circuit breaker panels and similar places must be covered when unattended.

Installation Requirements

Electrical installations are to be made in accordance with the 1999 National Electrical Code (NEC). By following the NEC, the work is deemed to be in compliance with OSHA requirements except for the following rules covering ground-fault protection, temporary lighting and extension cords which OSHA has determined to be substantially different from the NEC. However, all other NEC requirements pertaining to these listed above also apply.

Ground-Fault Protection

Berwick Electric Co. requires the use of ground-fault circuit interrupters to protect personnel on construction sites. Portable ground fault interrupter cords are to be used any time you are using cord connected equipment or tools and the GFI cord shall be used at the point closest to the power source. Each van shall be equipped with at least two GFI cords and each gang box shall contain at least four. You are to advise your supervisor if you do not have these cords. This requirement is in addition to any other requirements for equipment grounding conductors.

ELECTRICAL

Temporary Lighting

All lamps for general illumination shall be protected from accidental contact or breakage. Metal case sockets shall be grounded.

Temporary lights shall not be suspended by their electric cords unless cords and lights are designed for this means of suspension.

Extension Cords

Extension cords shall be of the three-wire type and shall be designed for hard or extra-hard usage. Extension cords shall not be fastened with staples, hung from nails, or suspended by wire. Worn or frayed electric cords or cables shall be tagged and returned to the tool room for replacement.

Signs and Tags

Controls that are to be deactivated during the course of work on energized or de-energized equipment or circuits shall be tagged. Tags shall be placed to identify the equipment or circuit being worked on.

Danger signs shall be used only where an immediate hazard exists.

Caution signs shall be used to warn against potential hazards or to caution against unsafe practices.

LOCKOUT PROGRAM

LOCKOUT PROCEDURE FOR IBEW L.U.#113

I Purpose

This procedure establishes the minimum requirements for the lockout of energized isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury. An "Energy Control Inspection Form" must be completed for each type of equipment addressed by the procedures of this program. "Energy Control Inspection Forms" will be reviewed annually or when a problem is observed in the procedure.

II Compliance with This Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

SEQUENCE OF LOCKOUT

DEENERGIZATION

- 1) Notify all affected personnel that servicing or maintenance is required on a machine equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
- 2) The designated employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
- 3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
- 4) Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s). Verify this with a voltmeter or tester.
- 5) Lock out the energy isolating device(s) with assigned company lock(s). If a lock cannot be applied, or if the employer can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by a lock, a tag may be used without a lock. Each lock shall have two keys.
- 6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
- 7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

LOCKOUT PROGRAM

(Continued)

- 8) The machine or equipment is now locked out. Restoring Equipment to Service. When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

REENERGIZATION

- 1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
- 2) Check the work area to ensure that all employees have been safely positioned or removed from the area.
- 3) Verify that the controls are in neutral.
- 4) Remove the lockout devices and reenergize the machine or equipment.
NOTE: The removal of some forms of blocking may require reenergization of the machine before safe removal.
- 5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

This procedure is a minimum requirement and may not meet all the requirements of some customers and or contractors.

Affected personnel – personnel who may be served by the electric power or who may work on or around the equipment which will be affected by the outage.

Procedure Involving More Than One Person

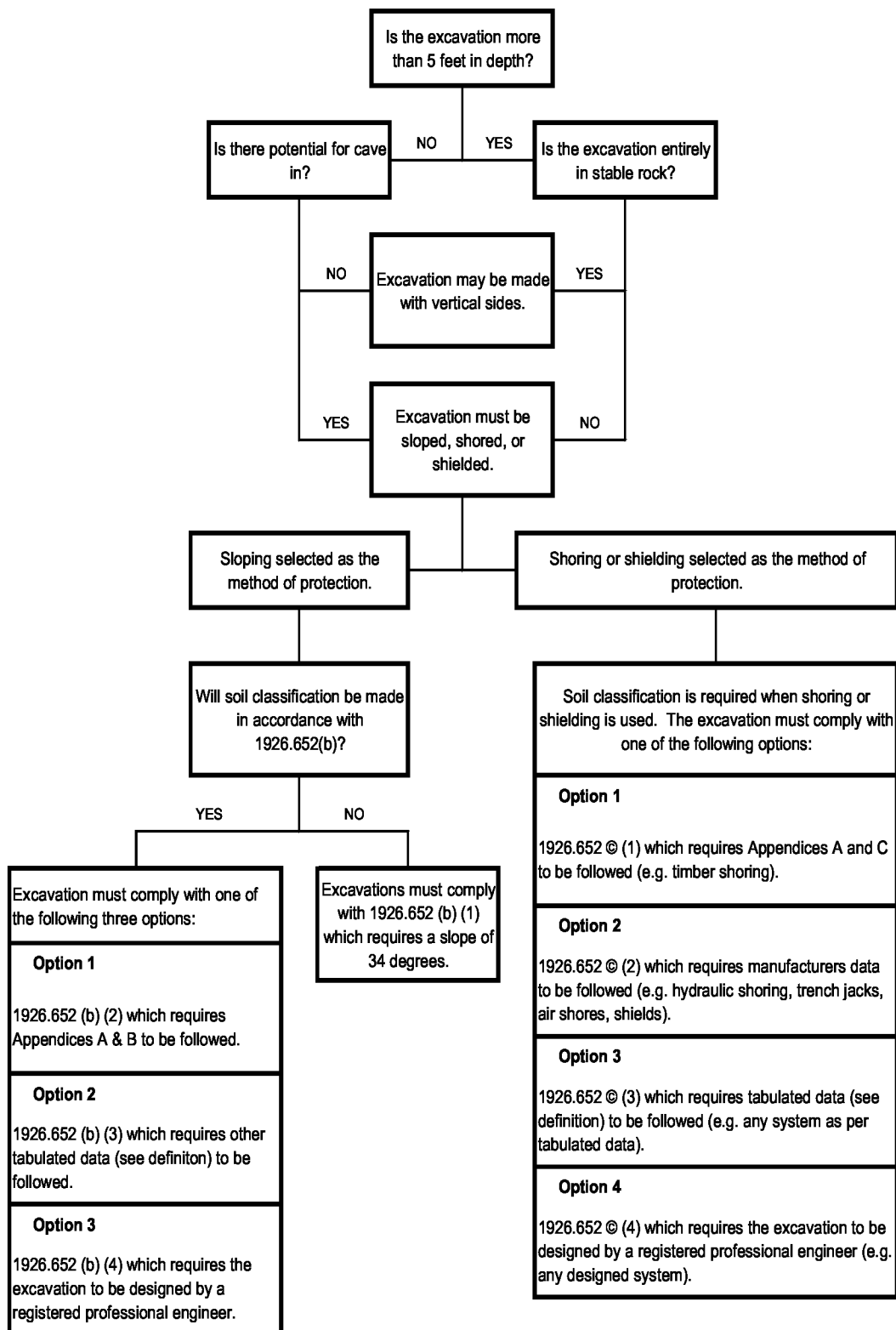
In the proceeding steps, if more than one individual is required to lockout/tagout equipment, each shall place his/her own personal lockout device or tagout device on the energy isolating device(s). When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure it. Each employee will then use his/her own lock to secure the box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet.

EXCAVATION AND TRENCHING

1. Before opening any excavation, efforts shall be made to determine if there are underground utilities in the area, and they shall be located and protected during the excavation operations.
2. Barriers and barricades shall be placed on both sides of the excavation to deter the passage of persons or vehicles.
3. Excavated or other material shall not be stored nearer than 2 feet from the edge of any excavation and shall be so stored and retained as to prevent its falling or sliding back into the excavation.
4. Sides of trenches in hard or compacted soil, including embankments shall be shored or otherwise supported when the trench is more than 4 feet in depth and more than 8 feet or more in length. In lieu of shoring, the sides of the trench above the 4 foot level may be sloped to preclude collapse, but shall not be steeper than a 1-foot rise to each 1/2-foot horizontal.
5. In locations where oxygen deficiency condition is possible, use a mechanical blower to provide necessary amounts of fresh air. (See Confined Space Procedures.)
6. Where employees are required to be in trenches 4 feet deep or more, ladders extending from the floor of the trench excavation to 3 feet or more above the top of the trench, shall be provided and located to provide means of exit without more than 25 feet of lateral travel.
7. The supervisor shall make daily inspections of excavations on the job site. If any evidence of possible cave-ins or slides is apparent, do not permit employees to work in the trench.
8. Before leaving the work area at quitting time, the supervisor in charge shall see that machinery and tools are properly stored at the trench site, keys not left in equipment and barriers in place.
9. Refer to the following Guidelines.

**** All excavations shall follow the requirements found in the CFR 29 Part 1926 Subpart P.****

EXCAVATION GUIDELINES



FIRE PROTECTION

Familiarize yourself with the location of all fire fighting equipment in your area.

Fire Prevention

Only approved solvents shall be used for cleaning and degreasing. The use of gasoline and similar flammable products for this use is prohibited.

Oily rags shall be placed in approved covered metal containers.

Approved safety cans only shall be used for dispensing small quantities of fuel.

Fire Extinguishers

Types:

- Class "A" - Ordinary combustible material (wood, paper, etc.)
- Class "B" - Flammable liquids & Gases (gasoline, paints & solvents)
- Class "C" - Energized electrical circuits (broken wires, faults)
- Class "D" - Combustible metals (magnesium, sodium & zirconium)
- Class "ABC" - Can be used on any A, B or C fire.

All company vehicles, gang boxes and job site trailers shall be equipped with a pressurized multi-purpose ABC fire extinguisher. All fire fighting equipment shall be periodically inspected and maintained in operating condition.

Responding to Workplace Fires

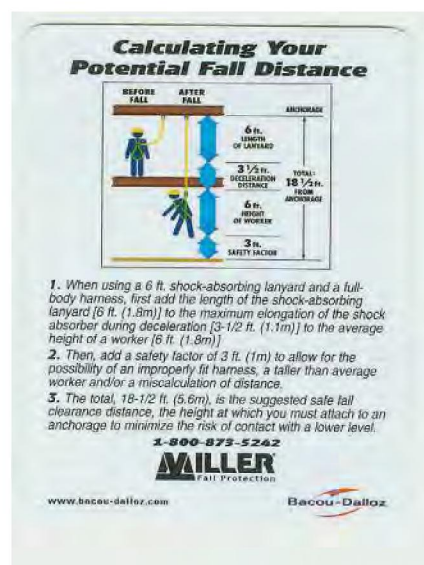
1. Alert others and evacuate the area.
2. Call the Fire Department (911).
 - Give: Specific Location
 - Telephone number where you are calling
 - Your name
 - What has happened
 - Wait for them to hang up.
3. Decide if it is safe to fight/control the fire.
4. Use the appropriate fire extinguisher.

Responding to Fire Victim

1. Never place yourself in danger.
2. Never turn your back on a fire.
3. Stay up-wind from the fire.
4. If you cannot safely approach the victim wait for fire department.
5. If someone is on fire, cover with a fire blanket OR
6. Remember to STOP, DROP and ROLL.
7. Be prepared to give first aid for smoke inhalation, respiratory poisoning, shock and/or burns.

FALLS, FLOORS, WALL OPENINGS AND STAIRWAYS

1. Floor openings through which persons or material may fall shall be guarded by a standard railing and toeboards or cover. If covers are used they must be strong enough to support the loads to be imposed upon them and they must be secured to prevent against accidental displacement. In general, the railing shall be provided on all exposed sides, except at entrances to stairways. Temporary floor openings shall have standard railings.
2. Every open-sided floor platform, 6 feet or more above adjacent floor or ground level, shall be guarded by a standard railing or the equivalent, on all open sides except where there is entrance to a ramp, stairway or fixed ladder.
3. Runways 4 feet or more high shall have standard railings on all open sides, except runways more than 18 inches wide used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate.
4. A standard railing shall consist of a top rail, intermediate rail and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to the floor, platform etc.
5. The top rail of a railing shall be smooth-surfaced, with a strength to withstand at least 200 pounds. The intermediate rail shall be approximately halfway between the top rail and floor.
6. A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches nor less than 30 inches from the upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.
7. Railings protecting floor openings, platforms, scaffolds, etc., shall be equipped with toeboards wherever persons can pass beneath the open side. There is moving machinery, or there is equipment with which falling material cause a hazard.
8. A standard toeboard shall be at least four inches in height and may be of any substantial material either solid or open, with the openings not to exceed one inch in greatest dimension.
9. Berwick Electric employees shall adhere to the requirements of 29 CFR Part 1926 Subpart M for fall protection. General and specific guidelines are in the Berwick Electric Employee Safety Handbook.



HAZARD COMMUNICATIONS PROGRAM

Berwick Electric Co. is complying with the requirements of OSHA's 2012 Hazard Communication Standard for construction by compiling a list of hazardous chemicals, using safety data sheets (SDSs), ensuring that containers are labeled or provided other forms of warning, and training our worksite employees. In addition, we share information with other employers involved in a specific project so that they may keep their employees informed.

This program applies to all work operations at Berwick Electric Co. where employees may be exposed to hazardous chemicals under normal working conditions or during an emergency situation. Under this program, our employees will be informed of the contents of the Hazard Communication Standard, the hazards of chemicals with which they work, safe handling procedures, and measures to take to protect themselves from these chemicals, among other training elements.

Bill Tuten, the Hazard Communication Program Coordinator, has overall responsibility for the program, including to review and update the program, as necessary. Copies of this written program may be obtained from the Safety Department who keeps the program. Moreover, all employees, or their designated representatives, may obtain further information about this written program, the Hazard Communication Standard, applicable SDSs, and our chemical list from the Safety Manager.

Finally, if after reading this program, you find that improvements can be made, please contact the Safety Department. We encourage all suggestions because we are committed to the success of our written Hazard Communication Program. We strive for clear understanding, safe behavior, and involvement in the program from every level of the company.

List of Hazardous Chemicals

Our "chemical inventory" is a list of product identifiers of hazardous chemicals known to be present at our workplace. Anyone who comes in contact with the hazardous chemicals on the list needs to know what those chemicals are and how to protect themselves. That is why it is so important that hazardous chemicals are identified, whether they are found in a container or generated in work operations (for example, welding fumes, dusts, and exhaust fumes). The hazardous chemicals on the chemical inventory can cover a variety of physical forms including liquids, solids, gases, vapors, fumes, and mists. Sometimes hazardous chemicals can be identified using purchase orders. Identification of other chemicals may require an actual survey of the workplace.

Updates for the hazardous chemical's inventory will be revised as necessary.

The inventory is attached to this written Hazard Communication Program. However, the Program Coordinator also keeps a copy of the chemical inventory list located on each job site and in the Safety Office where it is accessible during normal business hours. The chemical inventory serves as a list of every hazardous chemical for which an SDS must be maintained.

Chemical Hazard Classification

Hazard Classifications for each product that contains hazardous chemicals are found on the SDS in conformance with the new OSHA Hazard Communications Standard and the Global Harmonization System (GHS).

Safety Data Sheets (SDSs)

SDSs are basically fact sheets for chemicals that pose a physical or health hazard in the workplace. These sheets provide our employees with specific information on the chemicals in their work areas.

The Safety Department is responsible for obtaining and maintaining the SDSs at our workplace and will contact the chemical manufacturer or supplier if additional chemical information is needed.

SDSs are kept readily accessible to all employees during normal business hours on each job site and in the Safety Office. SDS sheets should accompany each new product or chemical received with the first shipment.

Each SDS is provided in English and includes the sections required by OSHA in the order listed in the Hazard Communication Standard.

It should be noted that OSHA allows SDSs to be kept in any form, as long as the information is provided for each product that contains hazardous chemicals and is readily accessible during normal business hours.

Labels and Other Forms of Warning

In most cases, hazardous chemical containers at the workplace must be clearly labeled, tagged, or marked in accordance with the Hazard Communication Standard, either with:

- The product identifier, signal word, hazard statement(s), pictogram(s), and precautionary statement(s); or
- The product identifier and words, pictures, symbols, or combination thereof, which provide at least "general" information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the Hazard Communication Program, will provide employees with the "specific" information regarding the physical and health hazards of the hazardous chemical.

While not required for in-house labeling, the name and address of the manufacturer, importer, or other responsible party may also be found on the label, tag, or marking because shipped containers of hazardous chemicals must bear this information. Hazards not otherwise classified, if any, do not have to be addressed on a container but must be addressed on the SDS.

Because the product identifier is found on the label, the SDS, and our chemical inventory, the product identifier links these three sources of information, permitting cross-referencing. The product identifier used by the supplier may be a common or trade name, a chemical name, or a number. Employees should be aware that label information can be verified by referring to the corresponding SDS.

Each Supervisor (respectively) is responsible for ensuring that all hazardous chemicals in containers at the workplace have proper labels or other forms of warning that are legible, in English (although other languages may also be included), and displayed clearly on the container or readily available in the work area throughout each work shift, as required.

New posters are displayed to inform all employees about the new Hazard Communication Standard.

If employees transfer chemicals from a labeled container to a portable, secondary container that is intended only for their **IMMEDIATE use**, no labels, tags, or markings are required on the portable container. Otherwise portable containers must be labeled, tagged, or marked in accordance with our in-house labeling system for workplace containers.

OSHA also allows for alternatives to labeling, tagging, and marking to convey the required information, as long as the containers to which the alternative method is applicable are identified. We use the following alternative method(s) to label, tag, or mark workplace chemical containers. An example would be: Writing in permanent marker indicating "Alcohol, Flammable, DANGER or WARNING".

Training

Everyone who works with or is potentially "exposed" to hazardous chemicals on the job will receive initial training on the NEW Hazard Communication Standard and the safe use of those hazardous chemicals before starting work. "Exposure" means that "an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g., accidental or possible) exposure." Whenever a new chemical hazard is introduced or an old hazard changes, additional training is provided. All training is conducted by the Safety Department.

Effective information and training is a critical part of the new Hazard Communication Program. We train our employees to read and understand the information on labels and SDSs, determine how the information can be obtained and used in their own work areas, and understand the risks of exposure to the chemicals in their work areas, as well as ways to protect themselves from incidental exposure. Our goal is to ensure employees know that they are exposed to hazardous chemicals, have the skills to read and use labels and

SDSs, and understand how to appropriately follow the protective measures we have established. We urge our employees to ask questions for greater comprehension.

As part of the assessment of the training program, Berwick Electric asks for input from employees regarding the training they have received and their suggestions for improving it. In this way, we hope to reduce any incidence of chemical-related illness or injury.

Training Content

The training program emphasizes these elements:

- Summary of the Hazard Communication Standard.
- What hazardous chemicals are present in operations in employee work areas.
- Chemical and physical properties of hazardous chemicals (e.g., flash point, reactivity, etc.) and how to detect the presence or release of these chemicals (including chemicals in unlabeled pipes).
- Physical hazards of chemicals (e.g., potential for fire, explosion, etc.).
- Health hazards, including signs and symptoms of overexposure, associated with exposure to chemicals and any medical condition known to be aggravated by exposure to them.
- Any simple asphyxiation, combustible dust, and pyrophoric hazards, as well as hazards not otherwise classified, of chemicals in work areas.
- Any steps the company has taken to reduce or prevent exposure to hazardous chemicals, such as engineering controls.
- Procedures to protect against hazards and exposure (e.g., work practices or methods to assure proper use and handling of chemicals and any required personal protective equipment and its proper use and maintenance).
- Procedures for reporting and responding to chemical emergencies.
- How to read and use both the workplace labeling system and labels received on shipped containers.
- The order of information found on SDSs and how to read the information and what it means.
- How to access SDSs and the written Hazard Communication Program, including the chemical inventory.

The procedure to train new employees in the New Hire Orientation and when a new hazard is introduced by using an new product.

Training logs are signed by employees upon completion of their training and are kept by the Safety Department.

Hazards of Non-routine Tasks

Periodically, employees are required to perform non-routine tasks that involve hazardous chemicals. When employees will be required to perform hazardous non-routine tasks, that have the potential to expose employees to hazardous chemicals, we inform them of these hazards.

Hazards of Unlabeled Pipes

Work activities are sometimes performed by employees in areas where hazardous chemicals are transferred through unlabeled pipes. We inform employees of the hazards of chemicals contained in unlabeled pipes in their work areas.

Multi-Employer Facilities or Job sites

When contractors or any other employers' workers will be working at this workplace, the Hazard Communication Program Coordinator, Bill Tuten, will:

- Provide the other employer(s) as follows with SDSs for any of our hazardous chemicals to which their employees may be exposed;

Moreover, it is the responsibility of each job site Supervisor to obtain from each contractor or other employer the appropriate hazard information on chemicals they bring onsite, including SDSs, the labeling system used, and the precautionary measures to be taken in working with or near these chemicals.

Additional Information

As stated earlier, all employees, or their designated representatives, may obtain further information on this written program, the new Hazard Communication Standard, applicable SDSs, and the chemical inventory from the Safety Department.

Appendix

We have attached to this written program our chemical inventory and other information to ensure better understanding of our program

SAMPLE HAZARDOUS MATERIAL INVENTORY

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. ZINC COLD GALVANIZED SPRAY 2. YELLOW 77 3. NOALOX 4. SQ D GRAY PAINT 5. PVC CEMENT 6. SCOTHKOTE 7. SCOTCH CAST KITS 8. CO8 SEALOFF COMPOUND 9. AUTOMATIC TRANS FLUID - FORD 10. AUTOMATIC TRANS FLUID - CHEVY 11. MOTOR OIL 12. GREASE 13. GAS & DIESEL & UNLEADED 14. SPRAY PAINT 15. LACQUER THINNER 16. PAINT THINNER 17. RAPID TAP 18. WD 40 19. MOISTURE DISPLACER 20. ELECTRIC/EQUIP & MOTOR CLEANER 21. RED INSULATING VARNISH 22. SILICONE LUBE 23. DRY MOLY LUBE 24. 40-645 H.D. OPER GEAR 25. DRY GRAPHITE LUBE 26. CLEAR INS. VARNISH 27. 40-660 H.D. SILMOLD REC 28. QUICK FREEZE | <ol style="list-style-type: none"> 29. TOOL MAKERS BLUE LAYOUT 30. 40-675 LAYOUT INK REM 31. CUTTING OIL 32. PENETRATING OIL 33. HAND CLEANER 34. BUG SPRAY 35. CONTACT CLEANER 36. FLUOR ORANGE MARKING SPRAY 37. CABLE CLEANER 38. GASKET SEALER SILICONE 39. POLY WATER 40. INDUSTRIAL PACKING WOOL 41. 3M FIRE BARRIER 42. PROPANE 43. HYDRAULIC OIL 44. NYLON MARKING INK 45. EPOXY RESIN & HARDENER 46. EPOXY DOUGH 47. UNLEADED GAS 48. ANTIFREEZE 49. CEMENT 50. CONCRETE 51. GROUT 52. WELDING RODS 53. BRAZING ROD 54. FLUX OR BRAZING 55. ACETYLENE 56. OXYGEN |
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NFPA 704M Hazard Diamond:



HOUSEKEEPING

1. During the course of construction, alteration or repairs, scrap material and all other debris shall be kept cleared from work areas, passageways and around buildings and other structures.
2. Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal.
3. Spills of oil, grease or other liquid shall be removed immediately or sprinkled with sand to prevent slips and falls.
4. Protruding nails should be bent over or removed.
5. All materials should be maintained in neat stockpiles for ease of access.
6. Proper containers shall be used for flammable or harmful substances.
7. There shall be adequate washing facilities for employees engaged in the application of harmful substances or in operations where harmful contaminants are used.
8. Washing facilities shall be in close proximity to the work site and shall be equipped to remove all harmful substances.
9. An adequate supply of potable water shall be provided in all places of employment. Potable drinking water containers shall be capable of being tightly closed and equipped with a tap. A common (used by more than one person) drinking cup is prohibited. Unused disposable cups shall be kept in a sanitary container and a receptacle shall be provided for used cups.
10. Toilets shall be provided according to the following: twenty or fewer persons - one facility; twenty or more persons - one toilet seat and one urinal per forty persons; 200 or more persons - one toilet seat and one urinal per 50 workers. This requirement does not apply to mobile crews having transportation readily available to nearby facilities.

INDUSTRIAL HYGIENE

Introduction:

Employees shall be protected from environmental hazards during the course of their employment. Hazardous exposures that cause short-term adverse effects to health must be controlled.

Noise:

When employees are subjected to sound levels exceeding 90 dB, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce the sound levels, hearing protection shall be provided. Rule of thumb: When in doubt - wear protection. Notify the Safety Manager on questions concerning short duration exposure.

Airborne Contaminants:

Employees shall not be exposed to inhalation, skin absorption, ingestion or contact with any material or substance at or above the concentration allowed in the table of Threshold Limit Values in 29 CFT 1926.55. Suitable administrative or engineering controls shall be implemented to control airborne contaminants at acceptable levels. This can be done with proper ventilation systems installed in accordance with the recommended practices in Industrial Ventilation.

Toxic Materials:

If we excavate toxic substances on a job, all work must cease. It is our preference that the owner of the job executes the subcontract directly with the abatement contractor. The handling of any toxic material merely by change order should be resisted.

Solvents:

The use of solvents is a dual hazard because they are both toxic and flammable. Controls shall be established that reduce the level of exposure to an acceptable level of exposure while preventing a build-up of flammable mixtures. In selecting a solvent, care should be taken to choose the solvents that are least toxic, flammable and volatile.

Nonionizing Radiation:

Nonionizing radiation concerns the control of exposures to lasers, microwaves and ultraviolet light. These effects of nonionizing radiation are usually burns especially to the eye, which is susceptible to this type of radiation. Control measures include shielding from harmful rays or arcs and adequate light filters to protect the eyes.

JOB SITE SECURITY

1. All toolboxes, trailers and temporary sheds shall be securely locked when leaving a job site at quitting time.
2. All tools shall be placed in a locked storage compartment. If you have been operating equipment that cannot be placed in a locked compartment, de-energize it and secure it safely until the next day's work assignment.
3. Wherever possible ladders, scaffolds or any other attractive nuisances shall be left in a condition of security to minimize the probability of unauthorized use by persons, other than employees and possible accident resulting.
4. All heaters, both fuel and electric, shall not be left on through the night.
5. All equipment required for burning and welding shall be shut down, all regulators removed and securely locked.
6. The local police and emergency service phone number shall be within sight of all job phones.
7. In a case where tools or equipment are stolen or vandalized, the police shall be called and a written report made. All company employees are expected to cooperate with local authorities.
8. Immediately after a trailer is set up on a job site, the local police shall be notified and asked to patrol the area on a regular basis.
9. A night light will be turned on in job trailers. External illumination will be provided at the job foreman's discretion.

LADDERS

1. Berwick Electric Co. provides proper and safe ladders for your use. There is no excuse for using a ladder that is unsafe.
2. Broken or damaged ladders shall immediately be returned to the tool room to be repaired or destroyed.
3. All straight and extension ladders must be tied off at the top.
4. Ladders shall not be placed against moveable objects.
5. Portable ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder (see diagram).
6. The side rails shall extend at least 36" above the landing or grab rails installed.
7. The area around the bottom and top of ladders must be free of tripping hazards such as loose materials, trash or electrical cords.
8. Ladders shall not be placed in passageways, doorways, driveways, etc., where they may be displaced by activities being conducted on any other work unless barricades or guards protect them.
9. Ladders shall not be used in the horizontal position as platforms, runways or scaffolds.
10. You must face the ladder at all times when ascending or descending.
11. Be sure your boots are free of mud, grease or other substances that could cause a slip or fall.
12. Always move the ladder to avoid overreaching.
13. Stepladders must be fully opened to permit the spreader to lock.
14. It is prohibited to stand on the top two steps of a stepladder.
15. All wood ladders shall be smoothly machined and dressed on all sides; free from sharp edges and splinters. Painting a ladder is prohibited. Paint hides defects.

MATERIAL HANDLING AND STORAGE

1. All material must be properly stacked and secured to prevent sliding, falling or collapse. Aisles, stairs and passageways must be kept clear to provide for the safe movement of employees and equipment and to provide access in emergencies.
2. Protruding nails must be bent down or pulled when stripping forms or uncrating materials.
3. Stacked pipe, conduit and bar shall be stored in racks or stacked and blocked to prevent movement.
4. Materials or scrap should never be dropped from elevated levels without trash chutes.
5. Paint, rags or other flammable materials shall be kept in approved lockers or containers.
6. Stored materials must not block any exit from a building.

Manual Lifting

1. Leg muscles are stronger than your back muscles. Lift with your legs, not your back. Bend your knees and keep your back straight.
2. Plan before you pick - consider the size, weight, shape, path of travel and set down location. *Get help if necessary.*
3. Protect your hands and fingers from rough edges, sharp corners and metal straps. Keep hands and fingers out of pinch points between the load and other objects.
4. Employees must use a two-man lift or a lifting device when manual lifting and carrying material or equipment over 50lbs.

Mechanical Lifting

1. Rigging equipment for material handling shall be inspected prior to use each day to ensure that it is safe. Defective rigging equipment shall be tagged "Out of Service" and removed from the job site.
2. Rigging equipment shall not be loaded in excess of its recommended safe working load as per manufacturer's information
3. When used for eye splices, the "U-bolt" shall be applied so that the "U" section is in contact with the dead end of the rope. Other splices or knots are not allowed.
4. Do not ride loads.
5. Use a tag line on loads for better control.
6. Do not walk or work under suspended loads.

MOTOR VEHICLES

General:

The term "motor vehicle" as used in this section and hereinafter referred to as a vehicle shall mean any vehicle propelled by a self-contained power unit or any vehicle designed to be towed by a vehicle having a self-contained power unit, except a vehicle designed for use on railways or other track or equipment designed for exclusive use off the highway.

1. Every person regularly or occasionally operating a motor vehicle shall have in his possession at all times while operating such a vehicle, a drivers license valid in the state where the vehicle is being operated.
2. The operator shall inspect the vehicle at the beginning of his shift to ensure proper operation of all safety appliances and required supply of emergency equipment. Seatbelts shall be worn at all times.
3. All vehicles shall be inspected on a scheduled maintenance program.
4. Vehicles found to be in unsafe operating condition shall be removed from service, repaired or replaced and reinspected before being placed back into service.
5. All vehicles or combinations of vehicles, if operated between sunset and sunrise, shall be equipped with the following lights: two headlights, one on each side; at least one red tail light and one red or amber stop light; clearance lights; and directional signal lights on both front and back.
6. All vehicles except trailers or semitrailers having a gross weight of 5,000 pounds or less shall be equipped with service brakes and hand-operated parking brakes. Service and parking brakes shall be adequate to control the movement of, stop and hold the vehicles under all conditions of service. Service brakes on trailers and semitrailers shall be controlled from the driver's seat of the prime mover unless trailer is equipped with a hydraulic breaking system.
7. Braking systems on every combination of vehicles shall be so designed as to be in approximate synchronization on all wheels and developing the required braking effort on the rearmost wheels first. Such design shall also provide for application of the brakes by the driver of the prime mover from his cab. Exceptions to this are vehicles in tow by approved tow bar hitch.
8. Every vehicle shall be equipped with a speedometer, a fuel gauge, and an adequate audible warning device in proper operating condition.
9. Every vehicle shall have a windshield and an operative windshield wiper.
10. Every vehicle shall be equipped with an operative defrosting and defogging device.
11. All vehicles shall be equipped with at least one rear view mirror.
12. Cabs, cab shields, and other protection shall be provided on all vehicles to protect the driver from the elements and falling and shifting materials.

MOTOR VEHICLES

(Continued)

13. Non-slip surfaces shall be provided on steps of all vehicles.
14. Glass in windshields, windows and doors shall be safety glass or tempered glass.
15. Cracked or broken glass shall be replaced.
16. All towing devices used on any combinations of vehicles shall be structurally adequate for the weight drawn and securely and properly mounted. All Cargo must be adequately secured with the proper device.
17. A locking device shall be provided on every fifth wheel mechanism and tow bar arrangement, which will prevent accidental separation of towed and towing vehicles.
18. Every full trailer shall be coupled with safety chains or cables to the towing vehicle. Such chains or cables shall be adequate to prevent the separation in the event of failure of the tow bar.
19. All buses, trucks and combinations of vehicles with a carrying capacity 1-1/2 tons or over, when operated on public highways shall be equipped with emergency equipment required by applicable state laws and not less than:
 - a. One red flag not less than 12 inches square, with standards, and three flares or three red lanterns or three electric lanterns or reflective markers which will be available for immediate use in case of emergency stops.
 - b. Two wheel chocks for each vehicle or each unit of a combination of vehicles.
20. The exhaust fumes of vehicles shall be controlled in such manner that they will present no hazards to the operator, attendants or other occupants.
21. No vehicle shall be driven at a speed greater than is reasonable and proper, with due regard to weather, traffic, intersections, width and character of the roadway, type of motor vehicle and any other existing conditions. The operator shall at all times have the vehicle under such control as to be able to bring it to a complete stop within the assured clear distance ahead.
22. No vehicles shall be driven on a downgrade with gears in neutral or clutch disengaged.
23. No vehicle shall be left unattended until after the motor has been turned off, the key removed (unless local regulations prohibit), parking brake securely set and gear engaged in low, reverse or park. If stopped on a hill or grade, the front wheels shall be turned or hooked into the curb or the wheels securely chocked.

PERSONAL PROTECTION

Berwick Electric Co. makes available and requires the wearing of appropriate personal protection equipment in all operations where hazardous conditions warrant.

Head Protection

Upon employment with Berwick Electric Co. all employees are issued a hard hat. This hard hat is to be kept in the employee's possession at all times and shall be worn any time there is a possible danger of head injury from falling or flying objects or from electrical shock and burns.

Eye and Face Protection

Employees shall be provided with, and shall wear, eye and face protection when operations or machines present potential eye or face injury. Eye protection shall be worn at all times. Face protection shall be worn when handling hazardous liquids. All trailers, gang boxes and company vehicles shall carry eye protection. Face protection shall be provided upon request.

Hearing

Hearing protection should be worn if the sound level exceeds 90 dB. The maximum above which there shall be no exposure whatsoever without protection is 115 dB. (Rule of Thumb: When in doubt - wear protection.)

Clothing

You are required to wear clothing suitable for the work you are doing. Minimum attire is long pants and a T-shirt. Shirts shall be worn at all times. Tank tops are not permitted. When working on high voltage equipment (greater than 480v), special flame retardant clothing shall be required. See the Safety Manager for specific guidelines before performing such tasks.

Hands

Plastic coated or rubber gloves must be worn when working with caustic, acids, solvents, concrete or cement. When working on live high voltage equipment, special rated gloves shall be worn to prevent accidental burns and/or shock. Gloves are to be inspected at least annually by a certified third-party vendor.

Feet

Sturdy work boots are required with safety boots being desirable. Sneakers or hikig boots are not permitted (with the exception of in cleanroom environments). Safety foot guards must be worn on all work where a hazard to the feet exists such as the operation of jackhammers or compacting equipment.

Safety Harnesses

Safety harnesses and lanyards must be used when there is the potential of a fall where other safeguards, such as nets, planking or scaffolding cannot be used. Be sure safety lines are independent of other rigging and will provide for a fall of not greater than six feet.

RESPIRATOR PROGRAM

PURPOSE

The purpose of this operating procedure is to ensure the protection of all employees from respiratory hazards through the proper use of respirators. Respirators are to be used only where engineering control of respiratory hazards is not feasible, while engineering controls are being installed, or in emergencies.

RESPONSIBILITY

The Safety Manager is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of this program. This authority includes personnel decisions and equipment purchases necessary to implement and operate this program. The Safety Manager has developed written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions.

Berwick Electric has expressly authorized the Safety Manager to halt any operation where there is danger of serious personal injury. This policy includes respiratory hazards.

PROGRAM ELEMENTS

1. Berwick Electric shall conform to the written standard operating procedures governing the selection and use of respirators, using the NIOSH Respirator Decision Logic as a guideline. Outside consultation, manufacturer's assistance, and other recognized authorities will be consulted if there is any doubt regarding proper selection and use. These detailed procedures will be included as appendices to this respirator program.
2. Respirators will be selected on the basis of hazards to which the worker is exposed. All selections will be made by the Safety Manager. Only MSHA/NIOSH certified respirators and filter media will be selected and used.
3. The user will be instructed and trained in the proper use of respirators and their limitations. Both supervisors and workers will be so instructed by the Safety Manager. Training should provide the employee an opportunity to handle the respirator, have it fitted properly, test its facepiece to face seal, wear it in normal air for a reasonable familiarity period, and finally to wear it in a test atmosphere. Every respirator wearer will receive fitting instructions, including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly.

Respirators should not be worn when conditions prevent a good face seal. Such conditions may be a growth of beard, sideburns, a skullcap that projects under the facepiece or temple pieces on glasses. No employees who are required to wear respirators, may wear beards. Also the absence of one or both dentures can seriously affect the fit of a facepiece. The worker's diligence in observing these factors will be evaluated by periodic checks. To assure proper protection, the facepiece fit will be checked by the wearer each time the wearer puts on the respirator, this will be done by following the manufacturer's facepiece fitting instructions.

RESPIRATORS

Continued

4. Where practical, the respirators will be assigned to individual workers for their exclusive use.
5. Respirators will be regularly cleaned and disinfected. Those issued for exclusive use of one worker will be cleaned after each day's use, or more often if necessary. Those used by more than one worker will be thoroughly cleaned and disinfected after each use.
6. All respirators will be stored in a clean and sanitary location.
7. Respirators used routinely will be inspected during cleaning. Worn or deteriorated parts will be replaced.
8. Appropriate surveillance of work area conditions and degree of employee exposure or stress will be maintained.
9. There will be regular inspections and evaluations to determine the continued effectiveness of the program. The Safety Manager will make frequent inspections of all areas where respirators are used to ensure compliance with the respiratory protection program.
10. Persons will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment proficiently. Berwick Electric's primary care provider will determine what health and physical conditions are pertinent. The respirator user's medical status will be reviewed annually.

SAFETY AND HEALTH PROGRAM

Medical Services and First Aid

First Aid kits are provided on each job site in the trailer, all gang boxes and company vehicles. Phone numbers and locations of our medical providers shall also be posted next to the First Aid kits. In any emergency call 911 for fire, police or ambulance (some customers, may require different procedures).

In Case of Injury or Illness

All injuries are to be reported to your Foreman or Department Manager immediately. Treatment will be forthcoming and the incident will be investigated and documented. **All work-related injuries and/or illnesses shall be reported to the Safety Department!**

You must notify your Foreman and/or Department Manager prior to leaving the job site if you have experienced an injury or work related illness.

All employees must obtain treatment of work-related injuries and all illness from a primary care provider located nearest your job site. (These locations are posted at every job site). In the event of a life- or limb-threatening emergency, you will be transported to the nearest emergency medical facility. Follow-up care will then be coordinated with the primary care physician and insurance provider. If an unauthorized medical provider treats you, you will be responsible for payment of said treatment.

Prior to returning to work after treatment or examination by a medical professional for a work-related injury or illness, you must present medical clearance and restrictions to the foreman or Department Manager.

Inform your Foreman or Department Manager of any physical handicap, such as diabetes, impaired eyesight or hearing, back or heart problems, hernia or aversion to heights. By doing this you will not be expected to perform a job, which could result in injury to yourself or others.

Never move an injured or seriously ill person unless it is necessary to prevent further injury. Call 911 and First Aid shall not be performed by non-certified personnel except in cases of severe bleeding or cessation of breathing.

Our Safety and Health Program includes:

1. Providing mechanical and physical safeguards to the maximum extent that is possible.
2. Conducting a program of safety and health inspections to find and address unsafe working conditions or practices; to control health hazards; and to comply fully with the safety and health standards for every job.
3. Training all employees in good safety and health practices. A preconstruction conference will be required on all projects which utilize a Field Manager.
4. Providing necessary personal protective equipment and instructions for its use and care.
5. Developing and enforcing safety and health rules; requiring that employees cooperate with these rules as a condition of employment.
6. Investigating promptly and thoroughly every accident to find out what caused it and to correct the problem so that it won't happen again.

We recognize that the responsibilities for safety and health are shared:

1. As your employer, we accept the responsibility for leadership of the safety and health program for its effectiveness and improvement and for providing the safeguards required to ensure safe conditions.
2. Our supervisors (project managers, field managers and foremen) are responsible for developing the proper attitudes towards safety and health for themselves and for those they supervise and for ensuring that all operations are performed with the utmost regard for the safety and health of all company employees.
3. As employees, you are responsible for wholehearted, genuine cooperation with all aspects of the safety and health program - including compliance with all rules and regulations, and for continuously practicing safety while performing your duties.

Providing for the safety and well-being of all persons who may from time to time enter upon a construction project is an important part of the job planning and management. The company recognizes the humanitarian obligations inherent in running a safe job and accepts responsibility for establishing, maintaining and enforcing an effective accident prevention program.

With the full approval of top management, this program is a necessary and important part of the procedures and policies of this company. Complete cooperation is needed and expected of every employee. This program is here and now set forth and will be binding upon the company, its subcontractors and their officials, employees, vendors and all visitors on each and every project.

SCAFFOLDING

1. Scaffolds must be substantially constructed to carry the loads imposed upon them and to provide a safe work platform. All scaffolds more than 7 feet high must have approved guardrails on all exposed ends and sides.
2. Guardrails, midrails and toeboards must be installed on all open sides of scaffolds 10 feet or more in height.
3. Only approved scaffolds will be used. Barrels, boxes, rebar and other makeshift substitutes for scaffolds will not be used.
4. Scaffold planks must be at least 2" x 10" full thickness lumber, scaffold grade or equivalent.
5. Scaffold planks must be cleated and must extend over the end supports at least 6", but not more than 12".
6. All scaffolds must be at least two planks wide; no employee may work from a single plank.
7. Scaffold planks must be visually inspected before each use. Damaged scaffold planks must be destroyed immediately.
8. Adequate mudsills or other rigid footing, capable of withstanding the maximum intended load, must be provided.
9. Scaffolds must be tied to the building or structure at intervals, which do not exceed 30' horizontally and 26' vertically.

10. Do not overload scaffolds. Materials should be brought up as needed. Scaffolds must not be loaded in excess of one-fourth of their rated capability.
11. Where persons are required to work or pass under scaffold, a screen of 18-gauge, 1/2" wire mesh is required between the toeboard and the guardrail.
12. Overhead protection is required if employees working on scaffolds are exposed to overhead hazards. Such protection must be a 2" plank or the equivalent.
13. Diagonal bracing must be used.
14. Midrails and toe boards must be present on all exposed sides.

Rolling Scaffolds

1. The height of rolling scaffolds must not exceed four times the minimum base dimension.
2. The work platforms must be planked tight for the full width of the scaffold. Cleat the underside of the planks to prevent their movement.
3. Caster brakes must be locked when the scaffold is not in motion.
4. Get help when moving rolling scaffolds. Make certain that the route is clear. Watch for holes and overhead obstructions.
5. Secure or remove all loose materials and equipment before moving scaffold.

Two-Point Suspended Scaffolds (Swinging Stages)

1. Each employee working from a two-point suspended scaffold must be tied off to an independent safety line.
2. Suspended scaffolds must not be less than 20", nor more than 36" wide.
3. Wire ropes used to suspend such scaffolds must have a safety factor six (6) times the maximum intended load.
4. Nonconductive insulating material must be placed over the suspension cables of each scaffold for protection when the chance of contact with an electrical arc exists.

****All scaffolding shall follow the requirements found in the CFR 29 Part 1926 Subpart L****

SUBSTANCE ABUSE

1. The possession, distribution, sale and/or use of alcohol and/or drugs on the job, on company property or on property under the control of the Berwick Electric Co. must be prohibited and will (may) result in discharge.
2. Employees are expected to report for work fit to work, i.e., free from the influence of alcohol and/or drugs.
3. The use of legal controlled substances prescribed by a licensed physician is not prohibited, but employees undergoing treatment are advised to make this known to the company.

DRUG & ALCOHOL TESTING

1. Shall adhere to the Drug and Alcohol Testing Program Policy between the I.B.E.W. Local Union #113 and the Southern Colorado Chapter of N.E.C.A.

TOOLS, HAND & POWERED

Only tools and equipment in safe working condition will be issued. Employee owned tools are required to meet the same standards of safety as those owned by Berwick Electric Co. You must observe the following safe practices.

1. All tools shall be inspected daily prior to use to insure that they are in proper working condition. Damaged or defective tools must be tagged and returned immediately. If a bit or blade, etc., is dull or worn it shall not be used.
2. Tools shall not be left on the top of ladders.

Electric Powered Hand Tools

1. All power tools shall have their proper guards in place at all times.
2. Cords and hoses shall be kept out of walkways and off stairs and ladders. They must be placed so as not to create a tripping hazard or to subject them to damage.
2. Electrically powered tools and equipment shall be property grounded any time they are in use.

On ALL projects that require the placement of any Ground Rods into the ground; the employee shall use the Ground Rod Driver tool attachment with the Hammer Drill to safely install any ground rods into the work surface.

Powder-Actuated Tools

1. Only trained employees are to operate powder-actuated tools. These tools are to be tested daily and all defects corrected before use. These tools shall not be loaded until immediately before use. Loaded tools shall not be left unattended. Operators are to be safeguarded by eye, head and face and hearing protection.
2. Before use, communicate to other personnel working in the immediate area that a powder-actuated tool is being used and warn of specific hazards associated with the operation.

Fuel-Powered Tools

1. All fuel-powered tools and equipment shall be shut down while being refueled. Smoking is prohibited during refueling operations. Any other nearby sources of ignition must also be ceased during refueling.

Personal Protection

1. Employees operating tools that expose them to flying objects, etc., shall wear the proper personal protective equipment to protect against the particular hazard.

WELDING AND BURNING

Welding and burning operations have a high potential for personnel injuries and fires. When performing either you must follow these precautions:

1. Before burning or welding, inspect work area to ensure that sparks or molten metal won't fall on combustible material.
2. You must not weld or burn in a hazardous or occupied area without obtaining written authorization from the owner or responsible authority.
3. You are responsible for maintaining your burning or welding equipment in a safe operating condition.
4. When burning or welding you must wear approved eye protection with suitable filter lenses. Appropriate gloves must be worn. Make certain that suitable fire-extinguishing equipment is available in your work area.
5. Never weld or burn on barrels, tanks, piping or other systems which may have contained combustible or unknown products without first obtaining approval from your Safety Representative or other responsible authority.
6. Fire blankets must be used to prevent hot material from falling on persons or combustible material.
7. Mechanical ventilation on airline respirators shall be provided when welding, cutting or heating in confined spaces or where an unusual condition can cause an unsafe accumulation of contaminants.
8. Approved eye protection must be worn to protect against flying objects from chipping slag or other weld-cleaning activities.
9. When arc welding near other workmen they must be protected from the arc rays by noncombustible screens or must wear adequate eye protection.
10. The frames of all welding machines must be grounded (except reverse polarity types).
11. When electrode holders are to be left unattended, the electrodes shall be removed and the holders shall be placed or protected so that they cannot make electrical contact with personnel or conducting materials.
12. Do not use matches to light torches. Spark igniters must be used. Torches must not be used to light cigarettes, etc.
13. When a crescent or special wrench is required to operate the acetylene cylinder valve, the wrench must be kept in position on the valve.
14. When cylinders are not in use the protective caps must be in place. All cylinders must be properly secured to prevent them from tipping. Cylinders must not be taken into confined spaces.

ACCIDENT PROCEDURES - GENERAL LIABILITY

Claims in this category consist of injury or property damage to another contractor or members of the general public. Claims arising out of company business activities, products or work would apply.

If Berwick Electric Co. or any of its employees as a result of another's negligence sustains injury or damage, the following procedure will also be used. (For injury to company employees, see also OCCUPATIONAL INJURY OR ILLNESS REPORTING)

For accidents involving company-owned motor vehicles see MOTOR VEHICLES.

If bodily injury or property damage does occur, the following procedure shall apply:

1. Make the injured person as comfortable as possible. Do not move a seriously injured person except in extreme emergencies.
2. If the accident involves serious injury, call an ambulance immediately.
3. For all accidents which require emergency response (police, fire, medical, etc.) dial 911 on any phone.
4. Only emergency personnel and immediate family members should be allowed to ride in emergency vehicles when transporting the injured.
5. Someone trained in standard Red Cross First Aid practice should administer temporary medical treatment.
6. If injury is of the cut, bruise or sprain type, instruct the injured person to see a doctor.
7. Secure the name, address and telephone number of the injured party or property owner.
8. If the accident is of a serious nature, notify the Berwick Electric Co. main office at once. Be prepared to explain the circumstances of the accident, number of fatalities, if any, and the extent of injuries or damage.
9. News media, union representatives or council of the union representative should not be admitted to the scene of a serious accident or emergency until it has been cleared by the Berwick Electric Co. main office and then only if they are accompanied by a member of Berwick Electric Co.'s management.
10. Secure the area as soon as possible after the accident in order to prevent any alteration of the scene before the investigation. If this is impractical, cordon-off the area and post a security guard to keep out unauthorized personnel. Protect property.
11. Obtain names and addresses of witnesses at the scene of serious accidents. Signed witness statements should be solicited immediately, prior to witnesses leaving the premises. It is recommended that witnesses be separated until the information is obtained. Forward statements to the Berwick Electric Co. main office.
12. Have two or more employees inspect the scene and note existing physical conditions.

13. Obtain possession of any physical objects that may have been involved in the accident. If the accident was caused by equipment failure, do not use the unit until approved by the Safety Department.
14. Photograph and/or video tape the accident scene and surroundings.

ACCIDENT PROCEDURES

Continued

15. Do not antagonize accident victims or witnesses by arguing that the accident was the other person's fault. Do not blame anyone at the scene for causing the accident. Be courteous at all times when talking to the owner of the damaged property.
16. Do not admit responsibility.
17. Do not offer to pay medical or repair expenses.
18. Do not mention insurance to any member of the public or employee of another contractor.
19. Do not discuss the accident with strangers other than public officials.
20. Job superintendents or their subordinates shall not make news releases or statements to the public. Any interested party requesting information shall be informed to contact the Safety Manager or Company President.
21. If questioned by a representative of OSHA, the owner, or an insurance investigator and if there is some doubt in one's mind whether information of the nature asked should be provided, advise the inquiring party to contact the Safety Manager or Company President.
22. Request that all investigators or interested parties produce proper identification.
23. If ever served with a summons, complaint or writ, send immediately to the Berwick Electric Co. main office. An answer must be filed with the court within a given time period. Legal documents received too late to file a response will result in a default judgement.
24. Complete a PUBLIC LIABILITY ACCIDENT REPORT and forward with any additional information to the Safety Manager at Berwick Electric Co. main office. Retain a copy at the job site.

OCCUPATIONAL INJURY AND ILLNESS PROCEDURE

For accidents involving injury or damage to another contractor or members of the general public, see ACCIDENT PROCEDURES - GENERAL LIABILITY.

For accidents involving company-owned motor vehicles see MOTOR VEHICLES.

Every effort should be made to maximum safety on Berwick Electric Co. job site, however, if an injury does occur the following procedure shall apply:

1. Make the injured person as comfortable as possible. Do not move a seriously injured person except in extreme emergencies.
2. If the accident involves serious injury, call an ambulance immediately.
3. To obtain medical assistance dial 911 on any phone.
4. Only emergency personnel and immediate family members should be allowed to ride in emergency vehicles when transporting the injured.
5. Someone trained in standard Red Cross First Aid practices should administer temporary medical treatment.
6. If the injury is of the cut, bruise or sprain type, instruct the injured employee to see a doctor.
7. The injured employee must report the accident to his foreman if he wishes it to be covered by workmen's compensation insurance.
8. If the accident is of a serious nature and:
 - a. Requires hospitalization of five (5) or more employees
 - b. Is fatal to one or more employees

Notify the Berwick Electric Co. main office at once. Be prepared to explain the circumstances of the accident, number of fatalities, if any, and the extent of the injuries.

9. News media, union representatives or counsel of the union representative should not be admitted to the scene of a serious accident or emergency until it has been cleared by the Berwick Electric Co. main office, and then only if they are accompanied by an owner of Berwick Electric Co.
10. Secure the area as soon as possible after the accident in order to prevent any alteration of the scene before the investigation (see INVESTIGATION). If this is impractical, cordon off the area and post a security guard to keep out unauthorized personnel.
11. Obtain names and addresses of witnesses at the scene of serious accidents. Signed witness statements should be solicited immediately, prior to witnesses leaving the premises. It is recommended that witnesses be separated until the information is obtained. Forward statements to the Berwick Electric Co. main office.

12. Have two or more employees inspect the scene and note existing physical conditions.
13. Obtain possession of any physical objects that may have been involved in the accident. If the accident was caused by equipment failure, do not use the equipment until approved by the Safety Manager.

OCCUPATIONAL INJURY AND ILLNESS PROCEDURE

Continued

14. Take photographs and/or video tape of the accident scene and surroundings.
15. Do not antagonize accident victims or witnesses by arguing that the accident was the injured person's fault. Do not blame an employee at the scene for causing the accident.
16. Do not admit responsibility.
17. Do not offer to pay medical expenses.
18. Do not mention insurance.
19. Do not discuss the accident with strangers other than public officials.
20. Job Foremen or their subordinates shall not make news releases or statements to the public. Any interested party requesting information shall be informed to contact the Safety Manager or Company President.
21. If questioned by representatives of OSHA, the owner or an insurance investigator and if there is some doubt in one's mind whether information of the nature asked should be provided, advise the inquiring party to contact the Safety Manager or Company President.
22. Request that all investigators or interested parties produce proper identification.
23. If ever served with a summons, complaint or writ, send immediately to the main office. An answer must be filed with the court within a given time period. Legal documents received too late to file a response will result in a default judgement.
24. Employees returning to work following medical treatment shall report to their foreman.
25. The employee is required to report to the foreman following medical treatment whether the injury was job related or of a non-job related nature regardless of duration.
26. The physician's release may contain a recommendation of light restricted duty.
27. Any employee suffering from a non-job related injury will not be allowed back to work until given a full release by the attending physician.
28. Any employee suffering from a job related injury with a recommendation of light duty by the attending physician shall be put to such light duty work only if available.
29. All medical bills, information and physician releases should be forwarded to the main office to the attention of the Safety Manager.

This information should contain:

- ..The Insurer's name and local address
- ..Date of occurrence and employee's name

..Policy number

REPORTING OF SAFETY VIOLATIONS OR CONCERNS

Berwick Electric Co. is very concerned about safety. The personal safety and health of each employee of this company is of primary importance. The prevention of occupational injuries and illness is of such consequence that it will be given precedence over operating productivity. To the greatest degree possible, management will provide mechanical and physical facilities required for personal safety and health in keeping with the highest standards. This company-wide policy has the total support of the owners and managers of Berwick Electric Co.

The Safety Manager and Project Managers are responsible for watching for possible unsafe conditions so that they may be addressed. Due to the nature of construction with conditions on job sites that are constantly changing, there will be situations that employees feel are unsafe but management is unaware of.

If you are on a job site and feel that there is an unsafe condition you shall immediately report it to your foreman. It is the foreman's responsibility to correct the hazard if in our control or notify the general contractor and the Project manager. If the hazard is not corrected to your satisfaction, you are requested to contact the Safety Manager, Project Manager or Shop Steward immediately. The hazard will be corrected or employees will be moved away from the area.

Under federal law all employees have the right to call OSHA (Occupational Safety and Health Administration) and request an inspection without fear of discrimination or discharge. We would request that you follow the above procedure to allow us the opportunity to address the issue and make the appropriate corrections.

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INFORMATION ON MAJOR SUBCONTRACTORS (SECTION E.)

(SEE PROPOSAL COVER LETTER BY MARK NORMAN)



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START-UP, COMMISSIONING, PERFORMANCE VERIFICATION, AND TRAINING

**A. GENERAL APPROACH AND PROCESS USED IN START-UP, IN START-UP, COMMISSIONING,
PERFORMANCE VERIFICATION, AND TRAINING**

**B. EXPERIENCE OF THE DESIGN/BUILD IN START-UP, COMMISSIONING, PERFORMANCE
VERIFICATION, AND TRAINING**

C. TYPES OF O&Ms PREPARED PREVIOUSLY, AND RECOMMENDED FOR THIS PROJECT



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GENERAL APPROACH AND PROCESS USED IN START-UP, IN START-UP, COMMISSIONING, PERFORMANCE VERIFICATION, AND TRAINING



Corporate: 100 1st Ave West · PO Box 808 · Oskaloosa, IA 52577 · 641/673-0411 · 800/825-6020 · Fax: 641/673-4740
 Manufacturing: 2107 Stewart Road · PO Box 260 · Muscatine, IA 52761 · 563/263-2281 · 800/756-1205 · Fax: 800/374-6402
 Web: www.musco.com · Email: lighting@musco.com



Comissioning, Testing and Training

Comissioning of the system shall take place with Control-Link Central following full installation of the lighting system. The contractor shall be responsible for calling Control Link Central to ensure that the system and all controls are functioning as required. Any issues will be problem solved with a trained commissioning technician and rectified. In the month of February 2021, Musco completed the commissioning of 97 new lighting systems and was actively supporting more than 4000 entities using Contol-Link.

Testing shall be completed on site by the local Musco Lighting representative, Stephen Baker based in Denver, CO. This will be completed the presence of the installing contractor and a representative from the City of Grand Junction. A Gossen Mavolux 5032C light meter that has been calibrated withing 12 months of the testing date shall be used. The illumination measurements shall be conducted in accordance with IESNA LM-5-04. Testing will also determine that the Musco Lighting system installed meets all IDA-Criteria for Community-Friendly Outdoor Sports Lighting v1.0.

Field Light Level Accountability:

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
2. The contractor/Musco Sports Lighting will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

Training shall be carried out by the local Musco Lighting representative, Stephen Baker based in Denver, CO. On-Site training shall be given as well as training on all aspects of the Control-Link remote control system. Stephen has been training owners for more than 7 years and completes multiple in person or virtual trainings every month. Controls training videos as well as full O&M manuals shall be provided to owner on project completion. The Following information will be included in O&M:

- Service Contracts
- Lighting Design
- Controls and monitoring information
- Warranty
- Aiming Information/Drawings

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**EXPERIENCE OF THE
DESIGN/BUILD IN START-UP,
COMMISSIONING, PERFORMANCE
VERIFICATION, AND TRAINING
(SEE PROPOSAL COVER LETTER
BY MARK NORMAN)**



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TYPES OF O&Ms PREPARED PREVIOUSLY, AND RECOMMENDED FOR THIS PROJECT





3450 N. Nevada Ave #100 • Colorado Springs, CO 80907
P.O. Box 7286 • Colorado Springs, CO 80933-7286
Phone: (719) 632-7683 • Fax: (719) 471-9660
www.berwickelectric.com • mnorman@berwickelectric.com

3/17/2021

Mr. Duane Hoff Jr.
Senior Buyer
City of Grand Junction Purchasing Division
333 West Ave. Building C
Grand Junction, Colorado 81501

Re: Design/Build Canyon View Lighting Replacement Project **RFP-4864-21-DH (B)**

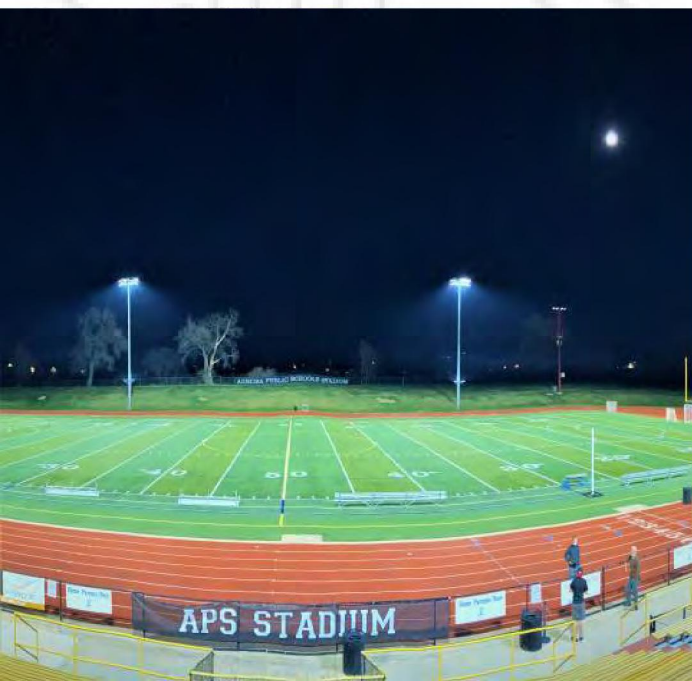
Dear Mr. Hoff,

Berwick Electric Co. typically provides accurate As-Built drawings after work has been completed for customer records. Along with that, we can typically be expected to provide all product data that we have gathered including: Wiring diagrams, troubleshooting information, and manuals of provided equipment. In this instance, we will provide accurate as-builts, and a full Musco provided O&M for all sports lighting equipment.

Any other documentation that is not typical of Berwick Electric Co. may be requested after project completion. We like to provide everything that gives our customer peace of mind and strive to deliver above satisfactory customer service.

Respectfully,

Mark Norman



STRATEGY AND IMPLEMENTATION PLAN (SECTION C.)

A. PRELIMINARY SCHEDULE

B. BERWICK ELECTRIC WARRANTY

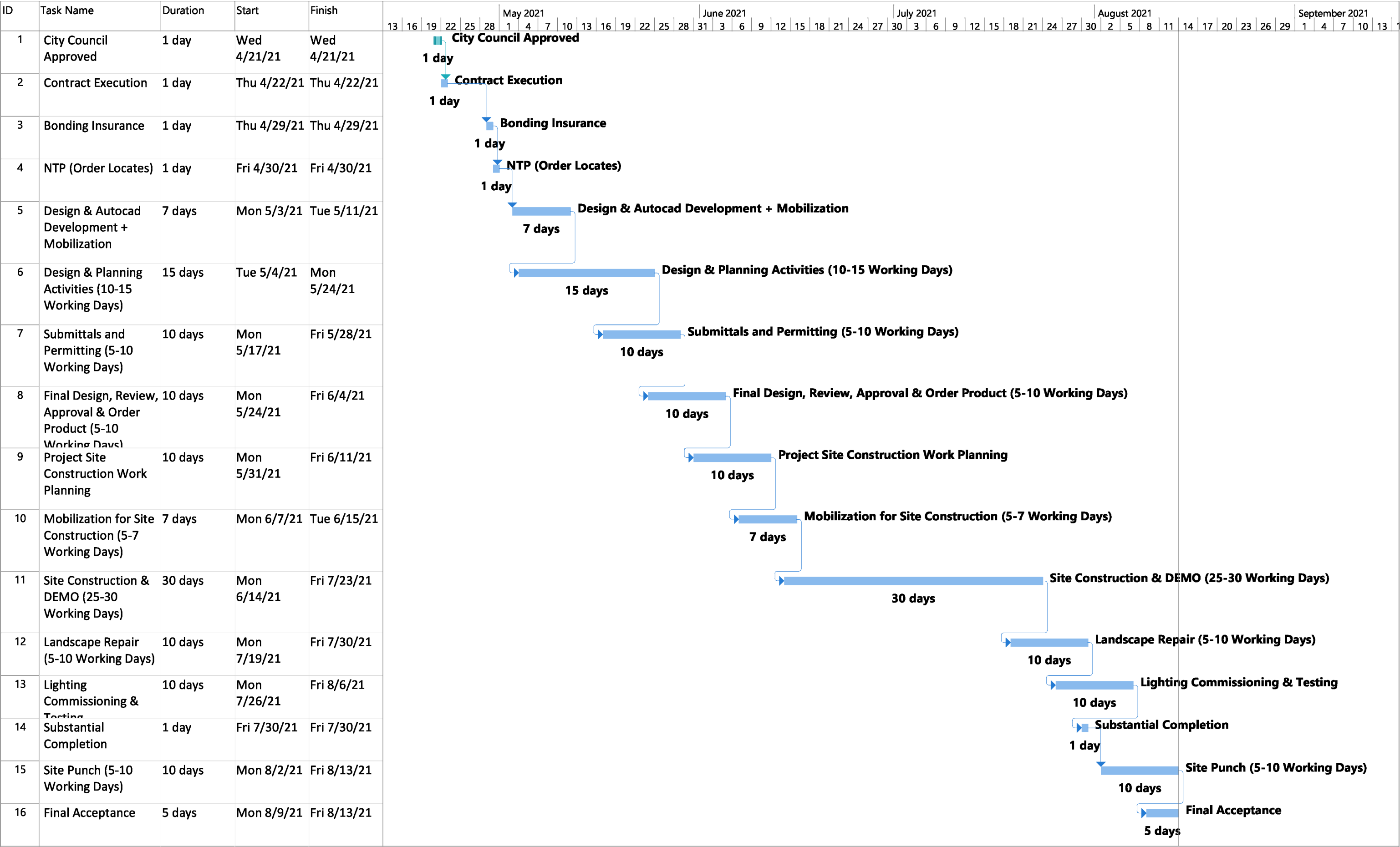
C. MUSCO WARRANTY



[HOME](#)

PRELIMINARY SCHEDULE





[HOME](#)

BERWICK ELECTRIC WARRANTY





Electrical Excellence Since 1921

3450 N. Nevada Avenue, Suite 100
 Colorado Springs, CO 80907
 P.O. Box 7286 • Colorado Springs, CO 80933-7286
 Phone: (719) 632-7683 • Fax: (719) 471-9660
 www.berwickelectric.com
 mail@berwickelectric.com

GUARANTEE ELECTRICAL WORKMANSHIP AND MATERIALS

As part of the consideration for the electrical contract identified below, Berwick Electric Co. hereby guarantees to the Owner of the premises, for a period of one year from below date, that the electrical work performed under said contract was performed in a workmanlike manner and that the electrical material purchased and installed by the undersigned was, when installed, free of inherent manufacturing or mechanical defects, all to the extent and on the conditions herein specifically set forth, that is:

1. Berwick Electric Co. shall replace, without cost or charge to the Owner for either labor or materials, such individual parts of electrical material or apparatus installed under said contract as may become defective or unserviceable within the period of the guarantee by reason of any failure of the undersigned in performing the electrical work in a workmanlike manner or by reason of inherent manufacturing or mechanical defect in any electrical material or apparatus purchased and installed by Berwick Electric Co.; provided:
 - a. The Owner notifies Berwick Electric Co., in writing, of any failure or default within ten (10) days of the date such failure or default has become apparent;
 - b. There shall be no responsibility on Berwick Electric Co. to replace light bulbs, globes or fuses;
 - c. No person, firm or corporation other than Berwick Electric Co. has, during or since the completion of the work, performed or attempted to perform any of the electrical work included in said contract or repaired or attempted to repair any of the electrical work performed by the undersigned thereunder.
 - d. The defect or failure was not caused or affected by the improper use or operation of the electrical facilities installed under said contract.
2. Berwick Electric Co.'s liability shall be fixed by the terms hereof and this express guarantee excludes and supersedes all implied guarantees or warranties.

IN WITNESS WHEREOF, this guarantee has been executed this _____ day of _____ 20____

Electrical contract between _____ and BERWICK ELECTRIC CO.

DATED: _____

BY: _____

TITLE: _____

Address: 3450 N. Nevada Ave. #100 Colorado Springs, CO 80907

Original Owner: _____

General Description of Work: _____

Subscribed and sworn to before me this 5th day of _____ 20____

Notary Public: _____

3450 N. Nevada Ave, #100, Colorado Springs, CO 80907

My Commission expires: _____

STEPHANIE J HANSEN
 Notary Public
 State of Colorado
 Notary ID # 20144002171

My Commission Expires 01-15-2022

[HOME](#)

MUSCO WARRANTY





Musco Constant 25™

25-Year Product Assurance & Warranty Program

Project name: _____ Project number: _____

Owner: _____ City: _____ State: _____

Covered product(s): _____

Date issued: _____ Expiration: _____

Musco Sports Lighting, LLC will provide all materials and labor to maintain operation of your lighting system to original design criteria for 25 years. Musco products and services are guaranteed to perform on your project as detailed in this document.

Light Performance

Specified illumination levels will be maintained and are marked as guaranteed in the Musco Illumination Summary.

Individual luminaire outages that occur during the warranty and maintenance period are repaired when the usage of any field is materially impacted.

Spill Light Control

If specified, spill light levels at identified locations are guaranteed to be controlled to the maximum values provided in the Musco Illumination Summary.

Energy Consumption

Total average kW consumption for your lighting system is guaranteed to be not more than the total load shown in the Musco Illumination Summary.

Monitoring, Maintenance, and Control Services

Musco shall monitor the performance of your lighting system, including on/off status, hours of usage, and luminaire outages. If outages that affect playability are detected, Musco will contact you and proactively dispatch technicians.

On-off control of your lighting system is provided via an easy-to-use web site scheduling system, smartphone app, phone, email, or fax. Our trained Control-Link Central™ service center staff is available toll-free 24/7. Regular usage reports are always available on Control-Link Central's web site.

Structural Integrity

Your project has been designed to _____ .
Structural integrity of equipment manufactured by Musco is guaranteed.

Musco has a team of people to ensure fulfillment of our product and services warranty and maintains financial reserves dedicated to support our fulfillment of this warranty. Please keep this document as your signed contract guaranteeing comprehensive service for the 25 year period.



Musco Constant 25™

25-Year Product Assurance & Warranty Program

Terms and Conditions

Service under this Contract is provided by Musco Sports Lighting, LLC ("Musco") or an authorized servicer approved by Musco. Services performed under this Contract shall consist of furnishing labor and parts necessary to restore the operation of the Covered Product(s) to original design criteria provided such service is necessitated by failure of the Covered Product(s) during normal usage. This Contract covers Product(s) consisting of Musco's Total Light Control – TLC for LED® with Control-Link® and any additional Musco manufactured product as listed on page 1.

"We", "us," and "our" mean Musco. "You" and "your" mean the purchaser of the Covered Product(s). No one has the authority to change this Contract without the prior written approval of Musco. Musco shall not assume responsibility for their agents or assignees other than as described below. If there is a conflict between the terms of this Contract and information communicated either orally or in writing by one or more of our employees or agents, this Contract shall control.

Additional Provisions

- 1. Availability of Service:** Control-Link Central™ operators shall be available 24/7 via web site, phone, fax, or email. Maintenance service specialists shall be available 8AM to 5PM Central Time, and services shall be rendered during these same hours in your local time zone, Monday through Friday (with the exception of national holidays). Hours of operation are subject to change without notice to you. Musco will exercise all reasonable efforts to perform service under this Contract, but will not be responsible for delays or failure in performing such services caused by adverse weather conditions, acts of any government, failure of transportation, accidents, riots, war, labor actions or strikes or other causes beyond its control.
- 2. Determination of Repairs:** Musco will utilize the field monitoring system and any information provided by the customer to determine when the usage of the field is materially impacted. From this information, Musco will determine needed repair and/or replacement of Covered Product(s) and parts. Repair will be with Product(s) of like kind and quality.
- 3. Your Requirements Under this Contract:** You must meet all electrical and installation requirements as specified by the manufacturer. In addition, you promise and assure: full cooperation with Musco, Musco's technicians and authorized servicers during telephone diagnosis and repair of the Covered Product(s); reasonable accessibility of the Covered Product(s); a nonthreatening and safe environment for service.

You agree to check fuses and to replace fuses as needed. Musco provides spare fuses in the lowest alpha-numeric numbered enclosure. Musco will replenish spare fuses used.

You agree to keep your control system online. This means keeping the required control voltage to the control system at all times. Any deviation from this practice must be discussed with Musco's Warranty Department.

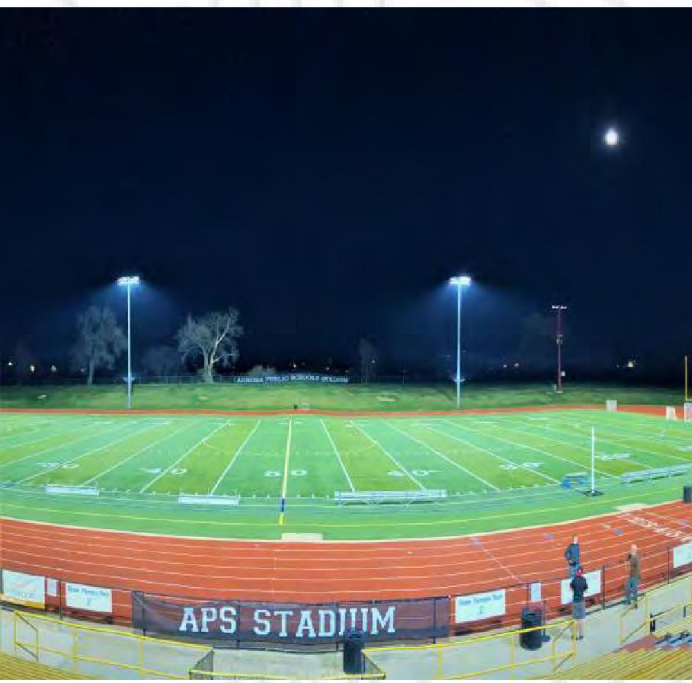
- 4. Service Limitations — This Contract does not cover:** Maintenance, repair, or replacement necessitated by loss or damage resulting from any external causes such as, but not limited to, theft, environmental conditions, negligence, misuse, abuse, improper electrical/power supply, unauthorized repairs by third parties, attachments, damage to cabinetry, equipment modifications, vandalism, animal or insect infestation, physical damage to Covered Product(s) parts or components, failure of existing structures, supporting electrical systems or any non-Musco equipment, or acts of God/nature (including, but not limited to: earthquake, flood, tornadoes, typhoons, hurricanes, or lightning).

5. Contract Limitations:

- a. EXCLUSIONS FROM COVERAGE:** IN NO EVENT WILL MUSCO BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH INCLUDE, BUT ARE NOT LIMITED TO, ANY DELAY IN RENDERING SERVICE OR LOSS OF USE DURING THE REPAIR PERIOD OF THE COVERED PRODUCT(S) OR WHILE OTHERWISE AWAITING PARTS.
- b. Limitation of Liability:** To the extent permitted by applicable law, the liability of Musco, if any, for any allegedly defective Covered Product(s) or components shall be limited to repair or replacement of the Covered Product(s) or components at Musco's option. THIS CONTRACT IS YOUR SOLE EXPRESS WARRANTY WITH RESPECT TO THE COVERED PRODUCT(S). ALL IMPLIED WARRANTIES WITH RESPECT TO THE COVERED PRODUCT(S) INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY EXCLUDED.
- c. For the purposes of and by your acceptance of this Contract you acknowledge and agree that if a surety bond ("Bond") is provided the warranty and/or maintenance guarantee provided for in this Contract and any corresponding liability on behalf of the issuing surety under the Bond is limited to the first twelve (12) months of said warranty and/or maintenance guarantee coverage period. Any warranty and/or guarantee coverage period in excess of said initial 12 month period does not fall within the scope of the Bond and shall be the sole responsibility of Musco.**
- d. Musco requires reasonable access for a crane or man lift equipment to service the lighting system. Musco will not be responsible for damage from operating the vehicle on the property when the equipment is operated in the prescribed manner over the designated access route.**
- e. Obsolescence or Environmental Restrictions:** If during any maintenance or other work performed under this Warranty, any of the parts of the Covered Product(s) are found to be either obsolete, no longer available, or prohibited by any state or federal agency, Musco shall replace said parts with comparable parts and materials with equal operating characteristics solely at Musco's discretion. The cost of replacement of any obsolete cellular related technology shall be borne by you. Prior to completing any such work, Musco shall notify you of the cost (if any) you will incur in the replacement of such parts under this section.
- 6. Transfer and Assignment:** Except to owners, you shall not have the right to assign or otherwise transfer your rights and obligations under this Contract except with the prior written consent of Musco; however, a successor in interest by merger, operation of law, assignment or purchase or otherwise of your entire business shall acquire all of your interests under this Contract.
- 7. Governing Law:** Unless otherwise governed by applicable state law, the Contract shall be interpreted and enforced according to the laws of the State of Iowa.
- 8. Subrogation:** In the event Musco repairs or replaces any Covered Product(s), parts or components due to any defect for which the manufacturer or its agents or suppliers may be legally responsible, you agree to assign your rights of recovery to Musco. You will be reimbursed for any reasonable costs and expenses you may incur in connection with the assignment of your rights. You will be made whole before Musco retains any amounts it may recover.

Signature: _____

Vice President of Sales



REFERENCES (SECTION D.)



Craigarite, LLC

9192 E. Evans Way, Denver, CO 80231

720-840-1403

craigarite@gmail.com

March 12, 2021

To whom it may concern:

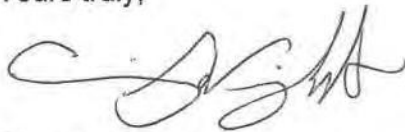
I am writing to share my tremendously positive experience and all-encompassing recommendation of Mark Norman and his conscientious, talented field lighting installation team at Berwick Electric.

While working as the Aurora Public Schools project manager overseeing the installation of Musco LED lighting arrays atop five 80 to 100 foot poles at the school district stadium last winter (2020), I was consistently impressed with Berwick's professionalism, planning and attention to detail. Despite tight property tolerances, poor weather conditions, and restricted operating hours, Berwick's team made the installation appear orchestrated to seamlessly accommodate such challenges from beginning to end. As such, there was never a time during which I felt unprepared to attend to district leadership concerns and expectations.

Berwick's proactive communication throughout all phases of construction made my job easy, largely relegating my responsibility to the pleasant tasks of affirming the installation's compressed and timely progress and witnessing the safe execution of a fine-tuned operation. As demonstrated by the smooth cadence of logistics planning, product delivery, and performance demonstration, Berwick clearly has a well-established relationship with Musco Lighting that exudes an interest in delighting the customer.

I cannot recommend a more competent team of field lighting professionals. Please feel free to reach out to me for further discussion and/or clarification.

Yours truly,



Craig A. Wright
Chief Executive Officer
craigarite@gmail.com

To whom it may concern:

I am writing to share my experience working with Mark Norman and the Berwick Electric team during the install of Colorado Colleges new Soccer facility.

I was the project manager for Colorado College for this project and worked closely with Mark and his team. I was constantly impressed with Mark's attention to detail, problem solving skills, and his ability to keep everything on track during a very stressful and time constraint job. Mark and his team installed 4 Musco light poles for us. He had to work around many other contractors and work closely with our utility department because there was a 64" sewer line running near two of the poles.

Mark and his team did a tremendous job communicating and working with everyone on the job site making it easier for me to focus on other parts of the job. The Musco Team and Berwick electric have a great relationship and are clearly looking to please the customer in every aspect of a project.

I would recommend Berwick electric on any field lighting project. They are the ultimate professionals in field lighting. Please feel free to reach out with any other questions.

Josh Ortiz
Colorado College
jortiz@coloradocollege.edu



JAMES IRWIN CHARTER SCHOOLS

Character Development and Academic Excellence

March 8, 2021

Berwick Electric
Mr. Doug Berwick
3450 N. Nevada Ave. #100
Colorado Springs, CO 80907

Doug,

I wanted to take this opportunity to express my gratitude for the work that Berwick Electric completed on our new sports stadium during the summer of 2019. Although the projects had some disappointment with other vendors, Berwick Electric was always on-time and on-task during the project.

Your project manager, Mark Norman, and the skilled electricians that completed the work were courteous and on-time each day. The work was completed without any issues and was completed at the estimated costs.

Please do not hesitate to include our organization and me personally as a recommendation for future work. The work ethic, quality, and leadership of Berwick Electric is second to none and we are very pleased with the work your men and women completed for our new stadium. Please feel free to include my name, organization, and contact information as a solid recommendation for future work.

Thank you for your commitment to quality and value!

Sincerely,

Rob Daugherty, CEO
Rob.daugherty@jamesirwin.org



Parks, Recreation, Cultural Services
Park Planning & Development

March 15, 2021

Dear City of Grand Junction Representative:

The City of Colorado Springs Parks, Recreation and Cultural Services (PRCS) recently completed a project with Berwick Electric Company, where Parks installed Musco Lighting around the pickleball courts at Monument Valley Park in Colorado Springs. PRCS has used Musco Lighting at many of our park locations and highly recommend using there system.

The success of the project can be largely attributed to the quality of work performed by Mark Norman and his team at Berwick Electric Company. Berwick was instrumental in making sure the project was completed on time and to the specifications required by Musco Lighting and our Regional Building Department.

The Berwick team was very professional during this project. The crew was onsite working diligently to complete the project on time. They worked closely with Park staff and notified Parks of any concerns they encountered. Berwick was also aware of the public using the park. They made sure the trenches were backfilled each night and any open holes were covered and fenced off at the end of each work day. Public safety is a priority for our department and Berwick did an excellent job keeping their crew and the public safe during construction.

I look forward to working with Berwick Electric on future projects. Their professionalism, attention to detail, safety practices, and their knowledge of Musco Lighting systems make them an excellent choice.

If you have any questions or would like to discuss Berwick's qualifications further, please do not hesitate to contact me. My email address is Steve.Bodette@coloradosprings.gov and my phone number is (719) 385-6534.

Sincerely,

Steve Bodette
Capital Project Coordinator
Colorado Springs Parks Recreation and Cultural Services



Widefield Community Center

705 Aspen Drive, Colorado Springs, CO 80911

Phone (719)391-3515 Fax (719)392-3447

<http://cc.wsd3.org>

Ben Valdez, Director

December 1, 2014

To Whom It May Concern,

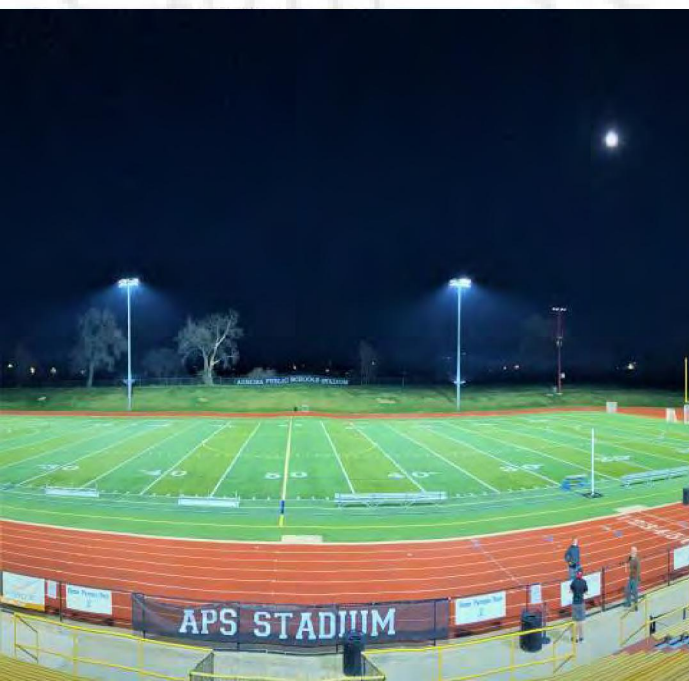
Berwick Electric Co. was contracted to install our Musco Lighting system for two softball fields here at Widefield School District #3 Community Center in the fall of 2013. Our staff worked with Mark Norman and his staff on the layout and installation. Mark and his staff were very professional and reliable. We had an error with a Musco delivery (not Berwick's fault) and Berwick's team detected and followed up with correcting the problem immediately. Mark Norman was very pleasant to work with, communicated project details and made our project go extremely well. Our project started and finished on time.

The lights have been up and running for one year now and we have not had any problems. I would highly recommend Berwick Electric Co. for any lighting and installation projects. We will have them bid on future projects here at our facilities.

If you have questions regarding our project and work with Berwick Electric Co., please do not hesitate to contact me.

A handwritten signature in blue ink that reads "Ben Valdez".

Ben Valdez, Director
Widefield School District #3
Community Center



BID BOND AND CERTIFICATE OF INSURANCE (SECTION E.)



THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we **Berwick Electric CO**
(Here insert full name and address or legal title of Contractor)
 3450 N Nevada Ave #100 Colorado Springs CO 80907

as Principal, hereinafter called the Principal, and **United Fire & Casualty Company**
(Here insert full name and address or legal title of Surety)
 118 Second Ave SE Cedar Rapids IA 52401

a corporation duly organized under the laws of the State of **IOWA**
 as Surety, hereinafter called the Surety, are held and firmly bound unto **The City of Grand Junction Colorado**
(Here insert full name and address or legal title of Owner)
 333 West Ave Building C Grand Junction CO 81501


as Obligee, hereinafter called the Obligee, in the sum of **FIVE PERCENT OF BID AMOUNT ONLY—**

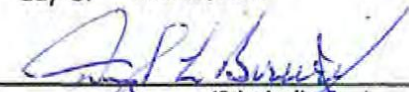
Dollars (\$ 5% OF BID—),
 for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for **RFP 4864-21-DH**
(Here insert full name, address and description of project)
Design/Build Canyon View Lighting Replacement Project Grand Junction CO

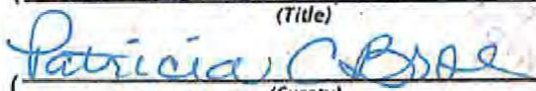
NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this **18th** day of **March, 2021**


 (Witness)


 (Principal) (Seal)
President
 (Title)


 (Witness)


 (Surety) (Seal)
Attorney-in-Fact
 (Title)





UNITED FIRE & CASUALTY COMPANY, CEDAR RAPIDS, IA
 UNITED FIRE & INDEMNITY COMPANY, WEBSTER, TX
 FINANCIAL PACIFIC INSURANCE COMPANY, ROCKLIN, CA
 CERTIFIED COPY OF POWER OF ATTORNEY
 (original on file at Home Office of Company – See Certification)

Inquiries: Surety Department
 118 Second Ave SE
 Cedar Rapids, IA 52401

KNOW ALL PERSONS BY THESE PRESENTS, That United Fire & Casualty Company, a corporation duly organized and existing under the laws of the State of Iowa; United Fire & Indemnity Company, a corporation duly organized and existing under the laws of the State of Texas; and Financial Pacific Insurance Company, a corporation duly organized and existing under the laws of the State of California (herein collectively called the Companies), and having their corporate headquarters in Cedar Rapids, State of Iowa, does make, constitute and appoint

WAYNE SIX, RANDALL P. GEVING, CHRISTOPHER REA, SHALEEN C. MARTIN, PATRICIA C. BROE, EACH INDIVIDUALLY

their true and lawful Attorney(s)-in-Fact with power and authority hereby conferred to sign, seal and execute in its behalf all lawful bonds, undertakings and other obligatory instruments of similar nature provided that no single obligation shall exceed \$25,000,000.00 and to bind the Companies thereby as fully and to the same extent as if such instruments were signed by the duly authorized officers of the Companies and all of the acts of said Attorney, pursuant to the authority hereby given and hereby ratified and confirmed.

The Authority hereby granted shall expire the 17th day of March, 2022 unless sooner revoked by United Fire & Casualty Company, United Fire & Indemnity Company, and Financial Pacific Insurance Company.

This Power of Attorney is made and executed pursuant to and by authority of the following bylaw duly adopted on May 15, 2013, by the Boards of Directors of United Fire & Casualty Company, United Fire & Indemnity Company, and Financial Pacific Insurance Company.

"Article VI – Surety Bonds and Undertakings"

Section 2, Appointment of Attorney-in-Fact. "The President or any Vice President, or any other officer of the Companies may, from time to time, appoint by written certificates attorneys-in-fact to act in behalf of the Companies in the execution of policies of insurance, bonds, undertakings and other obligatory instruments of like nature. The signature of any officer authorized hereby, and the Corporate seal, may be affixed by facsimile to any power of attorney or special power of attorney or certification of either authorized hereby; such signature and seal, when so used, being adopted by the Companies as the original signature of such officer and the original seal of the Companies, to be valid and binding upon the Companies with the same force and effect as though manually affixed. Such attorneys-in-fact, subject to the limitations set forth in their respective certificates of authority shall have full power to bind the Companies by their signature and execution of any such instruments and to attach the seal the Companies thereto. The President or any Vice President, the Board of Directors or any other officer of the Companies may at any time revoke all power and authority previously given to any attorney-in-fact.

IN WITNESS WHEREOF, the COMPANIES have each caused these presents to be signed by its vice president and its corporate seal to be hereto affixed this 17th day of March, 2020

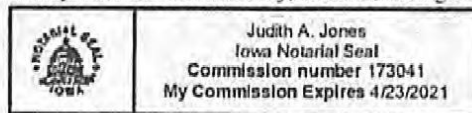


UNITED FIRE & CASUALTY COMPANY
 UNITED FIRE & INDEMNITY COMPANY
 FINANCIAL PACIFIC INSURANCE COMPANY

By: *Dennis J. Richmann*
 Vice President

State of Iowa, County of Linn, ss:

On 17th day of March, 2020, before me personally came Dennis J. Richmann to me known, who being by me duly sworn, did depose and say; that he resides in Cedar Rapids, State of Iowa; that he is a Vice President of United Fire & Casualty Company, a Vice President of United Fire & Indemnity Company, and a Vice President of Financial Pacific Insurance Company the corporations described in and which executed the above instrument; that he knows the seal of said corporations; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporations and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporations.



Judith A. Jones
 Notary Public
 My commission expires: 4/23/2021

I, Mary A. Bertsch, Assistant Secretary of United Fire & Casualty Company and Assistant Secretary of United Fire & Indemnity Company, and Assistant Secretary of Financial Pacific Insurance Company, do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Section of the bylaws and resolutions of said Corporations as set forth in said Power of Attorney, with the ORIGINALS ON FILE IN THE HOME OFFICE OF SAID CORPORATIONS, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

In testimony whereof I have hereunto subscribed my name and affixed the corporate seal of the said Corporations this 18th day of March, 2021.



By: *Mary A. Bertsch*
 Assistant Secretary,
 UF&C & UF&I & FPIC

BPOA0045 122017



BERWELE-01

CREHORST

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/22/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER CB Insurance, LLC (719) 228-1070 1 South Nevada Ave., Suite 230 Colorado Springs, CO 80903	CONTACT NAME: Caryn Rehorst, CISR, CIC, CRIS PHONE (A/C, No, Ext): (719) 477-4276 4276 FAX (A/C, No): E-MAIL ADDRESS: caryn.rehorst@centralbancorp.com														
INSURED Berwick Electric Co P. O. Box 7286 Colorado Springs, CO 80933-7286	<table border="1"> <thead> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A : The Phoenix Insurance Company</td> <td>25623</td> </tr> <tr> <td>INSURER B : Travelers Property Casualty Company of America</td> <td>25674</td> </tr> <tr> <td>INSURER C : Pinnacol Assurance</td> <td>41190</td> </tr> <tr> <td>INSURER D :</td> <td></td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : The Phoenix Insurance Company	25623	INSURER B : Travelers Property Casualty Company of America	25674	INSURER C : Pinnacol Assurance	41190	INSURER D :		INSURER E :		INSURER F :	
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INSURER D :															
INSURER E :															
INSURER F :															

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

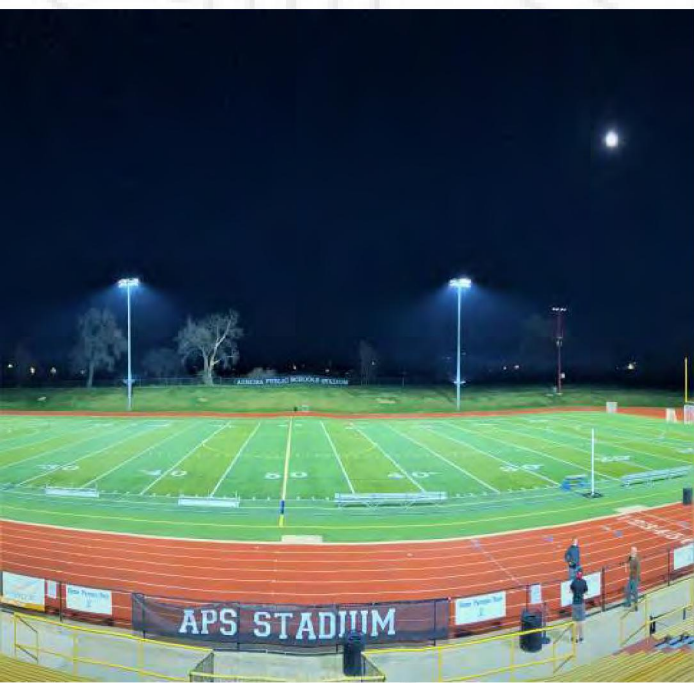
INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:		DT-CO-9E726376-PHX-20	10/1/2020	10/1/2021	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPI/OP AGG \$ 2,000,000
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY		810-6N873125-20-26-G	10/1/2020	10/1/2021	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000		CUP-8J160742-20-26	10/1/2020	10/1/2021	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> N N/A	4219407	10/1/2020	10/1/2021	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

Berwick Electric Co. PO Box 7286 Colorado Springs, CO 80933-7286	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



FEE PROPOSAL PER SECTION 7.0 (SECTION F.)



SECTION 7.0: SOLICITATION RESPONSE FORM**RFP-4864-21-DH****"Design/Build Canyon View Lighting Replacement Project"***Offeror must submit entire Form completed, dated and signed.***1) Cost plus a Fixed Fee with a Guaranteed Maximum Price:****Fixed Fee \$ 273,300.00****WRITTEN: Two hundred seventy-three thousand three hundred and no/100 dollars.****Guaranteed Maximum Price \$ 1,574,800.00****WRITTEN: One million five hundred seventy-four thousand eight hundred and no/100 dollars.**

The Owner reserves the right to accept any portion of the work to be performed at its discretion

The undersigned has thoroughly examined the entire Request for Proposals and therefore submits the proposal and schedule of fees and services attached hereto. This offer is firm and irrevocable for sixty (60) days after the time and date set for receipt of proposals.

The undersigned Offeror agrees to provide services and products in accordance with the terms and conditions contained in this Request for Proposal and as described in the Offeror's proposal attached hereto; as accepted by the Owner.

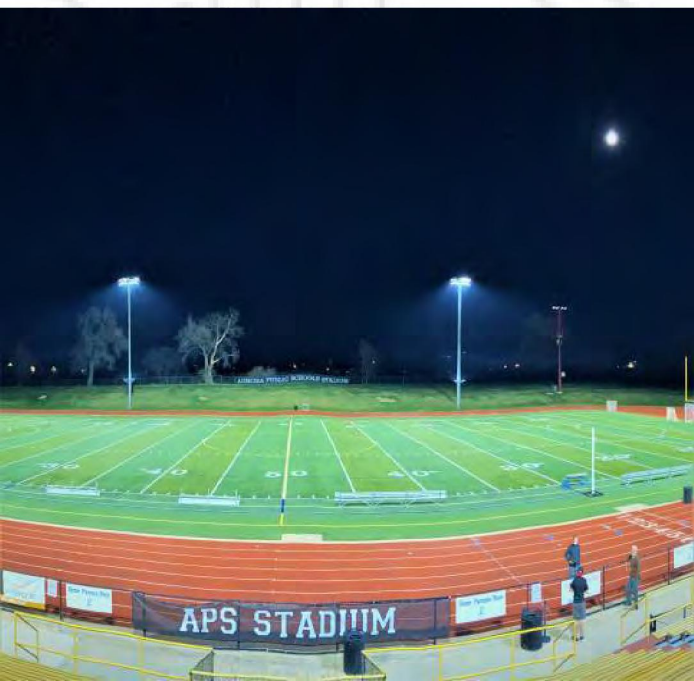
Prices in the proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices in this proposal have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a proposal for the purpose of restricting competition.
- The individual signing this proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-03544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of .5 percent of the net dollar will be offered to the Owner if the invoice is paid within 15 days after the receipt of the invoice.

RECEIPT OF ADDENDA: the undersigned Contractor acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents. State number of Addenda received: 4.

It is the responsibility of the Proposer to ensure all Addenda have been received and acknowledged.

Berwick Electric CO**Company Name – (Typed or Printed)****Mark Norman****Authorized Agent Signature****3450 North Nevada Ave. Suite 100****Address of Offeror****Colorado Springs, CO 80907****City, State, and Zip Code****Mark Norman****Authorized Agent – (Typed or Printed)****(719) 632-7683 main; (719) 389-1562 direct****Phone Number****mnorman@berwickelectric.com****E-mail Address of Agent****3/18/2021****Date**



ADDITIONAL DATA (SECTION G.)

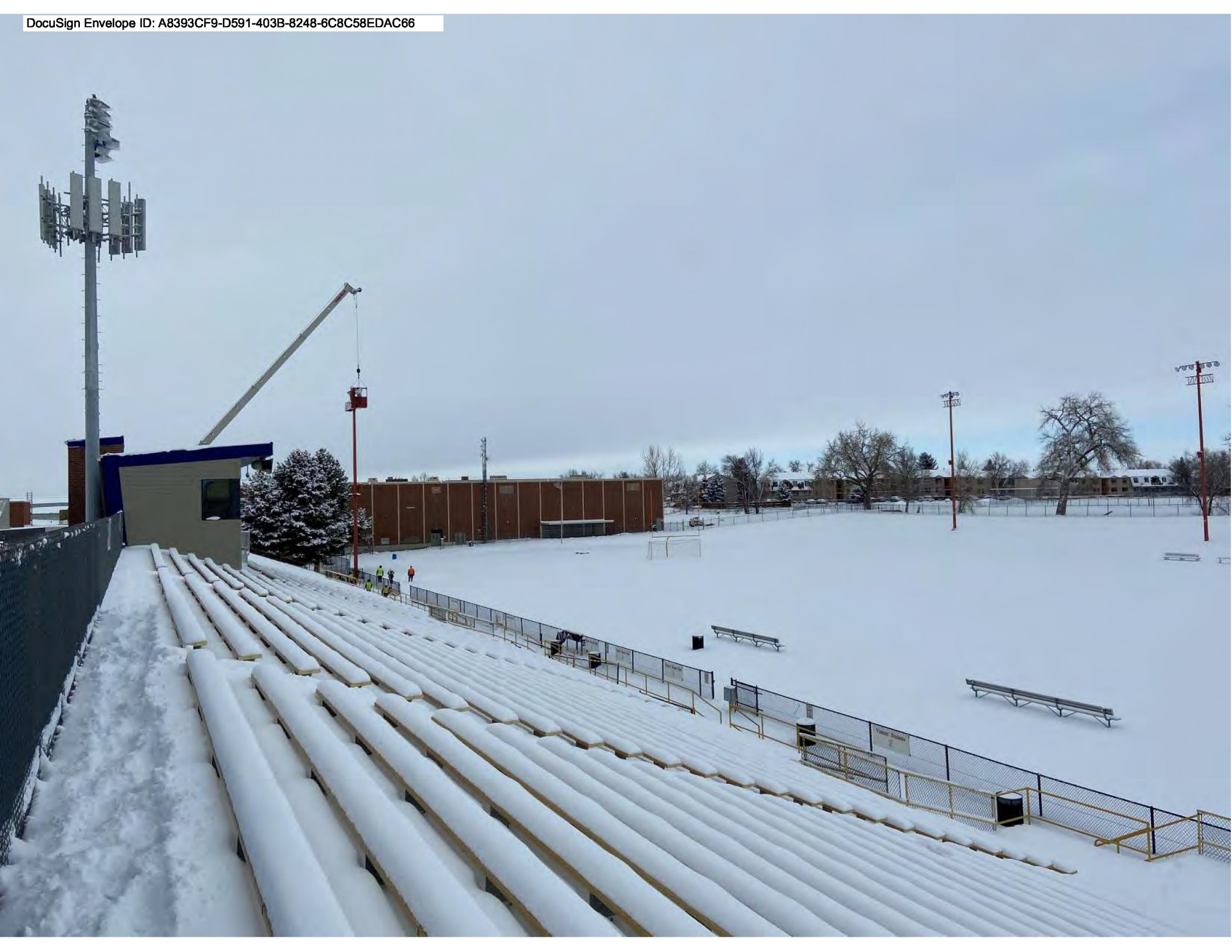
A. TIGHT LOCATION DEMO

B. TRIMBLE TOTAL STATION OPERATION



TIGHT LOCATION DEMO















TRIMBLE TOTAL STATION OPERATION









MUSCO LIGHTING SUBMITTAL PREPARED FOR:

Canyon View Park

Lighting Project
Grand Junction, CO
March 17, 2021

Submitted by:

Musco Sports Lighting, LLC

Attn: Denise Etzel
2107 Stewart Road
Muscatine, Iowa 52761

Toll Free: 800-756-1205
Fax: 800-374-6402





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- C. LIGHTING DESIGN**
- D. CONTROLS AND MONITORING**
- E. STRUCTURAL INFORMATION**
- F. WARRANTY**
- G. COMMISSIONING AND TRAINING**

A. COMPANY AND PRODUCT INFORMATION

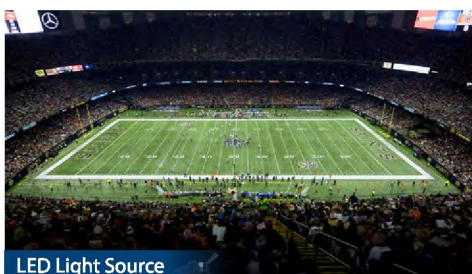
Company Profile



Statue of Liberty National Monument
New York, New York, USA



Yas Marina Circuit
Grand Prix Racing
Abu Dhabi, UAE



Mercedes-Benz Superdome
New Orleans Saints
New Orleans, Louisiana, USA



Chongqing Olympic Sports Center
Chongqing Lifan F.C.
Chongqing, China



Vancouver International Airport
Vancouver, BC, Canada

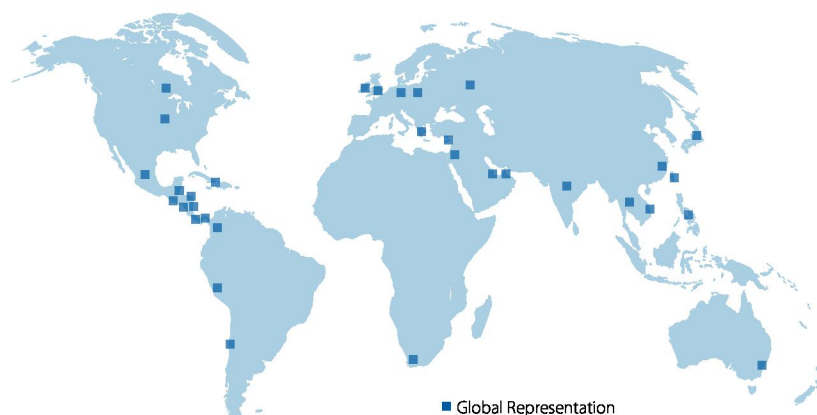
Introduction

Since 1976, Musco Lighting has specialized in the design and manufacture of sports and large-area lighting with innovations in glare reduction and light control responsible to the needs of facility owners, users, neighbors, and the night sky. Musco's Total Light Control – TLC for LED™ technology delivers a level of light control and uniformity that can't be matched, and is the solution of choice for neighborhood Little League® fields, collegiate and professional stadiums and arenas, international airports, rail yards, the Olympic Games, iconic landmarks, and some of the largest ports around the world. Musco has a global team of experts that partner with customers to plan, complete, and maintain a cost-effective, trouble-free lighting solution for their facility.

Headquarters: Oskaloosa, Iowa, USA

Manufacturing: Muscatine, Iowa USA; Shanghai, China; Gumi, South Korea

Global Representation: Australia, Belize, Canada, Caribbean Islands, Chile, China, Colombia, Costa Rica, Cyprus, El Salvador, Germany, Greece, Guatemala, Honduras, India, Ireland, Japan, Jordan, Mexico, Nicaragua, Panama, Peru, Philippines, Poland, Qatar, Russia, South Africa, South Korea, Taiwan, Thailand, United Arab Emirates, United Kingdom, United States, Vietnam



■ Global Representation

Special Projects

- Olympic Games — Rio, 2016; Sochi, 2014; London, 2012; Vancouver, 2010; Athens, 2004; Sydney, 2000; Atlanta, 1996; Los Angeles, 1984
- "Battle": Tiger Woods Golf, 2000–2004
- ESPN Wide World of Sports Complex
- Daytona International Speedway
- Losail International Circuit
- Yas Marina Circuit
- Bahrain International Circuit
- Churchill Downs
- Wimbledon Centre Court
- Madison Square Garden
- Mercedes-Benz Arena, Shanghai
- Mercedes-Benz Arena, Berlin
- Purcell Pavilion, University of Notre Dame
- Munn Ice Arena, Michigan State University
- AT&T Center, San Antonio Spurs
- Emirates Stadium, Arsenal F.C.
- Twickenham Stadium, England National Rugby
- Tianjin TEDA Football Stadium, Tianjin TEDA F.C.
- Citi Field, New York Mets
- NRG Stadium, Houston Texans
- Nationals Park, Washington Nationals
- Dodger Stadium, Los Angeles Dodgers
- Comerica Park, Detroit Tigers
- Lamade Stadium, Home of the Little League® World Series
- Super Bowls XVII, XIX, XXI, XXVII, XXX, XXXV, XXXVIII, XL, XLII, XLIII, XLIV, LI
- ESPN X Games
- San Francisco-Oakland Bay Bridge East Span
- Statue of Liberty
- The White House
- Mount Rushmore National Memorial
- McCarran International Airport
- DP World Jebel Ali Port Terminal 2

continued on back



Company Profile

Major Innovations

- 1982** “The night the lights went on at Notre Dame Stadium,” said Keith Jackson, broadcaster, made television history by taking sports lighting on the road with Musco mobile lighting systems for broadcast of the Notre Dame vs. Michigan prime time college football game.
- 1987** Made significant technical advancements in providing affordable light control with Level-8™ and Total Light Control™ systems.
- 1991** Introduced the industry’s first sports-lighting system complete from foundation to poletop: Light-Structure System™.
- 1992** Revolutionized NASCAR broadcasts by making night racing at the Winston Cup level possible. Mirtran™ systems were first used at Charlotte Motor Speedway and as of 2017, are in place at 20 speedways and racetracks, including the Daytona International Speedway and the Bahrain International Circuit.
- 1996** Introduced cost-effective, quality lighting for special effects and dramatic player introductions in large indoor arenas. ShowLight™ systems were first used at Charlotte Coliseum and are installed throughout the U.S., England, and Ireland.
- 1999** Introduced technology to dramatically advance on/off capability and facility management. Control-Link® system allows facility managers to control their lighting systems remotely as well as provide critical management reports.
- 2005** Revolutionized the sports lighting industry with the introduction of Green Generation™ technology. This system reduces energy consumption by half, spill light by 50% and includes maintenance & relamping for 25 years. Musco’s Constant 25™ product assurance and warranty program guarantees the system will perform at the designed light levels for the duration of the warranty.
- 2008** Installed a cutting-edge lighting system using LED technology in Washington D.C. at the White House. This system dramatically reduced energy consumption by 87%, while providing a clean, color accurate light.
- 2013** Matched its proven system design and application expertise with the evolving LED technology to provide custom lighting solutions for several major arenas and the East Span of the San Francisco-Oakland Bay Bridge.
- 2016** Introduced TLC for LED™ technology, delivering to customers light control and uniformity never before possible, while virtually eliminating glare and significantly improving efficiency. The system is backed by a 25-year parts and labor warranty.

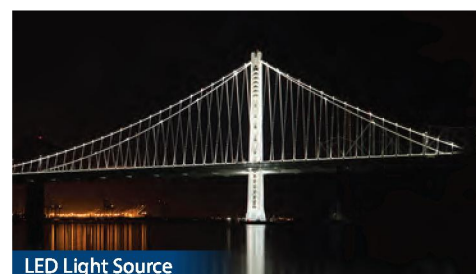
Television Credits

ABC, CBS, NBC, TBS, TNN, ESPN, ESPN2, FOX, FoxSports, SkyTV, CBC, BTN, ESPNU, Longhorn Network, and Channel 9 (Australia) have relied on Musco to provide quality lighting to meet broadcast requirements.



LED Light Source

Xcel Energy Center
St. Paul, Minnesota, USA



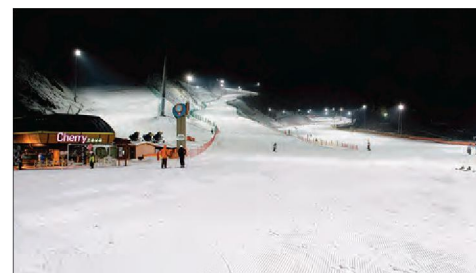
LED Light Source

San Francisco-Oakland Bay Bridge
Oakland, California, USA

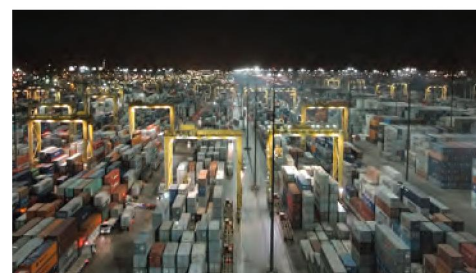


LED Light Source

Twickenham Stadium
England National Rugby
Twickenham, United Kingdom



02 Ski and Resort
Taebaek-si, Gangwon-do, South Korea



DP World Jebel Ali Terminal 1
Dubai, UAE

OOO
MUSCO.

**ALWAYS READY FOR
PLAY**



Musco's LED Solutions

As more organizations transition to LED field lighting, they're finding out that the performance of different LED sports lighting varies greatly.

We've spent over 40 years designing systems with one thing in mind — solving problems.

Our Total Light Control - TLC for LED® technology is the result of a depth of knowledge that cannot be matched, achieving results for customers — and solving their problems — in ways others simply can't.



Scan or visit to learn more:
www.musco.com/project-showcase/tlcled/



LakePoint Sporting Community wanted players to see the ball like never before.

With eight baseball fields for elite travel teams, LakePoint needed lighting that would enhance player visibility and let them track the ball's entire flight.

By using our TLC for LED system with BallTracker™ technology — which creates precisely-aimed vertical lighting targeted to enhance visibility of aerial balls — that's exactly what they got.



"When you stand at home plate and look out to center field and there's no glare, but the field is totally bright and the white of the ball pops, it looks amazing."
- Tyson Kimm, Vice President of Perfect Game USA, main tenant at LakePoint

Scan or visit to learn more:
www.musco.com/project-showcase/lakepoint/





When the original lights went on at Notre Dame Prep, nobody was happy.

Excessive glare and spill brought complaints from homeowners, motorists, and the City of Scottsdale, forcing the school to shut the lights down until a solution was found.

When the original manufacturer failed, we were brought in and custom-designed a TLC for LED solution that eliminated glare and spill from impacting the surrounding area.



Scan or visit to learn more:
www.musco.com/project-showcase/ndprep/

"We could not imagine our field looking more beautiful than it does now. We are so grateful for the excellent products and customer service we received from Musco Lighting."
– Jill Platt, Principal, Notre Dame Preparatory High School

Alpine Field needed a retrofit solution to replace its newly installed lights, fast.

The field at the University of Colorado Colorado Springs quickly became a source of complaints when its LED lighting from a different manufacturer created glare and spill for nearby homes.

Within weeks our TLC for LED system was retrofitted onto the original poles, saving UCCS money and eliminating the impact on neighbors.



"The results are absolutely phenomenal. I had neighbors calling saying they couldn't believe the difference. We got our nights back again."
– Ron Toman, Eaglerock Neighborhood Association

Scan or visit to learn more:
www.musco.com/project-showcase/alpine/





With over 6,000 students playing intramurals, Clemson needed field lights it could count on.

High hours of usage at LoConte Family Field required lighting that was efficient, reliable, and easy to program given the field's remote location.

Our TLC for LED solution reduced energy consumption 63 percent compared to metal halide, and with the 24/7 monitoring and remote scheduling of Control-Link®, the field is always ready for play.



Scan or visit to learn more:
www.musco.com/project-showcase/clemson/

*"Musco's LED system has allowed us to increase intramural programming by extending hours, and the ability to program the lights remotely is a neat feature."
– Chris Cox, Assistant Director of Intramural Sports, Clemson University*

They didn't just want new lights at Pridgeon Stadium, they wanted to make history.

As a home stadium for the Cypress–Fairbanks School District, the 40-year-old venue needed to greatly improve on-field light quality.

Our TLC for LED system's custom optics provided superior light levels and uniformity, and made Pridgeon Stadium the first high school sports complex in the U.S. to be lit entirely with LED.



"We have an average maintained footcandle higher than anyone I know. And that's something to boast about. You could host ESPN games out here."
– Josh Solis, Project Manager, Cypress-Fairbanks Independent School District

Scan or visit to learn more:
www.musco.com/project-showcase/pridgeon/





Seminole County wanted a premier sports complex, without breaking the bank.

To make it happen they needed high-quality field lighting that would eliminate maintenance concerns and costs.

Our parts and labor warranty, which covers every part and all labor, helped Seminole County save over \$1 million in operating costs for the next decade.



Scan or visit to learn more:
www.musco.com/project-showcase/seminolecounty/

"Players love it. We love it. It's saving us money. Musco has been an incredible partner through the entire process."
– Joe Abel, Director of Leisure Services, Seminole County, Florida

Energy efficiency was the name of the game for re-lighting Julian Fisher Park.

The City of Monrovia wanted high-quality lighting for the park's frequently used basketball courts that would conserve energy and keep costs down.

Our customized two-pole design and TLC for LED technology delivered the light levels and uniformity the courts needed, and cut energy consumption 51 percent compared to metal halide.



"Musco's state-of-the-art LED lighting not only reduced our electrical use, it also has improved the overall park lighting dramatically."
– Tina Cherry, Public Services Director, City of Monrovia

Scan or visit to learn more:
www.musco.com/project-showcase/julianfisher/



Will your story be next?

Whatever problem you're trying to solve, we've probably seen it and helped someone overcome it. Because that's what has driven us to design and create the most innovative sports lighting solutions in the world for over 40 years.

Will your story be next?
Call us today, 800/825-6030
or visit www.iwantlighting.com





We Make It Happen.

www.musco.com
e-mail: lighting@musco.com

©2015, 2018 Musco Sports Lighting LLC • M-1897-enUS-2
U.S. and foreign patents issued and pending.

Introducing
TLC[®] for LED[®]
Total Light Control[™]



We Make It Happen.

TLC[®] for LED[™]

Total Light Control[™]

Continuing the commitment to excellence...

Keeping good lighting affordable...

Guaranteed for 25 years, from foundation to poletop.

Light-Emitting Diode (LED) is a new tool but the issues for sports lighting are the same. For nearly a decade, the Musco Team has been testing the LED light source and applying it on projects where it was the best choice. While LED saved energy, for a typical recreational facility the hours of operation weren't great enough to offset the higher cost.

We've researched LED's distinctive challenges and advantages and applied our knowledge of light control to the unique characteristics of the diode, assuring the quality of lighting for which Musco is known.

We've paired our expertise in controlling light with the advancing output of LED to the point where we're confident it's a cost-effective option to consider for recreational facilities. With our patented BallTracker[™] technology, in-flight balls "pop" against night skies so that tracking the ball is easier than ever before.

The result is a system that makes Musco's great lighting even better.

Better for players...

who want to perform their best and be able to track the entire flight of the ball.

Better for neighbors...

who don't want glare in or around their homes or lights left on when not in use.

Better for the night sky...

with bright, uniform light directed onto the field and not spilling above it.

Better for your budget...

an affordable system that's built to last and control operating costs.

And...you can mark maintenance off your list for 25 years!

The Musco Team looks at the combination of issues to achieve the best solution to meet your needs—from structures, to quality of on-field light, to off-site impact, to energy and costs.

Control

from foundation to poletop...

from the light source to the field,
preserving the night sky...

assuring the results you expect,
day 1...year 1...and for 25 years.



Still Light-Structure System™...

5 Easy Pieces™ complete from foundation to poletop.

Our Light-Structure System™ has delivered long-term performance for thousands of customers around the world.

Lights, structures, and electrical components are engineered to work together. This assures the designed lighting gets in place and stays there over the life of the system, while also maintaining and protecting the operating environment so the components continue to function.

We've included features like easy to reach remote drivers, integrated grounding, and surge protection to ensure the longevity of the LED's sensitive electronic components.

The Light-Structure System™ adapts to support both LED and metal halide light sources.

25 years of proven performance



Control
from the foundation to the poletop.



Musco can light a ballfield better than ever...for players, fans, and TV cameras.

We create controlled light, not floodlights.

An LED floodlight is a serious step backward when it comes to the quality of light on your field. It may flood light into the neighborhood, into the night sky, and into the eyes of players.

New Tool

LED brings many benefits and new opportunities, but it's a tool, not a solution. Controlling the LED's intense, "rifle shot" of light is challenging. But with Total Light Control—TLC for LED®, we're able to achieve things never before possible—from pinpoint precision, to instant on/off, to varying light levels for different needs and sports presentation theatrics.

Same Issues

The key issues in sports lighting haven't changed: generating light, projecting it onto the target, keeping it out of the neighborhood and night sky, and creating an operating environment that allows it to last in real world conditions. Musco is able to carve out the area to be lighted and dramatically cut off any impact on the surrounding area. We use more of the light produced by the fixture, lose less light, and don't abuse the neighborhood. Our patented BallTracker™ light management technology puts vertical light precisely where it is needed. BallTracker minimizes impact on the night sky while lighting the underside of aerial balls, making night-time tracking easier than ever before.

When you walk onto a Musco-lighted field, it just looks better.

"When you stand at home plate and look out to center field, there's no glare, but the field is totally bright and you see how the white of the ball pops, it looks amazing."

— Tyson Kimm
Vice President of Perfect Game USA,
a major tenant at LakePoint Sports Community

Control
from the light source to the field.

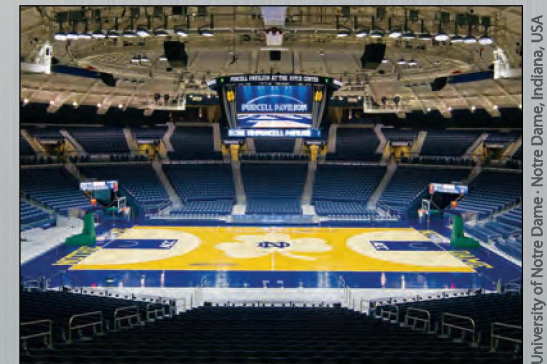


San Diego Padres Petco Park · San Diego, California, USA

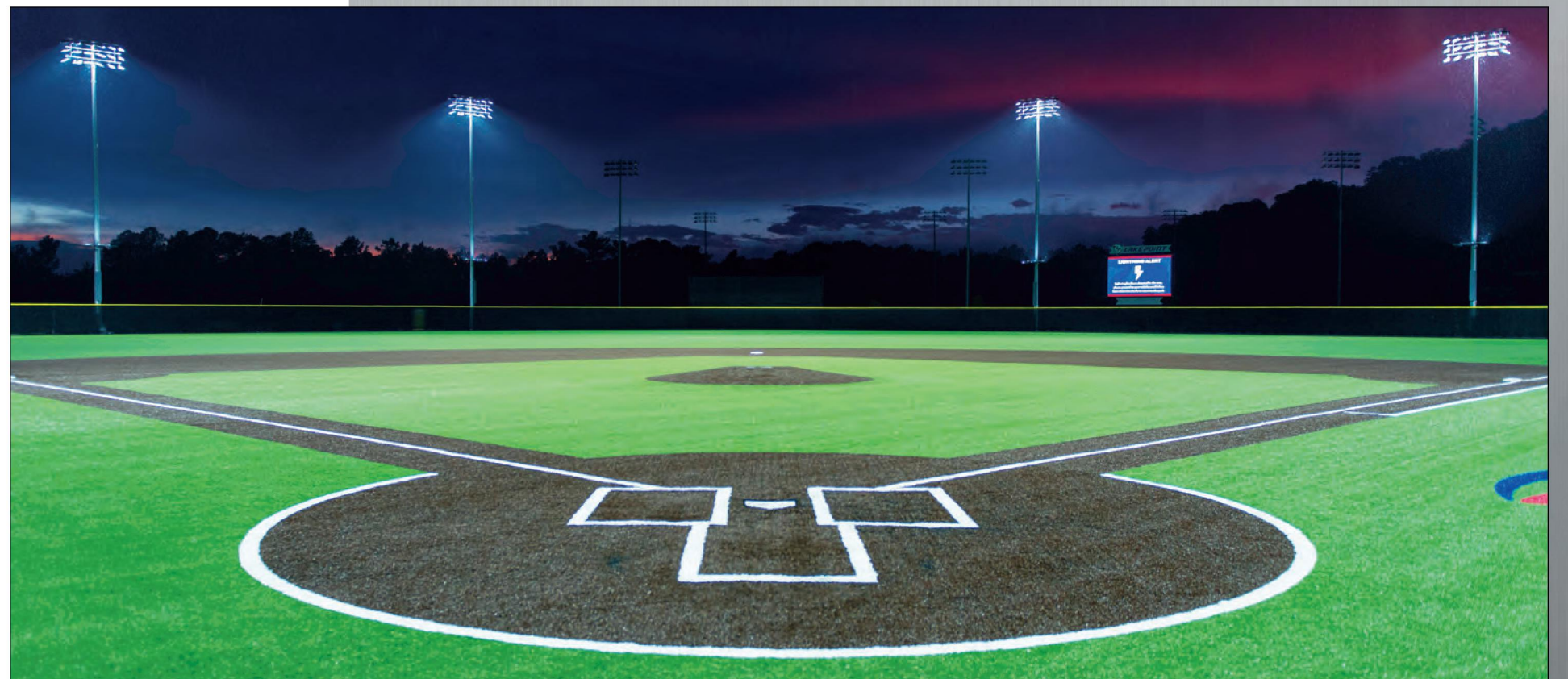
Theatrics and special effects enhance fan and TV experience.



Pinpoint control from 1,100 feet away highlights the target area while preserving surrounding darkness.



Sensational event lighting with dimming saves energy for high-usage, multi-use venues.



LakePoint Sports Community · Emerson, Georgia, USA

With patented BallTracker™ technology, players enjoy quality lighting, no glare, and better ability to track the entire flight of the ball.

The neighbors will love it.

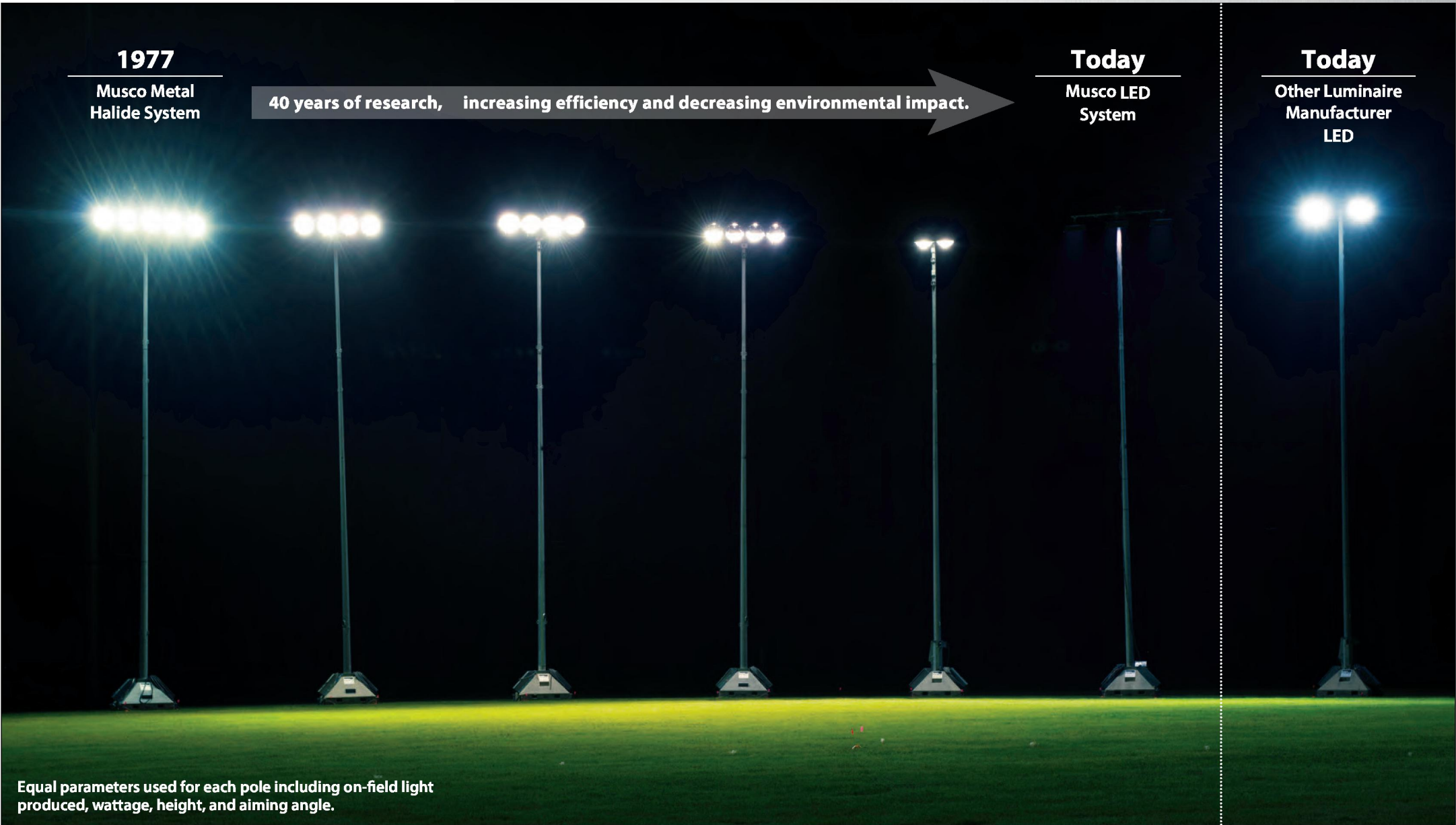
Musco cares as much about preserving darkness as it does about creating light.

Emitting light is easy. But LED fixtures that can't effectively control the light being emitted brings the unintended consequences of abusive glare for players and neighbors, and wasteful spill into the night sky.

With Musco's Total Light Control—TLC for LED®, we've taken LED to a level of performance and precision never before seen in sports lighting. It means no disruptive glare into nearby homes and the preservation of dark skies above.

And it opens up new opportunities for where fields can be located within a community, and for existing fields that, until now, weren't able to install lights because of community push back.

Control
preserving the night sky.

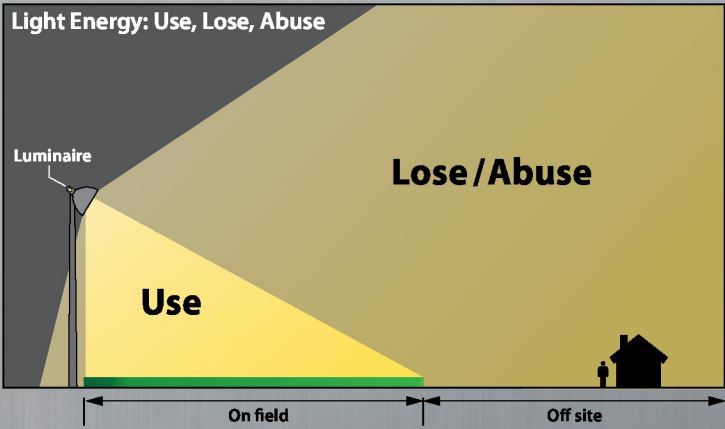


"Glyndon Park is in a naturally wooded residential area. We didn't want to illuminate the homes of neighbors in the area. I initially wasn't supportive of putting in traditional lights. The product Musco has developed allows us to light this field, yet light nothing else around it."

— Cathy Salgado,
Parks and Recreation Director, Vienna, VA



Glyndon Park Little League, Vienna, Virginia



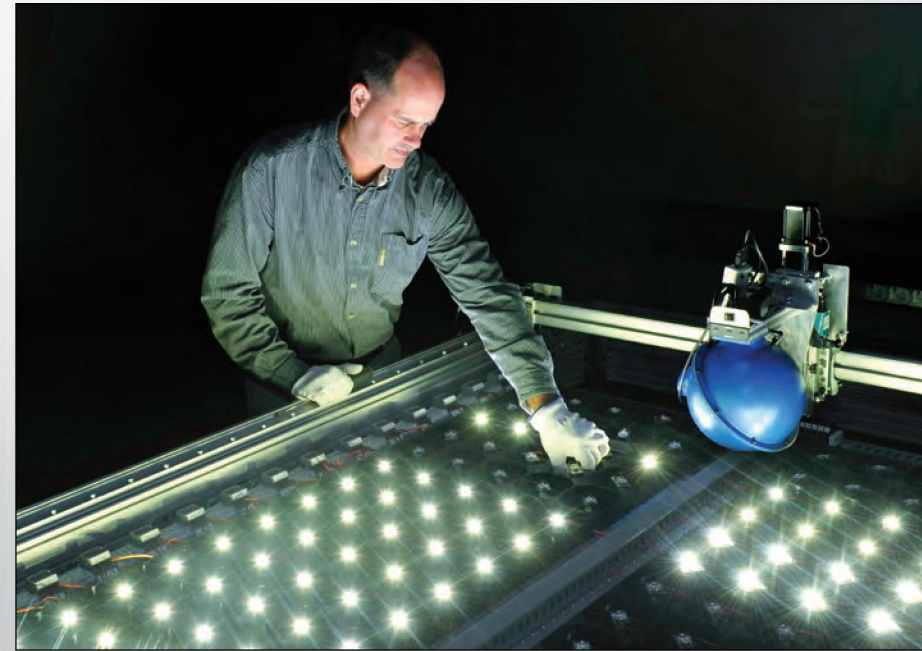
And, your field is always ready to play.

Here's a look at what the Musco Team has done in the last year as a partner in service to customers like you...

- Turned lights on and off remotely for more than 5.5 million games and events
- Conducted routine inspections and maintenance at over 11,000 fields
- Taken more than 350,000 calls, answering questions and helping with scheduling
- Carried out group lamp replacements on more than 30,000 metal halide fixtures
- Traveled enough miles servicing fields to circle the equator 24 times

And here's what our customers enjoy for 25 years...

Peace of mind for 9,125 days knowing that if a problem arises, we'll be there, and a budget with virtually **zero dollars spent on maintenance, increased staff productivity** resulting from not having to worry about managing your lights, plus **restful nights**, free from midnight calls from unhappy neighbors about lights left on.



We do the R&D to create it. We customize and apply solutions to your facility.

"Musco called to let us know there was an issue before we knew we had a problem."

— Stephen Cooke, CPRP, CYSA
Greenville County Recreation Athletics Manager, Taylors, SC



We're on the road to support it for 25 years.

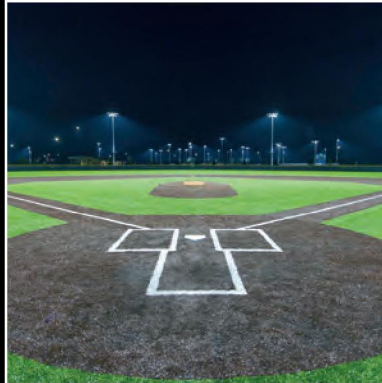


We provide 24-7 Control-Link® support to monitor and operate your facility.



Control
assuring the results you expect.

From metal halide to LED,
Musco's Light-Structure System™ performs
in real world conditions **for 25 years, guaranteed.**
We Make It Happen.



Control

from foundation to poletop...

from the light source to the field,
preserving the night sky...

assuring the results you expect,
day 1...year 1...and for 25 years.



We Make It Happen.

Product Flyer: **Control-Link® Control and Monitoring System**

Flexible control and solid management of your facility, saves operating costs and improves service

Musco's Control-Link® Controls and Monitoring System — for new and existing facilities

Control-Link® is a reliable, cost effective system that helps control, monitor, and manage your new or existing recreational facility lighting and any other electrically operated equipment.

The Control-Link System includes our exclusive Control-Link Central™ team — staffed 24/7 to assist you with your scheduling and reporting needs. Our system can save you time, hassle, and energy and staff costs. Control-Link makes your job easier and provides ongoing savings for your operating budget.

- **Saves Energy and Staff Costs**
- **Allows Flexible Control**
- **Provides Usage Data**
- **Increases Security**
- **Provides Reliable Operation**
- **Monitors System Performance**

"It's like being an umpire. If people don't know you're there, you did a great job. If there aren't any complaints about the lights, I know the system is doing it's job. Control-Link is about 98% more efficient than the manual method, and it's eliminated a lot of public concern."

— **Roger Russomanno,**
Ballfield Operations Supervisor
Denver, Colorado, Parks & Recreation Department

How to manage your lights without the late night hours:

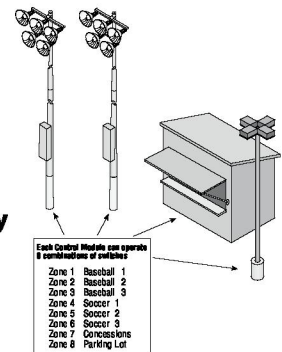


1 Enter schedules at your convenience

2 Schedules are stored on-site, backed up at Control-Link Central™



3 Equipment is controlled automatically



**Available
24/7**



4 Control-Link Central provides support, monitoring and usage data



Datasheet: **Light-Structure System™**

TLC for LED®

5 Easy Pieces™

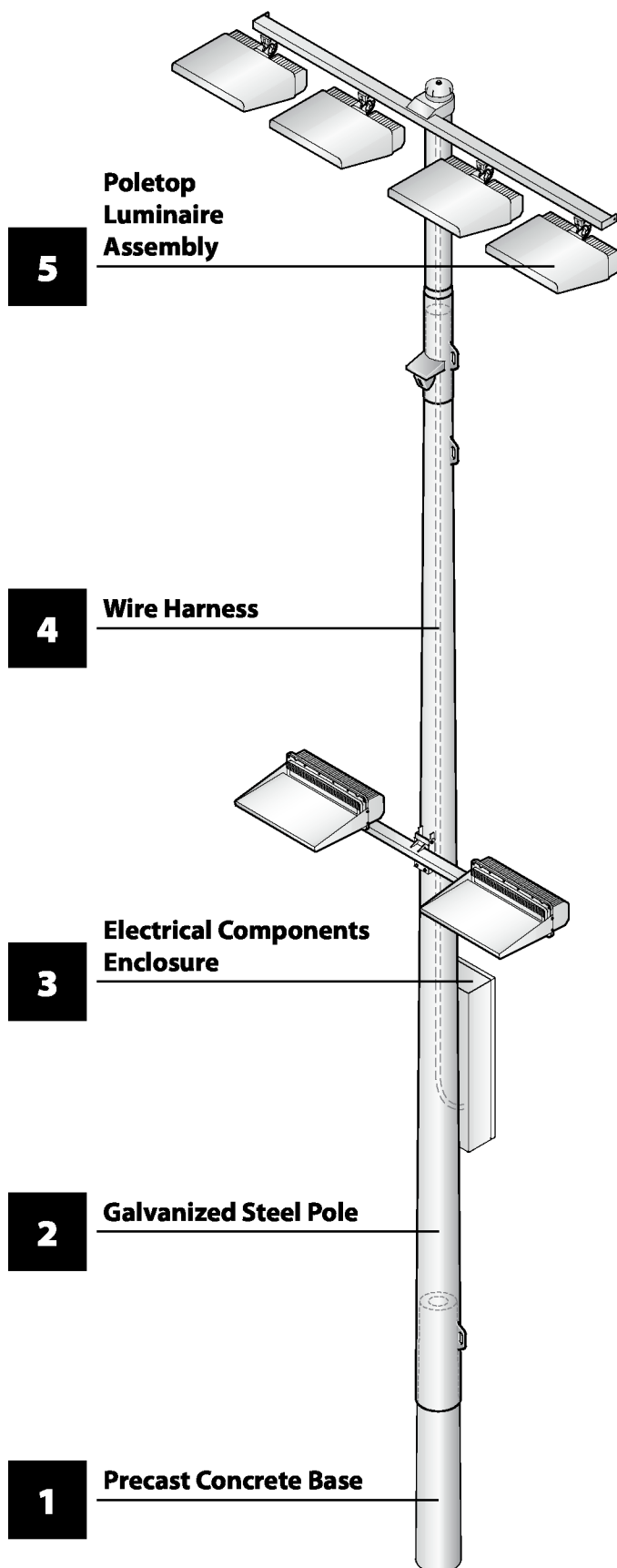
Complete System from
Foundation to Poletop

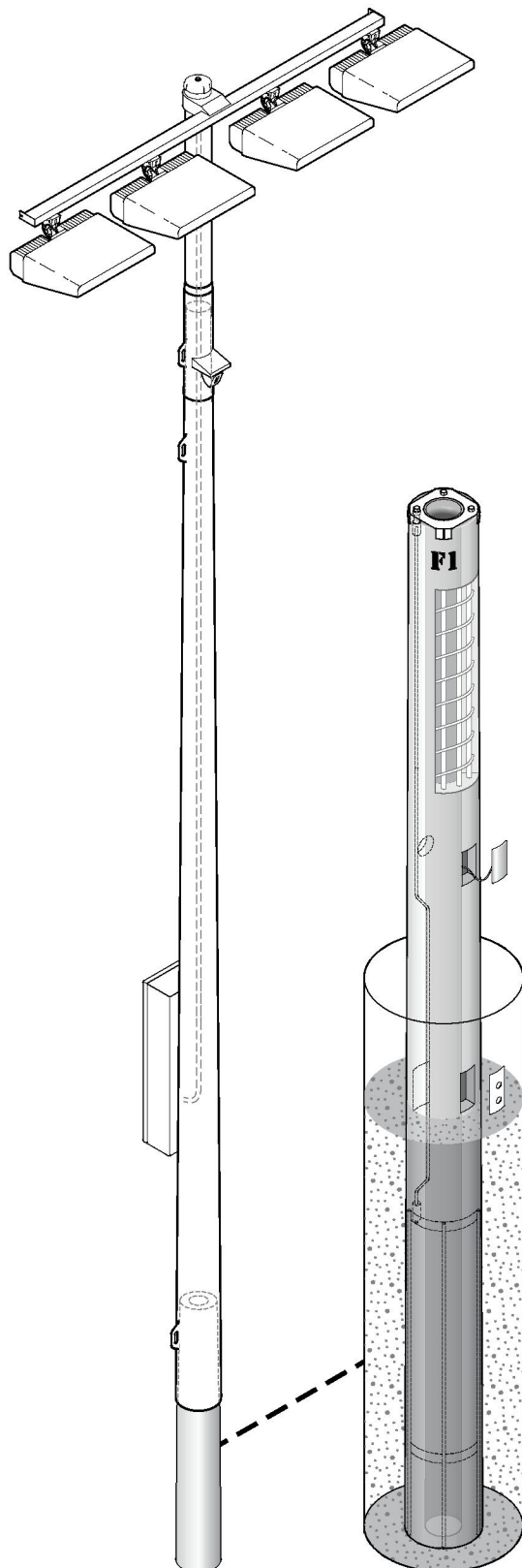
Factory wired, aimed, and tested

Fast, trouble-free installation

Comprehensive corrosion package

Integrated lightning ground



TLC for LED® – Precast Concrete Base**Overview**

The precast concrete base is set directly into the ground and backfilled with concrete. The base includes an integrated lightning ground system.

Features**Base**

- Set pole on base in 24 hours
- Tapered upper section for slip-fit steel pole
- Access holes for wire entry
- Epoxy-coated ends prevent water intrusion
- Lifting hole accepts load-rated steel rod provided by Musco

Integrated Lightning Ground System

- Complies with NFPA 780, UL 96A, and EN 62305 standards when installed per Musco installation instructions
- UL Listed, Class II Lightning Protection, file number E337467
- Tested up to 100 kA by independent laboratory
- Steel pole interfaces with integrated grounding system by means of the pole grounding connector
- 2/0 AWG (crosssectional area of 67.4 mm²) grounding electrode conductor
- Concrete-encased grounding electrode, 20 feet (6.1 m) total length, ½ inch (12.7 mm) diameter

Technical Specifications

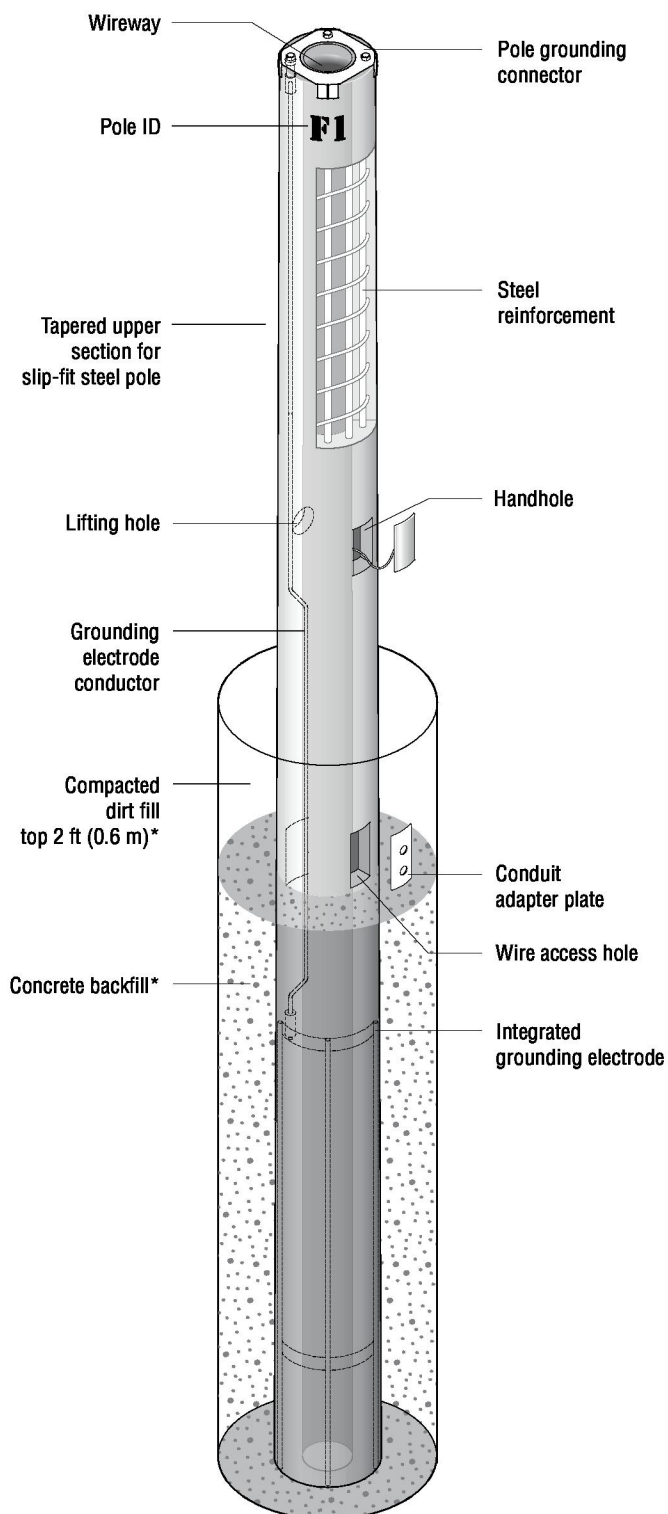
Base dimensions vary. For measurements refer to project-specific *Foundation and Pole Assembly* drawing.

Construction

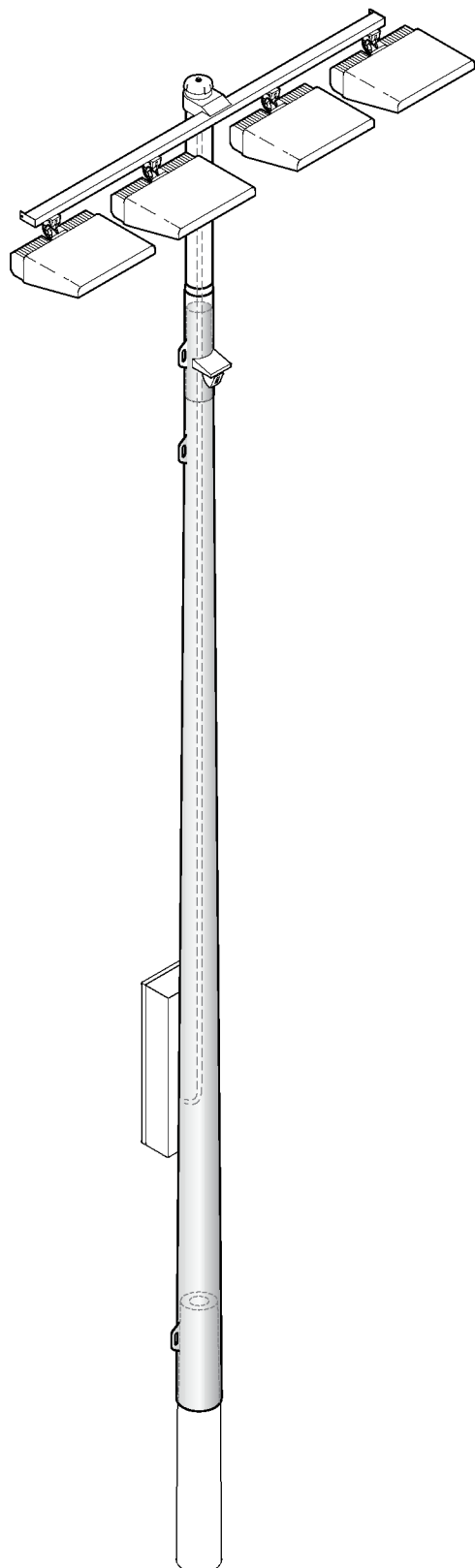
- Spun concrete construction
- Prestressed steel vertical strands and coil spiral for strength throughout base
- Minimum design strength is 9500 lb/in² (65.5 MPa) at 28 days
- Meets ASTM C1804 design requirements

Quality Assurance Tests

- 28-day compressive strength
- Bending moment capacity
- Grounding system continuity

TLC for LED® – Precast Concrete Base

*Standard pier foundation shown. Foundation and/or backfill may vary per alternate foundation design.

TLC for LED® – Galvanized Steel Pole**Overview**

The galvanized steel pole is designed to slip-fit together with the precast concrete base and the poletop luminaire assembly.

Features

- Slip-fit connection allows pole assembly with come-alongs
- Built-in hardware for attaching electrical components enclosure
- Wire access from inside the pole (no exposed wiring or conduit)
- Shipped in sections for easier handling
- Labeled with pole identification for location on field

Technical Specifications

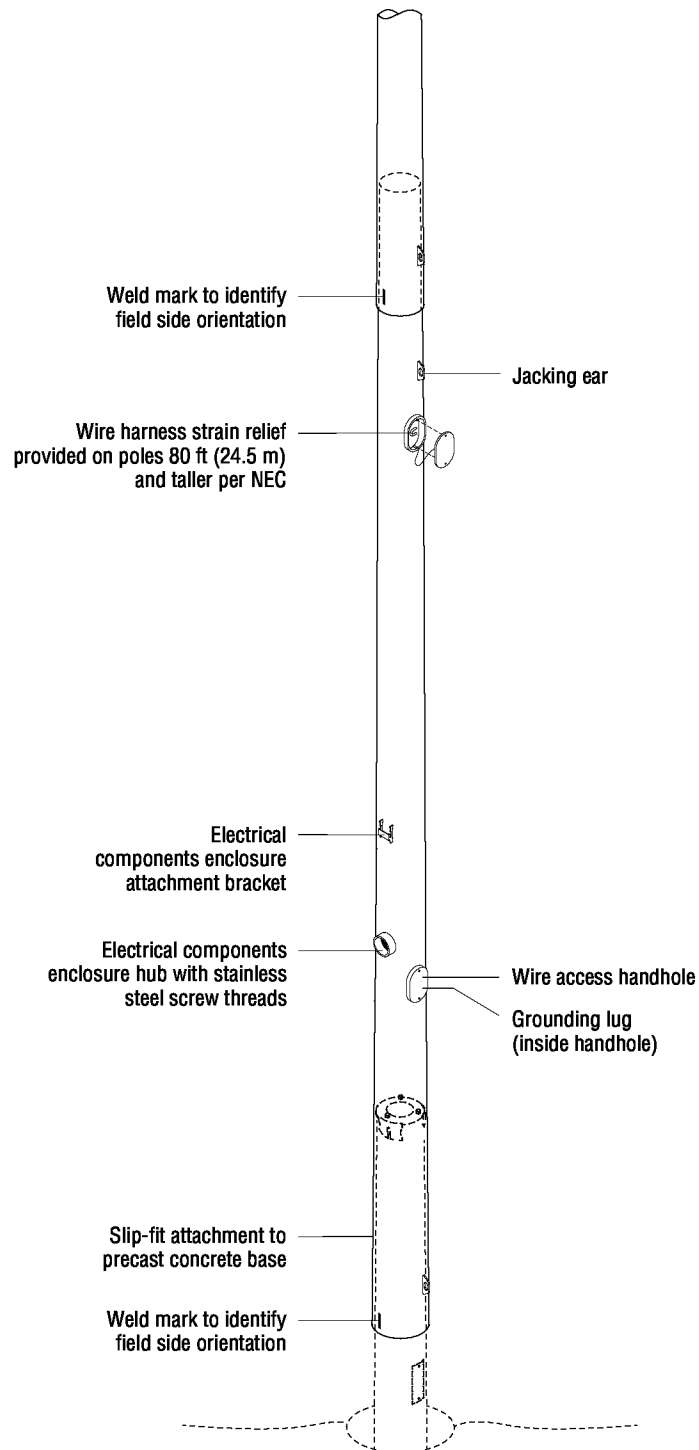
Pole dimensions vary. For measurements refer to project specific pole configuration drawing.

Construction

- Pole designs comply with all major building codes
- High strength, low alloy, tapered, round steel pole
- Hot-dip galvanizing inside and outside after fabrication meets ASTM-A123 and EN 1461 standards
- Conforms to AASHTO stress standards and BS EN 40-3-1
- Grounding lug—rated for aluminum (AL) or copper (CU) wiring
- Pole shipped in sections
- Stainless steel fasteners passivated and coated
- Material certifications are available

Quality Assurance Tests

- Bending stress
- Minimum galvanizing thickness
- Straightness measurement

TLC for LED® – Galvanized Steel Pole

TLC for LED® – Electrical Components Enclosure**Overview**

The electrical components enclosure contains all necessary equipment to operate luminaires. Built-in mounting hardware allows for easy attachment to the galvanized steel pole. Quick connect plugs fasten to the wire harness.

Features

- Factory-built and tested as a unit
- Quick connect plug for easy field wiring
- Mounted 10 ft (3 m) above grade for servicing with ladder
- Labeled with pole identification and electrical information
- Drivers individually fused and spare fuses supplied
- Wire access from inside the pole (no exposed wiring or conduit)
- Disconnect per circuit

Technical Specifications

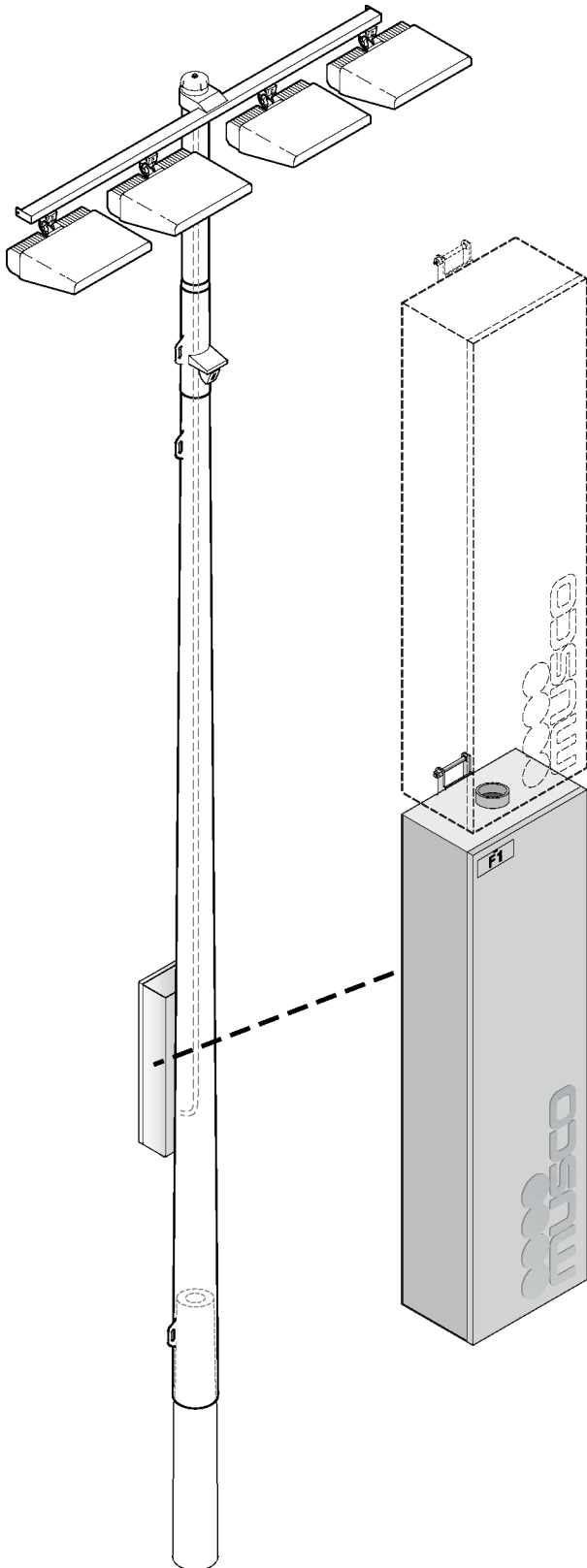
For amperage draws and circuitry refer to project specific document.

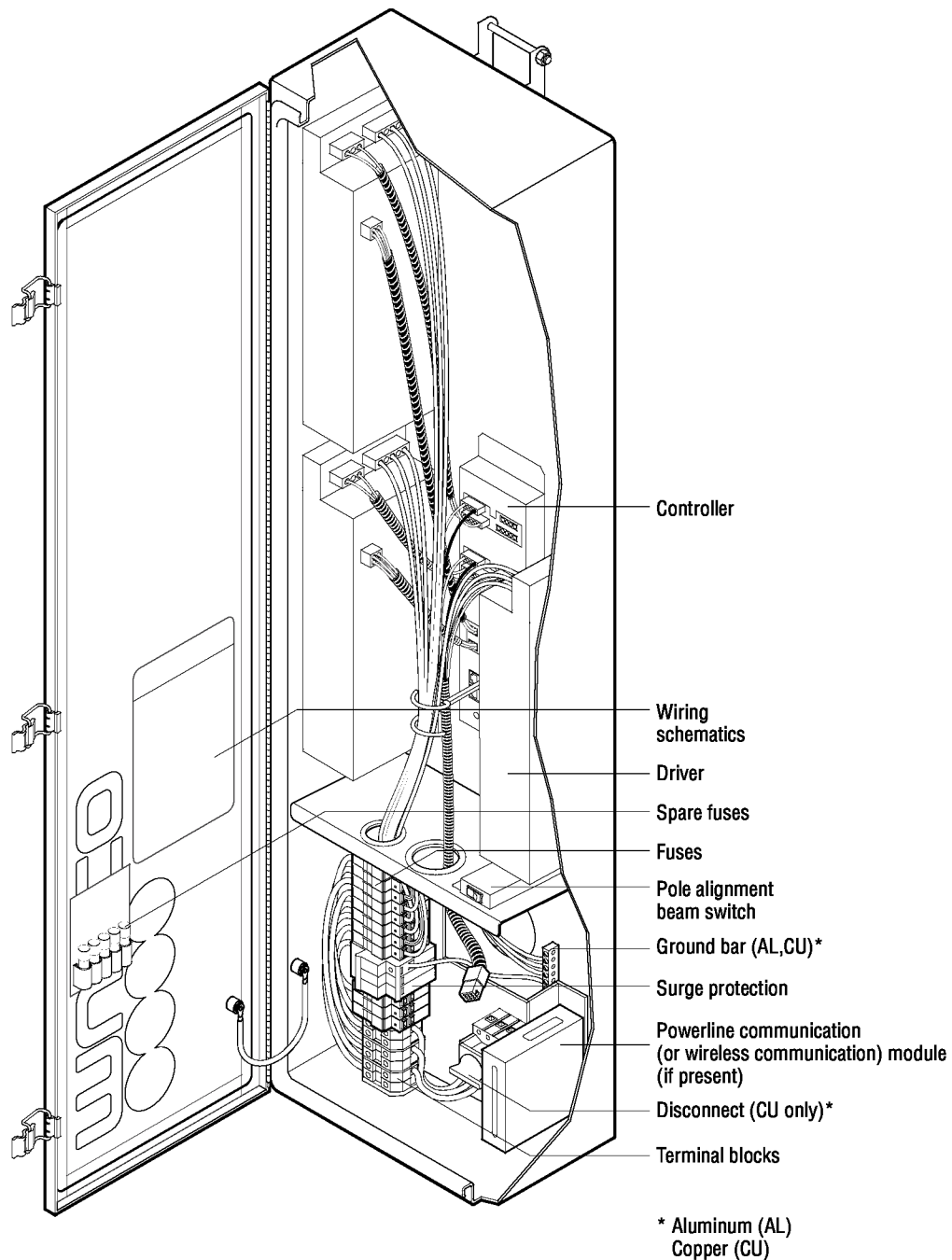
Construction

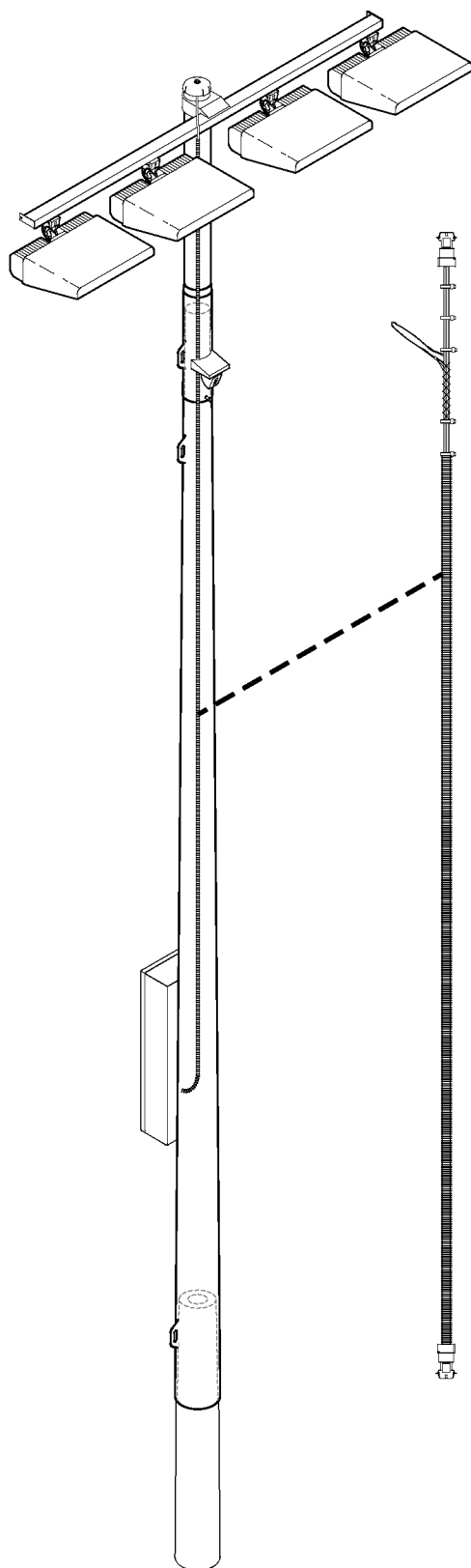
- 0.08 inch (2 mm) thick, powder-coated aluminum
- Enclosure ratings: NEMA 3R, IP54
- Designed to operate in up to 50° C (122° F) ambient temperature
- Full length stainless steel hinge
- All stainless steel fasteners passivated and coated
- Meets touchsafe standards
- Up to four drivers per enclosure
- Approximate weight 65 lb (29 kg)
- Lower enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 52.5 in (1334 mm) high
- Upper enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 40.5 in (1029 mm) high

Quality Assurance Tests

- Grounding continuity
- High potential dielectric withstand
- Full functionality test



TLC for LED® – Electrical Components Enclosure

TLC for LED® – Wire Harness**Overview**

The factory-built wire harness connects the electrical components enclosure to the poletop luminaire assembly.

Features

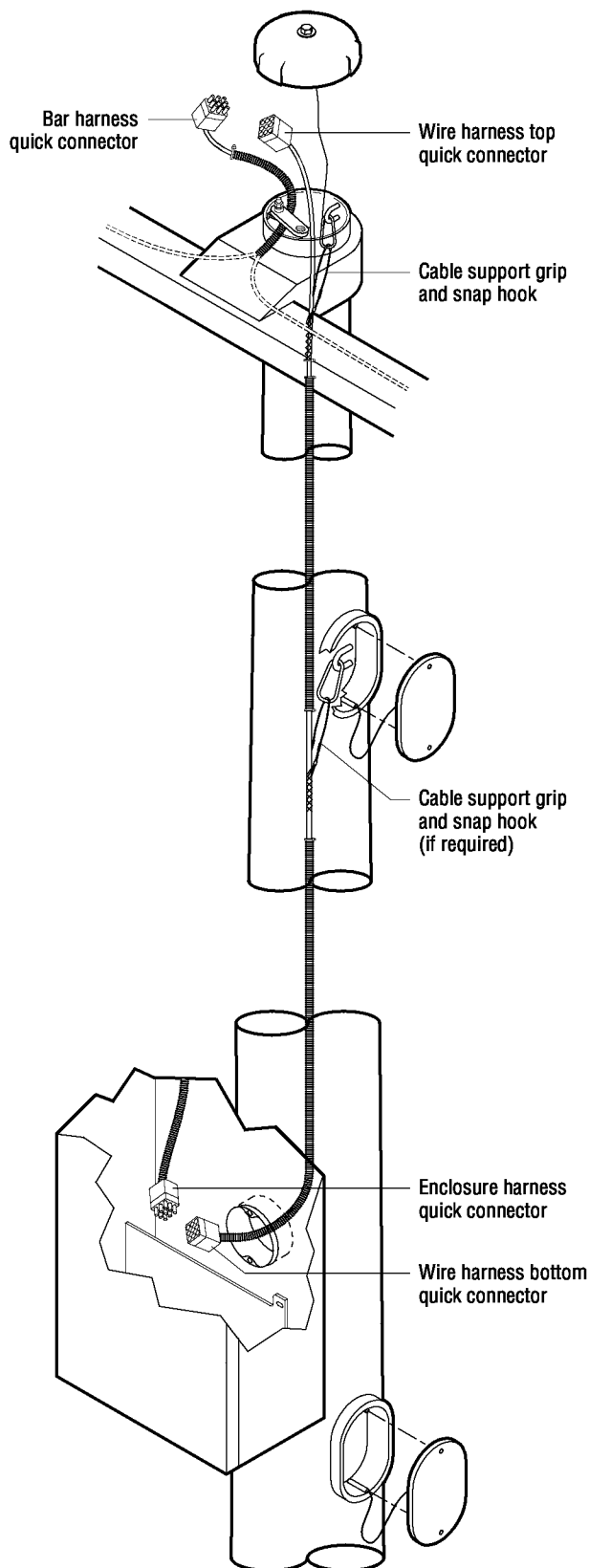
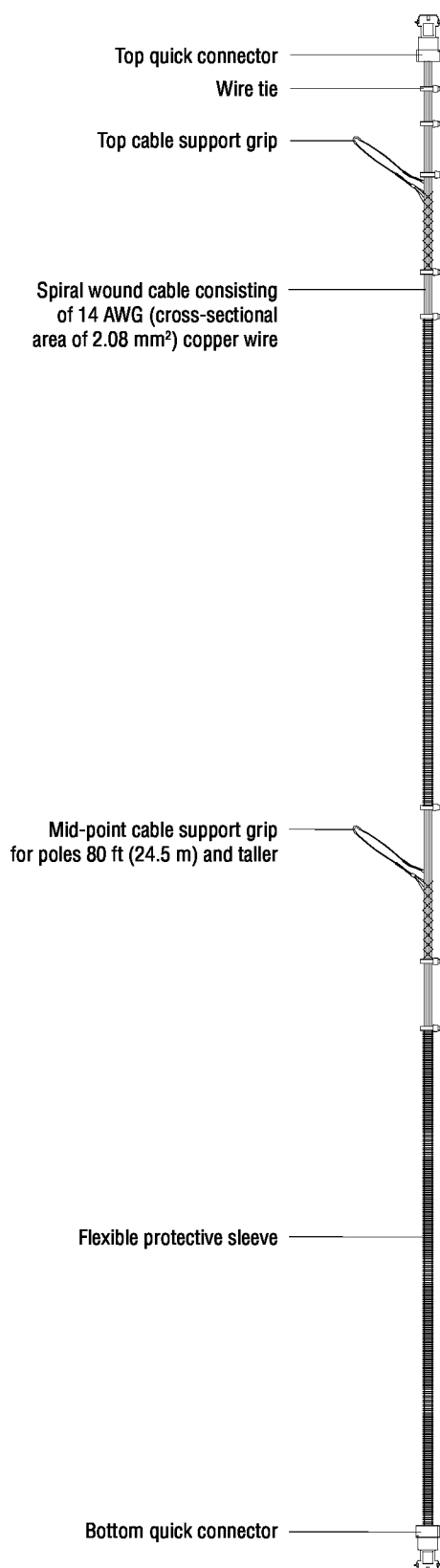
- Quick connect plugs for easy field wiring
- Factory-assembled support grip alleviates strain on connections
- Spiral wound cable eliminates slippage
- Protective sleeve prevents wire damage
- All internal wiring, no exposed wires
- Labels identify pole and luminaires

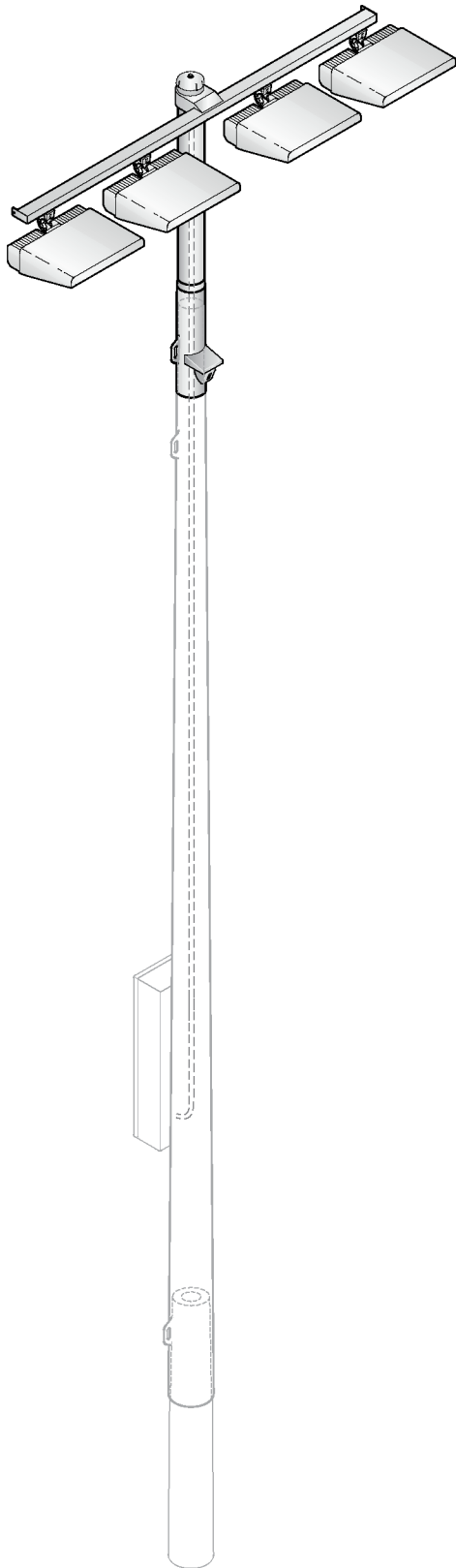
Technical Specifications**Construction**

- Spiral wound, wrapped cable, 14 AWG (cross-sectional area of 2.08 mm²) copper wire
- Integral cable support grip
- Two wires per driver
- Each harness supports up to four drivers
- Multiple top connectors may be present if required for number of luminaires

Quality Assurance Tests

- Connector/load resistance
- High potential dielectric withstand
- Grounding continuity
- Termination crimp

TLC for LED® – Wire Harness

TLC for LED® – Poletop Luminaire Assembly, Weld On**Overview**

The factory-aimed poletop luminaire assembly is the upper section of the pole and slip-fits together with the galvanized steel pole.

Features

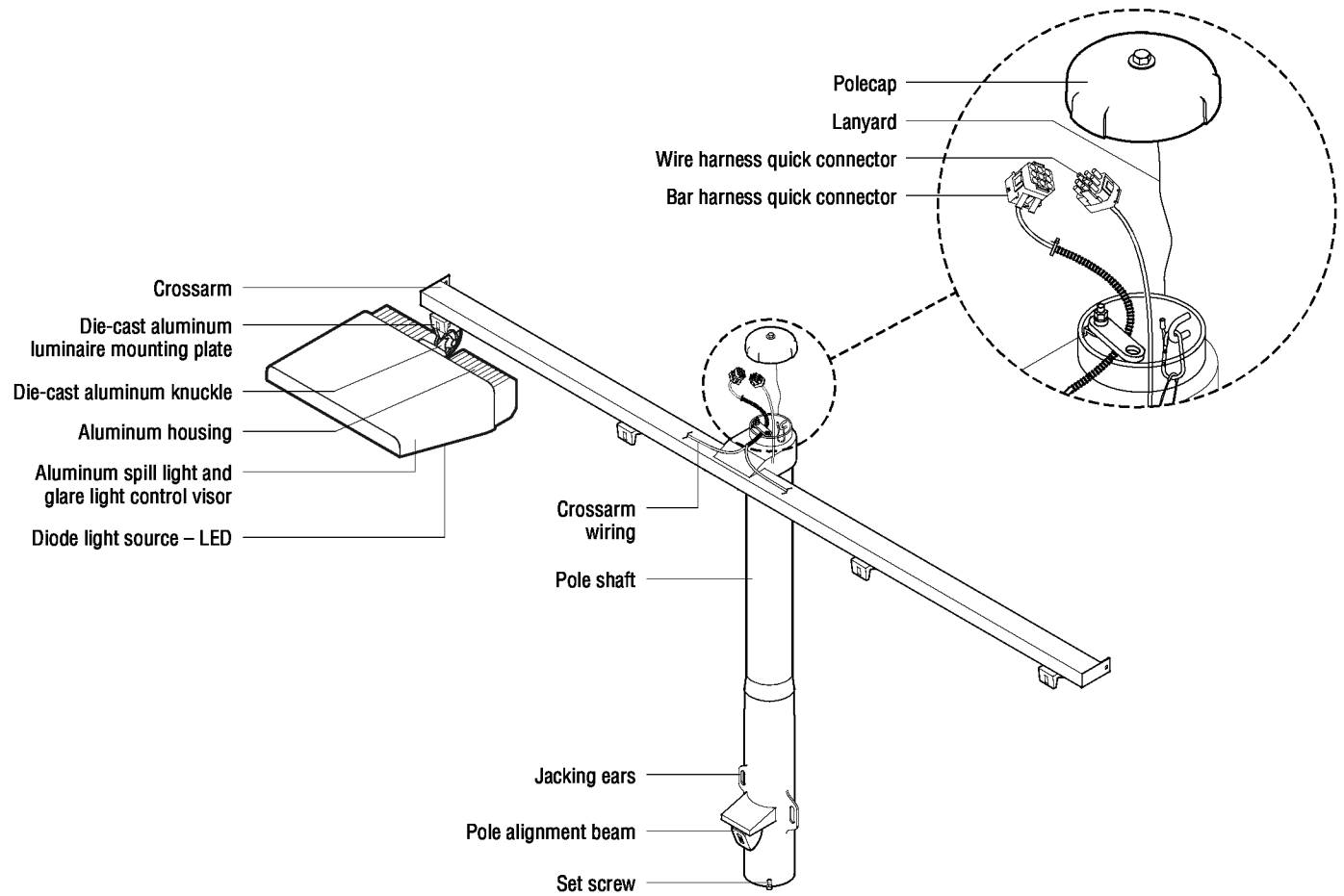
- Each luminaire is factory-built, tested, and ships as a unit
- Luminaires are factory-aimed to two-tenths degree of accuracy
- Luminaire mounts and connects in a single step
- Slip-fit connection allows assembly with come-alongs
- All luminaires are factory-wired to a quick connect harness for easy installation
- Labels identify pole and luminaire location
- No exposed wiring or conduit
- Factory-set pole alignment beam allows easy field alignment

Technical Specifications**Construction**

- Crossarms and pole shaft hot-dip galvanizing inside and outside after fabrication meets ASTM-A123 and EN 1461 standards
- All aluminum components are powder-coated or anodized to mil-A-8625F and BS 5599
- Luminaire and knuckle are powder-coated die-cast aluminum
- All stainless steel fasteners are passivated and coated
- Crossarms are constructed of rectangular steel tubing
- Polecap is attached with stainless steel lanyard and securing bolt

Quality Assurance Tests

- Galvanizing thickness
- High potential dielectric withstand
- Electrical continuity

TLC for LED® – Poletop Luminaire Assembly, Weld On

Datasheet: **SportsCluster® Lighting System**

TLC for LED®

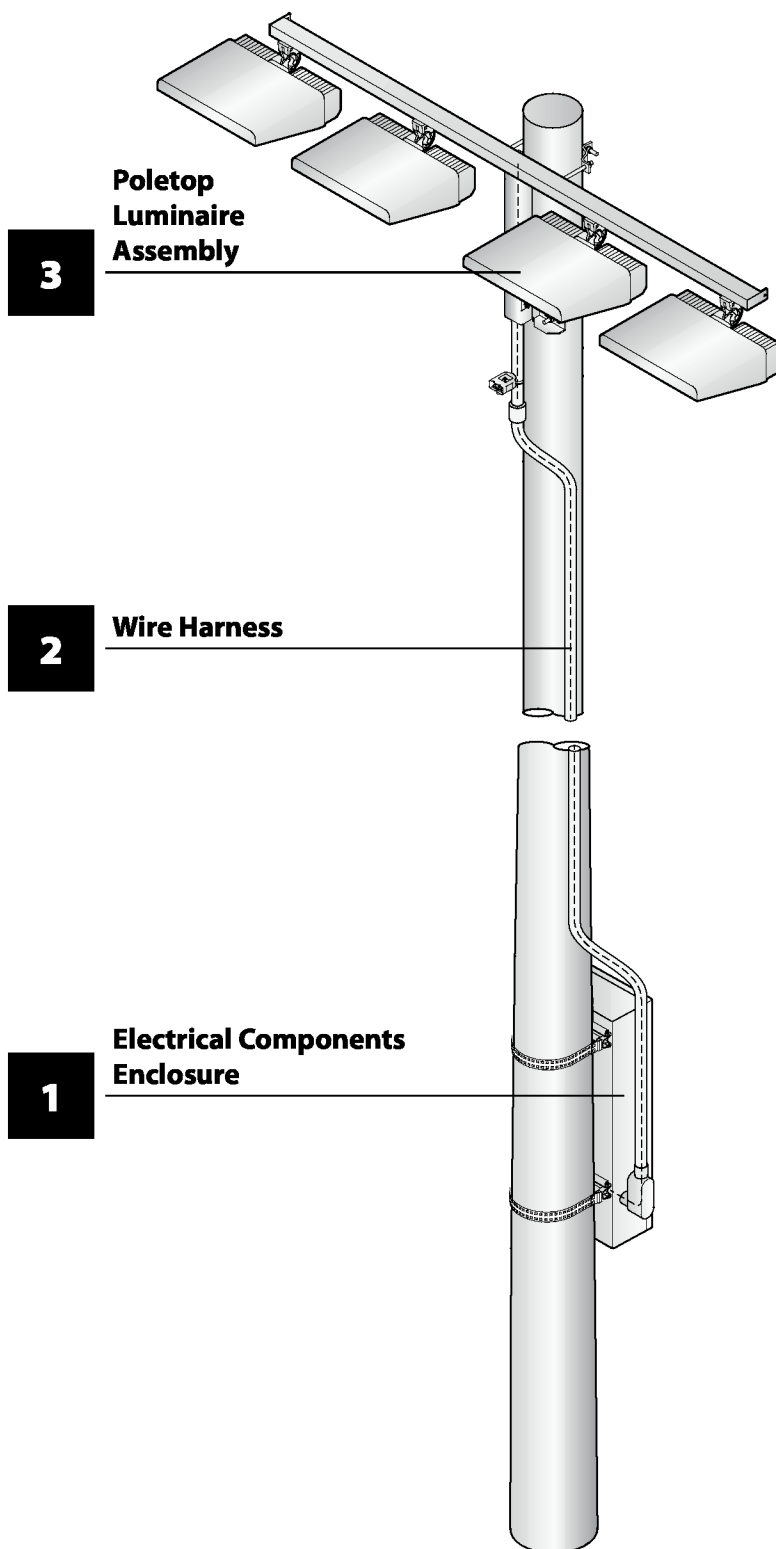
Lighting System for Mounting to Existing Structures

Factory wired, aimed, and tested

Easy installation to existing structures

Comprehensive corrosion package

Grounding connection for bonding
to pole or down conductor



Datasheet: **SportsCluster® Lighting System**

TLC for LED® Electrical Components Enclosure

Overview

The electrical components enclosure contains all necessary equipment to operate luminaires.

Features

- Factory-built and tested as a unit
- Mounted 10 ft (3 m) above grade for servicing with ladder
- Labeled with pole identification and electrical information
- Drivers individually fused and spare fuses supplied
- Disconnect per circuit
- Brackets and straps to mount to pole

Technical Specifications

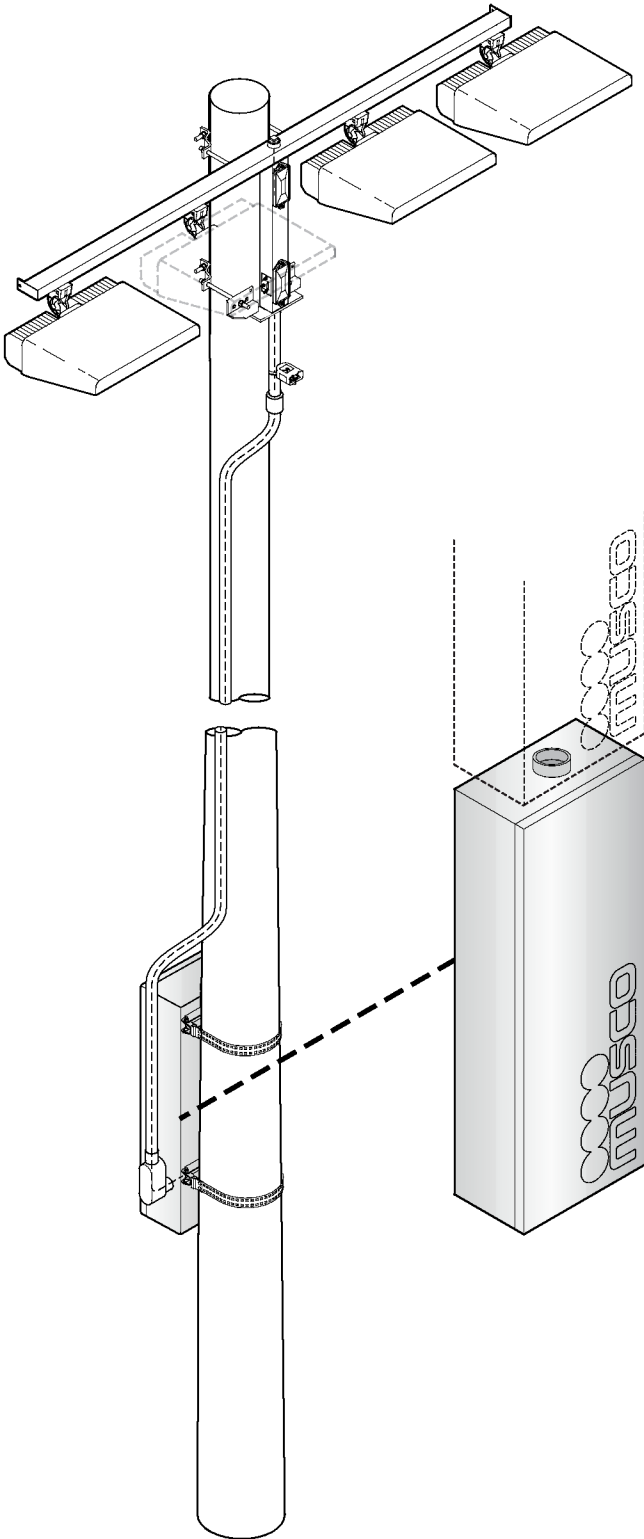
For amperage draws and circuitry refer to project specific document.

Construction

- 0.08 in (2 mm) thick, powder-coated aluminum
- Enclosure ratings: NEMA 3R, IP54
- Designed to operate in up to 50° C (122° F) ambient temperature
- Full length stainless steel hinge
- All stainless steel fasteners passivated and coated
- Meets touchsafe standards
- Up to four drivers per enclosure
- Approximate weight 65 lb (29 kg)
- Lower enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 52.5 in (1334 mm) high
- Upper enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 40.5 in (1029 mm) high

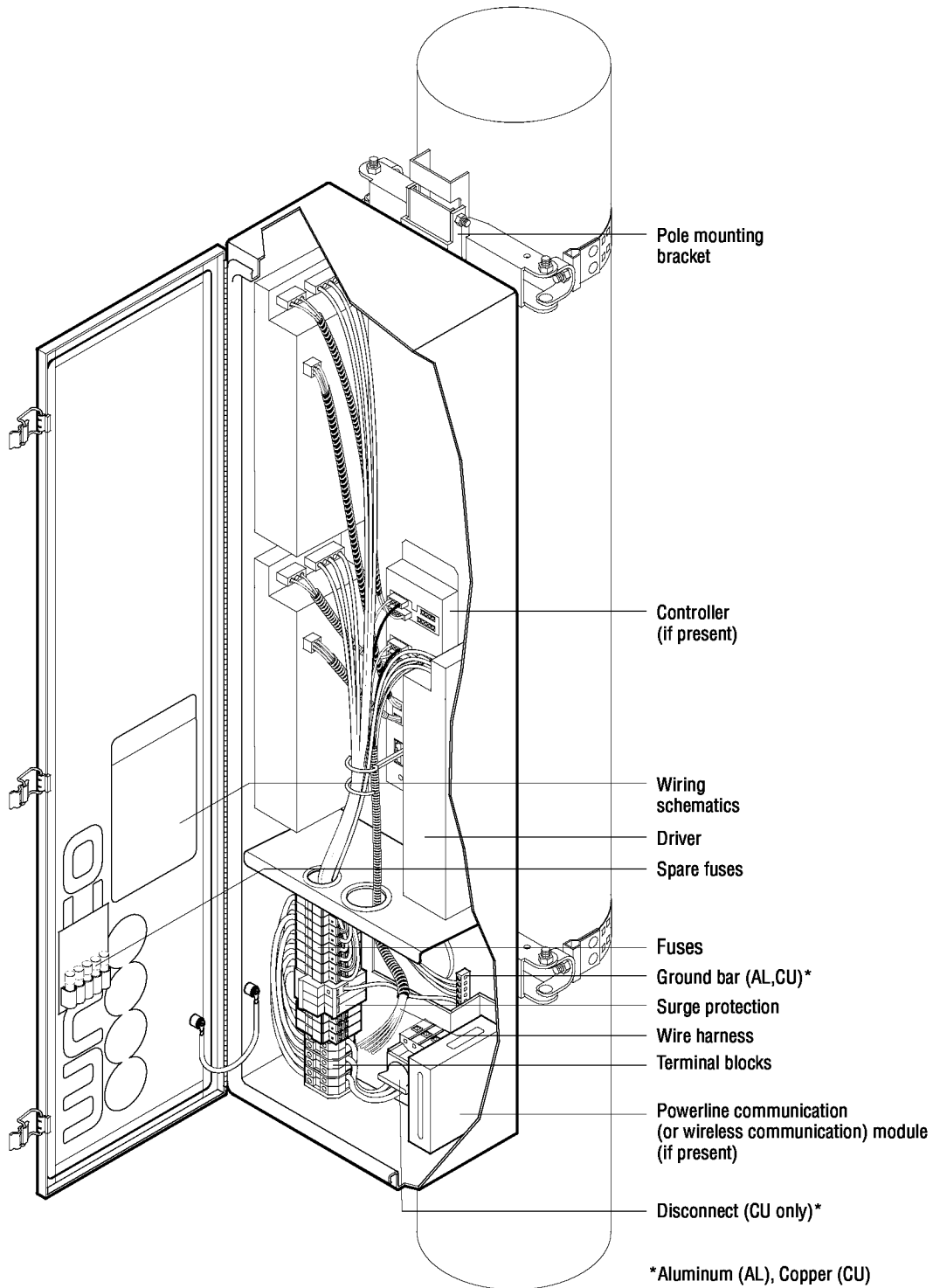
Quality Assurance Tests

- Grounding continuity
- High potential dielectric withstand
- Full functionality test



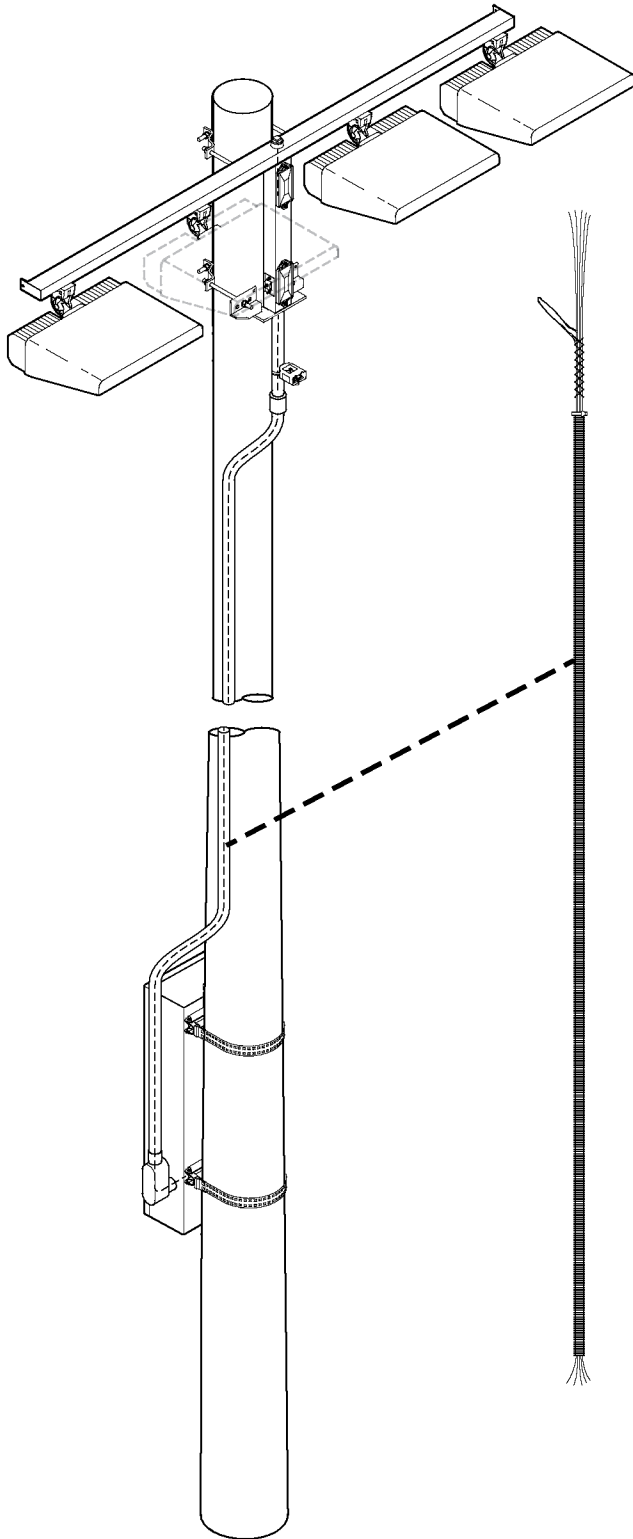
Datasheet: **SportsCluster®** Lighting System

TLC for LED® Electrical Components Enclosure



Datasheet: **SportsCluster® Lighting System**

TLC for LED® Wire Harness



Overview

The factory-built wire harness connects the electrical components enclosure to the poletop luminaire assembly.

Features

- Harness custom made to fit application, (including strain relief, protective sleeves, and wire length)
- Factory-assembled cable support grip alleviates strain on connections
- Spiral wound cable eliminates slippage
- Protective sleeve prevents wire damage
- All internal wiring, no exposed wires
- Labels identify luminaire wire pairs

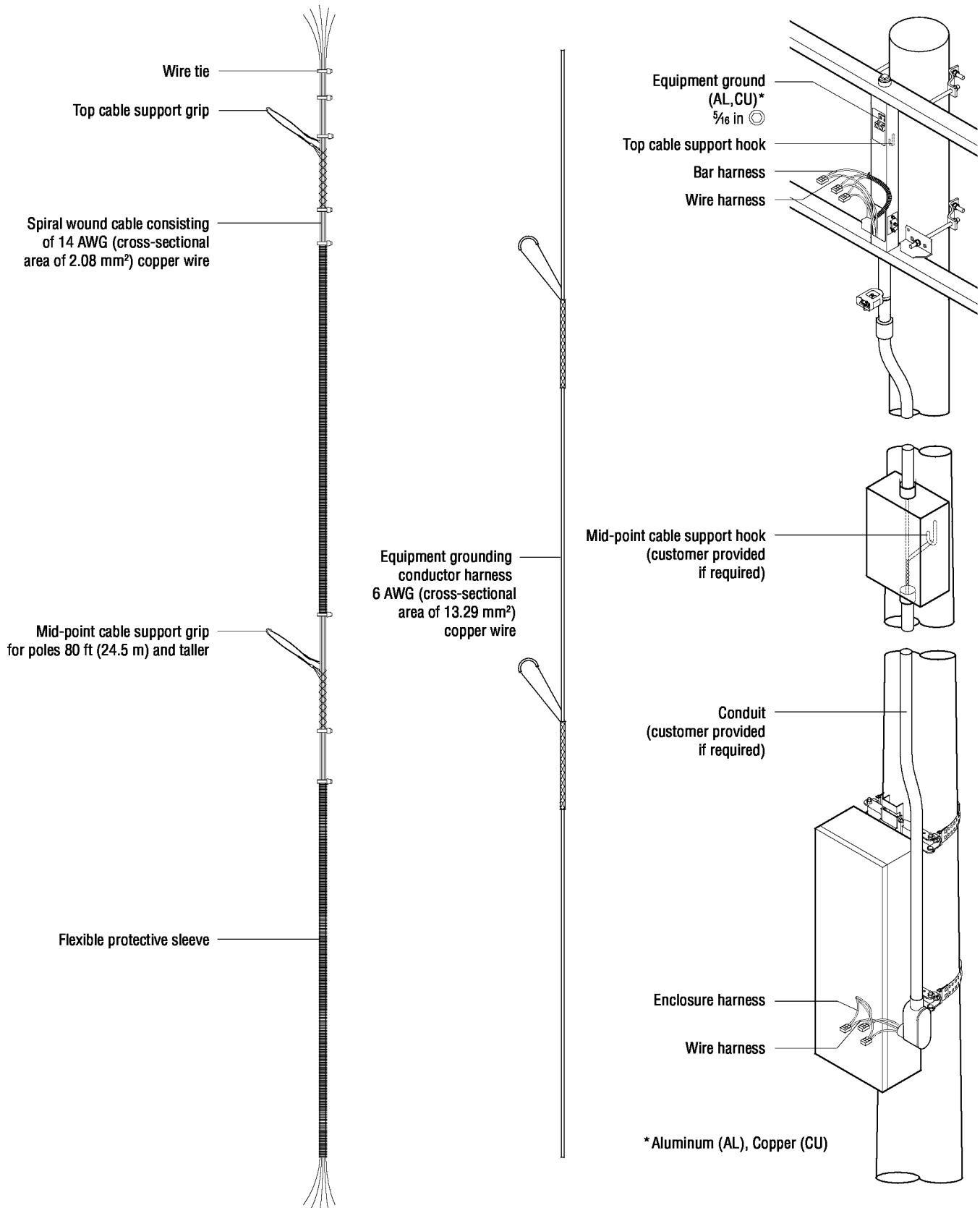
Technical Specifications

Construction

- Spiral wound, wrapped cable, 14 AWG (cross-sectional area of 2.08 mm²) copper wire
- Integral cable support grip
- Two wires per driver
- Each harness supports up to four drivers
- Equipment grounding conductor harness, 6 AWG (cross-sectional area of 13.29 mm²) copper wire. One provided per pole.

Datasheet: **SportsCluster®** Lighting System

TLC for LED® Wire Harness

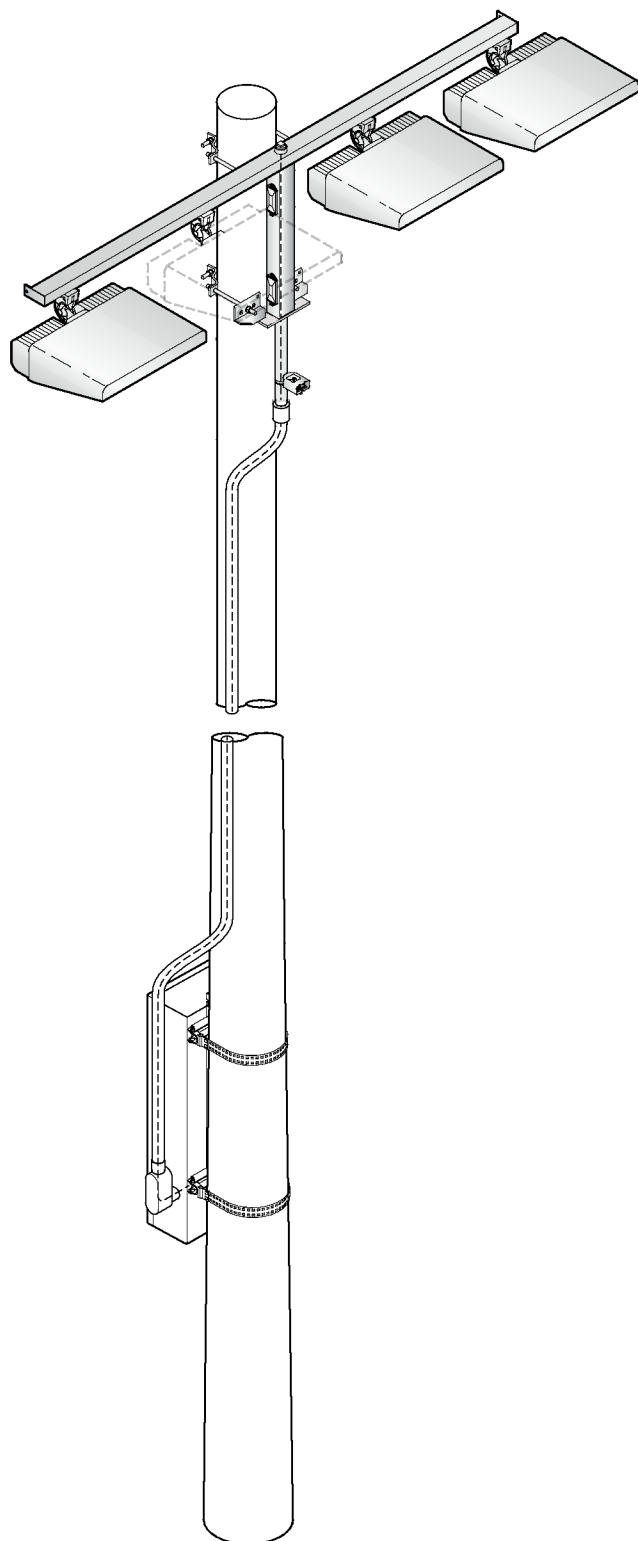


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www.musco.com • lighting@musco.com

Datasheet: **SportsCluster® Lighting System**

TLC for LED® Poletop Luminaire Assembly



Overview

The factory-aimed poletop luminaire assembly is clamped to the upper pole section.

Features

- Each luminaire is factory-built, tested, and ships as a unit
- Luminaires are factory-aimed to within 0.20 degree of accuracy
- Luminaire mounts to crossarm and connects electrically in a single step
- Labels identify pole location and luminaire location
- No exposed wiring
- Pole clamp brackets and hardware specific to pole size

Technical Specifications

Construction

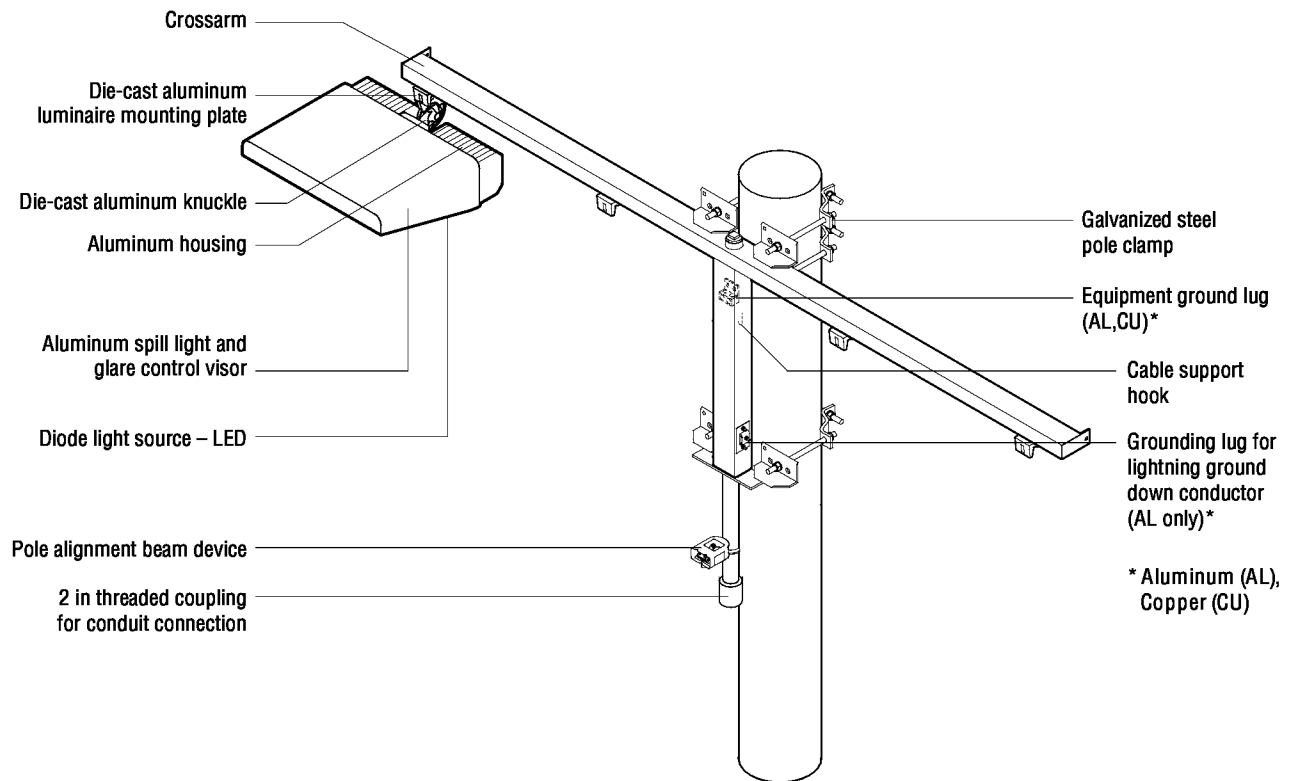
- Crossarms and pole clamp brackets hot-dip galvanizing inside and outside after fabrication meets ASTM-A123 and EN 1461 standards
- Crossarms are constructed of rectangular steel tubing
- All aluminum components are powder-coated or anodized to mil-A-8625F and BS 5599
- All stainless steel fasteners are passivated and coated

Quality Assurance Tests

- Galvanizing thickness
- High potential dielectric withstand
- Electrical continuity

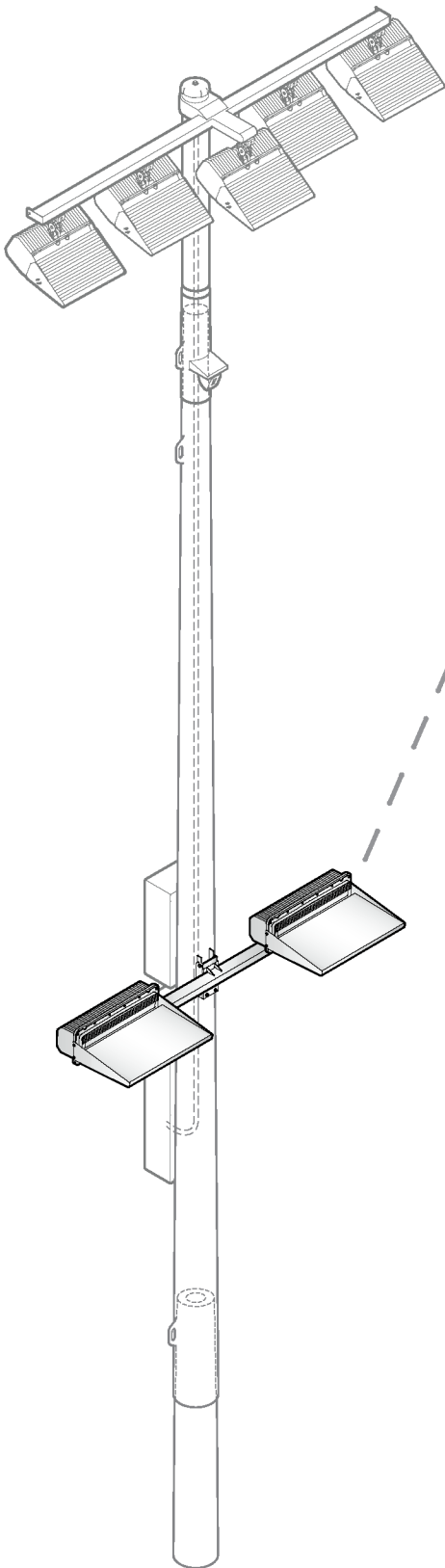
Datasheet: **SportsCluster® Lighting System**

TLC for LED® Poletop Luminaire Assembly



Datasheet: **Light-Structure System™**

Luminaire and Driver Components – TLC-BT-575



Luminaire Data

Weight (luminaire)	34 lb (15 kg)
UL listing number	E338094
UL Listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
Ingress protection, luminaire	IP65
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL, IEC ambient temperature rating, luminaire	50°C (122°F)

Photometric Characteristics

Projected lumen maintenance per IESTM-21-11	
L90 (13.5k)	>81,000 h
L80 (13.5k)	>81,000 h
L70 (13.5k)	>81,000 h
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
Lumens¹	52,000

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.

All components from foundation to poletop are designed to work together in Light-Structure System™ to ensure reliable, trouble-free operation.

Datasheet: **Light-Structure System™**

Luminaire and Driver Components – TLC-BT-575

Driver Data

Electrical Data

Rated wattage¹

Per driver 575 W

Per luminaire 575 W

Number of luminaires per driver 1

Starting (inrush) current <40 A, 256 µs

Fuse rating 15 A

UL, IEC ambient temperature rating, electrical components enclosure 50°C (122°F)

Ingress protection, electrical components enclosure IP54

Efficiency 95%

	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
Max operating current² per luminaire	3.48 A	3.35 A	3.16 A	3.03 A	2.90 A	2.51 A	2.01 A	1.83 A	1.74 A	1.68 A	1.45 A

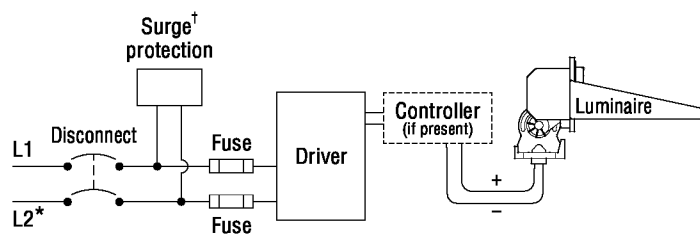
Footnotes:

- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes

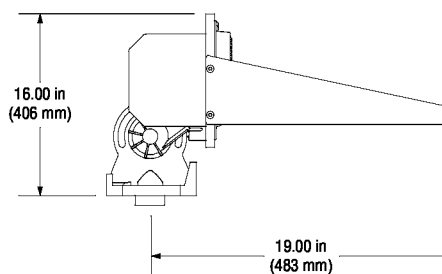
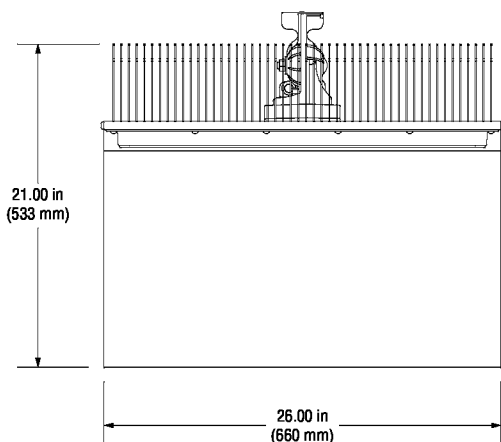
1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.

Typical Wiring



* If L2 (com) is neutral then not switched or fused.

† Not present if indoor installation.



Datasheet: TLC-LED-900 Luminaire and Driver

Luminaire Data

Weight (luminaire)	40 lb (18 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL, IEC ambient temperature rating, luminaire	50°C (122°F)

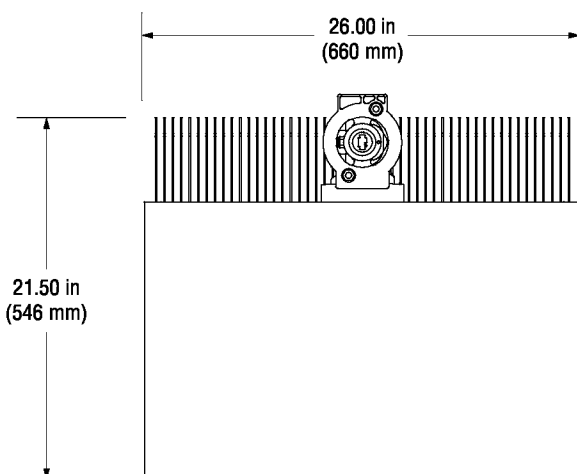
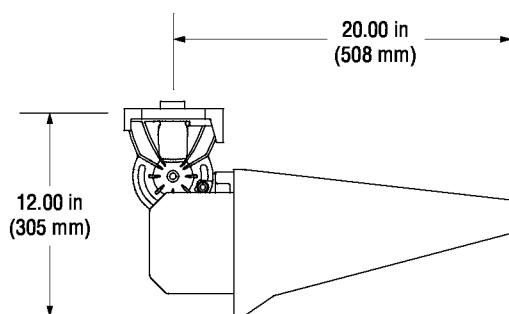
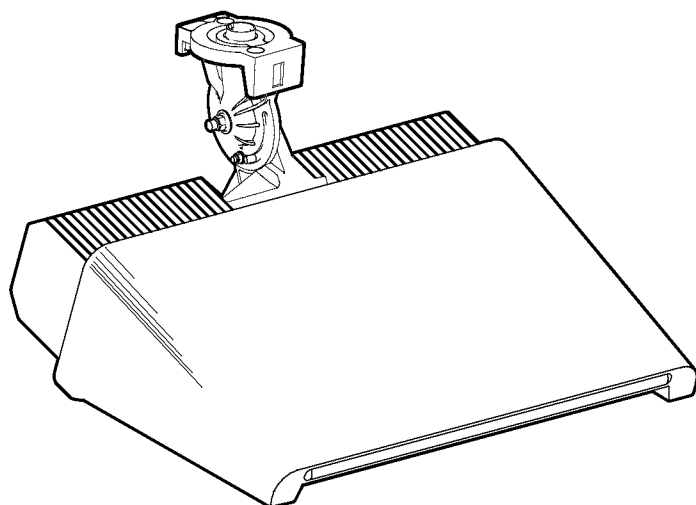
Photometric Characteristics

Projected lumen maintenance per IES TM-21-11

L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens ¹	89,600
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.



Datasheet: TLC-LED-900 Luminaire and Driver

Driver Data

Electrical Data

Rated wattage ¹	
Per driver	890 W
Per luminaire	890 W
Number of luminaires per driver	1
Starting (inrush) current	<40 A, 256 μ s
Fuse rating	15 A
UL, IEC ambient temperature rating, electrical components enclosure	50°C (122°F)
Ingress protection, electrical components enclosure	IP54
Efficiency	95%
Dimming mode	optional
Range, energy consumption	25 – 100%
Range, light output	30 – 100%
Flicker	<2%
Total harmonic distortion (THD) at full output	<20%

	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
Max operating current per luminaire ²	5.50 A	5.29 A	5.00 A	4.78 A	4.58 A	3.97 A	3.17 A	2.90 A	2.75 A	2.65 A	2.29 A

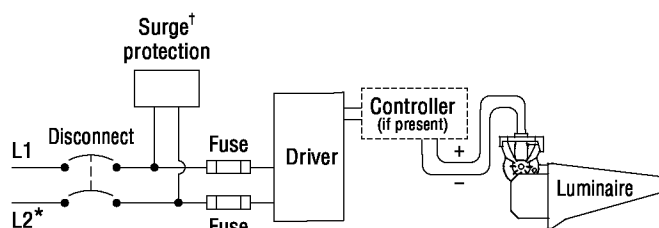
Footnotes:

- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.

Typical Wiring

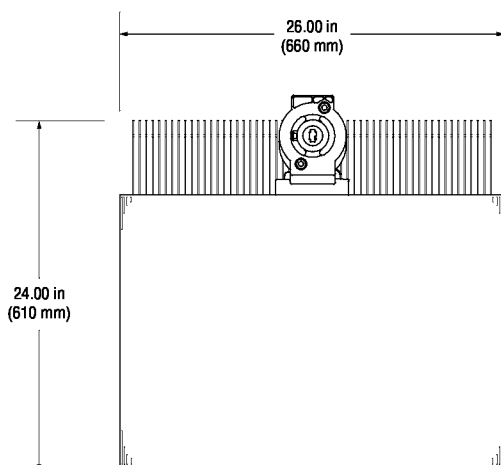
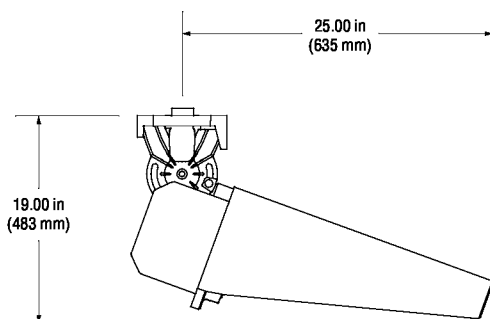
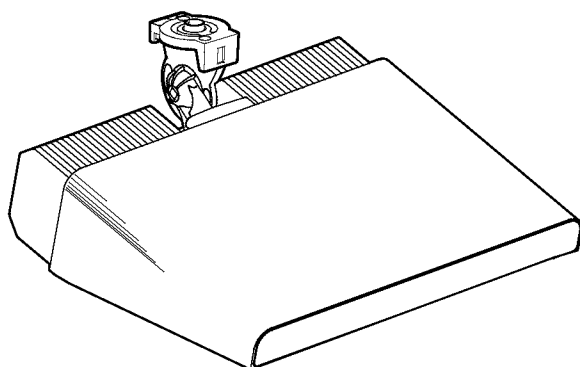


* If L2 (com) is neutral then not switched or fused.

† Not present if indoor installation.



Datasheet: TLC-LED-1200 Luminaire and Driver



Luminaire Data

Weight (luminaire)	45 lb (20 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL, IEC ambient temperature rating, luminaire	50°C (122°F)

Photometric Characteristics

Projected lumen maintenance per IES TM-21-11

L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens ¹	136,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.

Datasheet: **TLC-LED-1200 Luminaire and Driver**

Driver Data

Electrical Data

Rated wattage ¹	
Per driver	1170 W
Per luminaire	1170 W
Number of luminaires per driver	1
Starting (inrush) current	<40 A, 256 μ s
Fuse rating	15 A
UL, IEC ambient temperature rating, electrical components enclosure	50°C (122°F)
Ingress protection, electrical components enclosure	IP54
Efficiency	95%
Dimming mode	optional
Range, energy consumption	14 – 100%
Range, light output	19 – 100%
Flicker	<2%
Total harmonic distortion (THD) at full output	<20%

	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
Max operating current per luminaire²	7.26 A	6.98 A	6.60 A	6.31 A	6.05 A	5.24 A	4.18 A	3.82 A	3.63 A	3.50 A	3.03 A

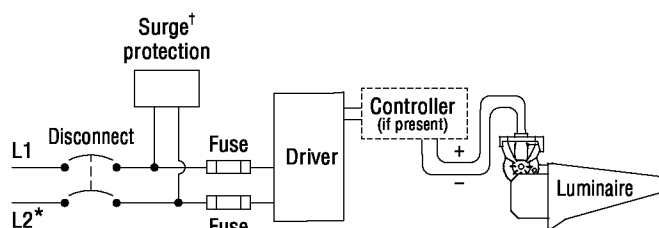
Footnotes:

- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.

Typical Wiring

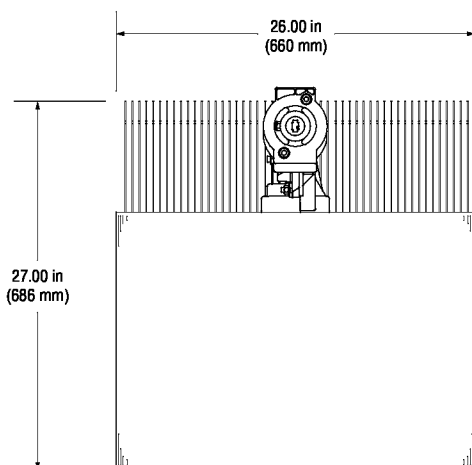
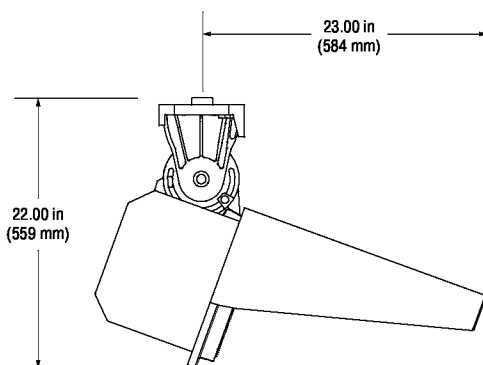
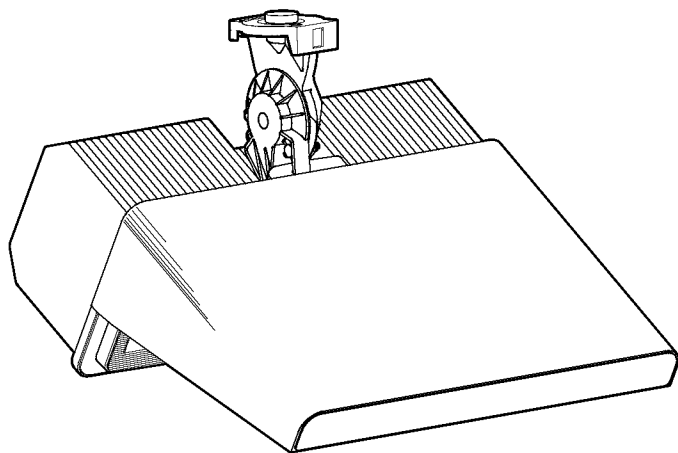


* If L2 (com) is neutral then not switched or fused.

† Not present if indoor installation.



Datasheet: TLC-LED-1500 Luminaire and Driver



Luminaire Data

Weight (luminaire)	67 lb (30 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Impact rating	IK07
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL, IEC ambient temperature rating, luminaire	50°C (122°F)

Photometric Characteristics

Projected lumen maintenance per IES TM-21-11

L90 (20k)	>120,000 h
L80 (20k)	>120,000 h
L70 (20k)	>120,000 h
Lumens ¹	160,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	7-step MacAdam Ellipse

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.

Datasheet: TLC-LED-1500 Luminaire and Driver

Driver Data

Electrical Data

Rated wattage ¹	
Per driver	1430 W
Per luminaire	1430 W
Number of luminaires per driver	1
Starting (inrush) current	<40 A, 256 μ s
Fuse rating	15 A
UL, IEC ambient temperature rating, electrical components enclosure	50°C (122°F)
Ingress protection, electrical components enclosure	IP54
Efficiency	95%
Dimming mode	optional
Range, energy consumption	12 – 100%
Range, light output	17 – 100%
Flicker	<2%
Total harmonic distortion (THD) at full output	<20%

	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
Max operating current per luminaire ²	8.86 A	8.52 A	8.06 A	7.71 A	7.39 A	6.40 A	5.11 A	4.67 A	4.43 A	4.27 A	3.70 A

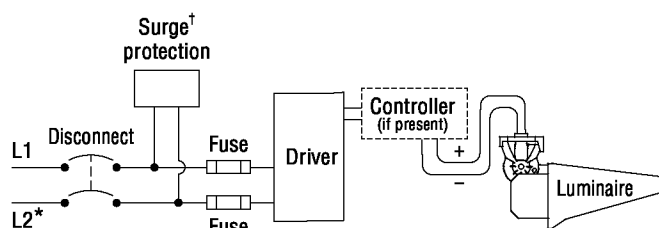
Footnotes:

- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.

Typical Wiring



* If L2 (com) is neutral then not switched or fused.

† Not present if indoor installation.

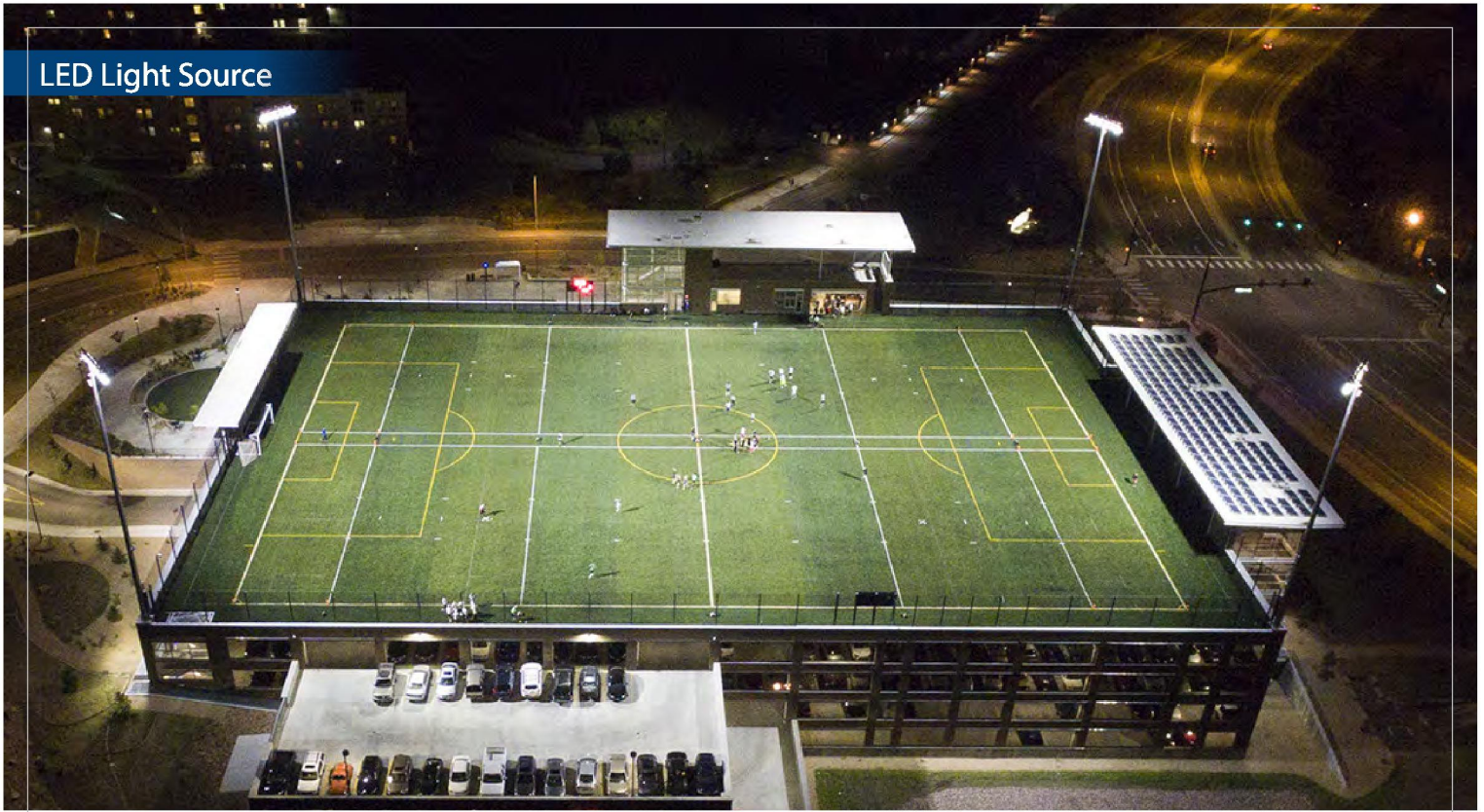




B. COLORADO PROJECTS



LED Light Source



Alpine Field – University of Colorado Colorado Springs

Colorado Springs, Colorado, USA

When the University of Colorado Colorado Springs (UCCS) installed new lights at Alpine Field—a new multi-purpose athletic venue on campus—the goal was to expand opportunities to use the field for football, soccer, rugby, and lacrosse. But almost immediately after the field started to be used at night, there was a major problem with glare from Alpine Field's prior lighting equipment spilling into the surrounding neighborhood. When the company that installed the lights failed to develop a solution, UCCS called on Musco.

Using the original 90-foot poles at each corner of the 85,000-square-foot field, Musco replaced the previous lights with its innovative SportsCluster Green™ LED system. The new lights retained the same light levels on Alpine Field, but its customized optics directed the light with pinpoint precision, eliminating the glare that had been spilling into surrounding homes. Additionally, the new system provided a cleaner and more uniform light at Alpine Field, while also cutting energy consumption by 53 percent.

Efficient Solutions

For the budget

- 30 kW energy consumption- \$2.70 to operate per hour*
- 10- year life cycle operating savings of \$20,000 in maintenance and energy costs
- Eliminates maintenance on the lighting system with a 10-year parts and labor warranty, backed by a team of technicians

For the environment

- Reduces energy consumption by 53 percent and nearly 71 metric tons of CO2 when compared to the prior lighting equipment
- Eases neighborhood complaints with a substantial reduction of glare

*cost estimated at \$.09 per kilowatt hour

"We were very pleased with Musco's response. Their representative was down here within several days, we explained the problem, and they engineered a solution using Musco's LED technology."

*— Gary Reynolds
Assistant Vice Chancellor for Administration
University of Colorado Colorado Springs*



Visit www.musco.com/news/alpine.html or scan with a smart device to watch a video about this project

MUSCO
Lighting
We Make It Happen.
www.musco.com

Project Installations: Colorado*

Baseball / Softball

Barnes Field Softball Complex
Loveland, Colorado

Brighton High School 
Brighton, Colorado

City of Durango at Fort Lewis College
Durango, Colorado


Colorado School of Mines
Golden, Colorado

Ft. Carson Softball
Colorado Springs, Colorado


Island Grove Fields 
Greeley, Colorado

Long Lake Ranch
Arvada, Colorado


Olympic Park Softball 
Aurora, Colorado


Prairie View High School 
Henderson, Colorado

Ray Ross Park
Lakewood, Colorado

Riverdale Ballfield 
Brighton, Colorado

Riverdale Ballfield Park 
Thornton, Colorado

Riverdale Ridge 
Brighton, Colorado

Rolland Moore Park 
Fort Collins, Colorado

Schafer Athletic Complex
Denver, Colorado

Southeast Community Park
Fort Collins, Colorado

Twin Rivers Community Park
Greeley, Colorado


USAFA Softball
USAF Academy, Colorado

Vanetta Field
Steamboat Springs, Colorado

Weld Central High School 
Keenesburg, Colorado


Widefield Park
Colorado Springs, Colorado

Multi-Purpose

All City Field 
Denver, Colorado

APS Stadium   
Aurora, Colorado


Erie Sports Park
Erie, Colorado


Kit Carson School 
Kit Carson, Colorado

Plainview Junior Senior High School
Sheridan Lake, Colorado

University of Northern Colorado
Greely, Colorado

Football

Brighton Thornton 
Thornton, Colorado


Colorado State University 
Hughes Stadium
Fort Collins, Colorado


Colorado State University
Pueblo, Colorado

Denver Broncos Field House 
Denver Broncos Indoor Training Facility – NFL
Englewood, Colorado

Evie Dennis High School 
Denver, Colorado


Falcon Stadium
Air Force Academy
Colorado Springs, Colorado

James Irwin Charter High School 
Colorado Springs, Colorado


Las Animas High School 
Las Animas, Colorado


Lincoln High School 
Denver, Colorado

Manitou Springs High School 
Manitou Springs, Colorado


Montbello High School 
Denver, Colorado

Pine Creek High School
Colorado Springs, Colorado

Rangeview High School 
Aurora, Colorado

Riverdale Ridge 
Brighton, Colorado

Severance High School  
Severance, Colorado

Shea Stadium** 
Highlands Ranch, Colorado

Steamboat Springs High School  
Steamboat Springs, Colorado

Stutler Bowl
Greenwood Village, Colorado

University of Colorado
Folsom Field
Boulder, Colorado

Valor Christian Stadium
Denver, Colorado

Windsor High School  
Windsor, Colorado

Tennis

Brighton High School 
Brighton, Colorado


Riverdale Ridge 
Brighton, Colorado


Valor Christian
Denver, Colorado

Venezia Park 
Colorado Springs, Colorado

Soccer

Aurora Sports Park
Aurora, Colorado

Boys and Girls Clubs of Metro Denver 
Commerce City, Colorado


Colorado College 
Stewart Soccer Stadium
Colorado Springs, Colorado

Colorado Mesa University
Grand Junction, Colorado

Colorado State University
Pueblo, Colorado

Delta Youth Sports Complex
Delta, Colorado

Dicks Sporting Goods Park
Commerce City, Colorado

Mountain View High School 
Loveland, Colorado

Rocky Mountain Deaf School** 
Denver, Colorado


UCCS Alpine Field 
Colorado Springs, Colorado

UCCS Mountain Lion Stadium
Colorado Springs, Colorado

Weidner Field** 
Home of the Colorado Springs Switchbacks
Colorado Springs, Colorado

Weld County District 6 Soccer Pitch
Greeley, Colorado

Other


Broncos Stadium at Mile High 
NFL – Denver Broncos
Denver, Colorado


Centennial Skate Park 
Greeley, Colorado

Coors Field 
MLB - Colorado Rockies
Denver, Colorado

Keystone Ski Resort
Keystone, Colorado

Lacrosse Stadium
Air Force Academy
Colorado Springs, Colorado

University of Colorado 
Coors Event Center
Basketball / Volleyball
Boulder, Colorado

University of Denver 
Magness Arena
Basketball / Hockey
Denver, Colorado

University of Denver 
Peter Barton Stadium
Lacrosse
Denver, Colorado

Vail Ski Resort
Vail, Colorado



C. LIGHTING DESIGN

Canyon View Park Soccer

Grand Junction, CO

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S4	70'	70'	5	TLC-LED-1500	7.15 kW	A
		70'	1	TLC-LED-900	0.89 kW	A
4			24		32.16 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Rattlesnake Field	32.16 kW	24

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	20
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	4

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Rattlesnake Field Spill	Horizontal Illuminance	0	0	0.01	0.00		A	24
Rattlesnake Field Spill	Max Candela Metric	460	6.97	910	130.47	65.95	A	24
Rattlesnake Field Spill	Max Vertical Illuminance Metric	0.01	0	0.03	0.00		A	24
Rattlesnake Field	Horizontal Illuminance	31.9	21	40	1.91	1.52	A	24

From Hometown to Professional



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
4	TOTALS					24	24	0

Canyon View Park Soccer

Grand Junction, CO

GRID SUMMARY

Name: Rattlesnake Field
Size: 360' x 225'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

Entire Grid	
Scan Average:	31.93
Maximum:	40
Minimum:	21
Avg / Min:	1.54
Max / Min:	1.91
UG (adjacent pts):	1.65
No. of Points:	96

LUMINAIRE INFORMATION

Applied Circuits: A
No. of Luminaires: 24
Total Load: 32.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

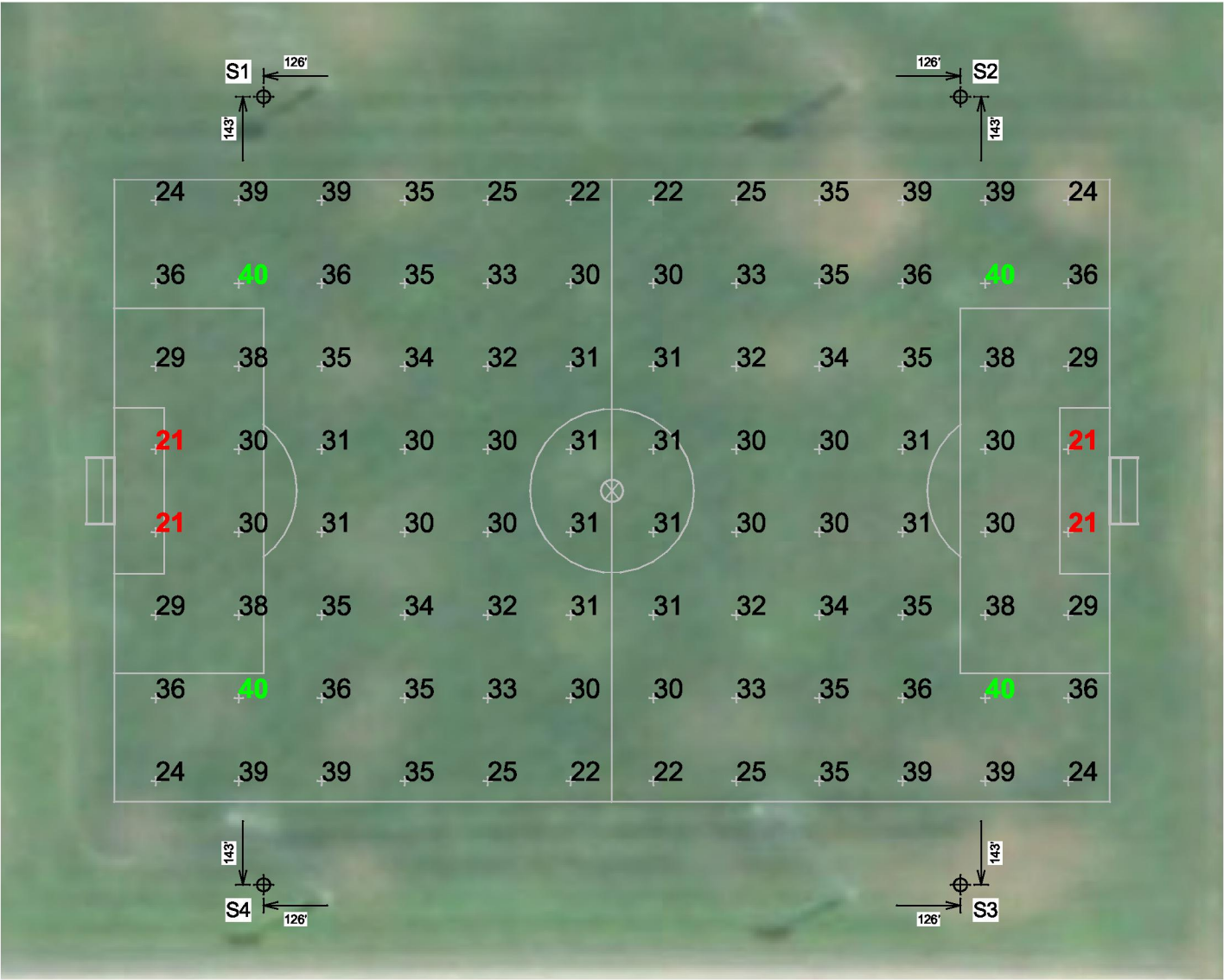
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

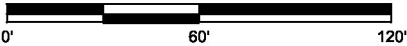
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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SCALE IN FEET 1 : 60



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
4	TOTALS					24	24	0

Canyon View Park Soccer

Grand Junction,CO

GRID SUMMARY

Name: Rattlesnake Field Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

Entire Grid
Scan Average: 0.0041
Maximum: 0.01
Minimum: 0.00
No. of Points: 71

LUMINAIRE INFORMATION

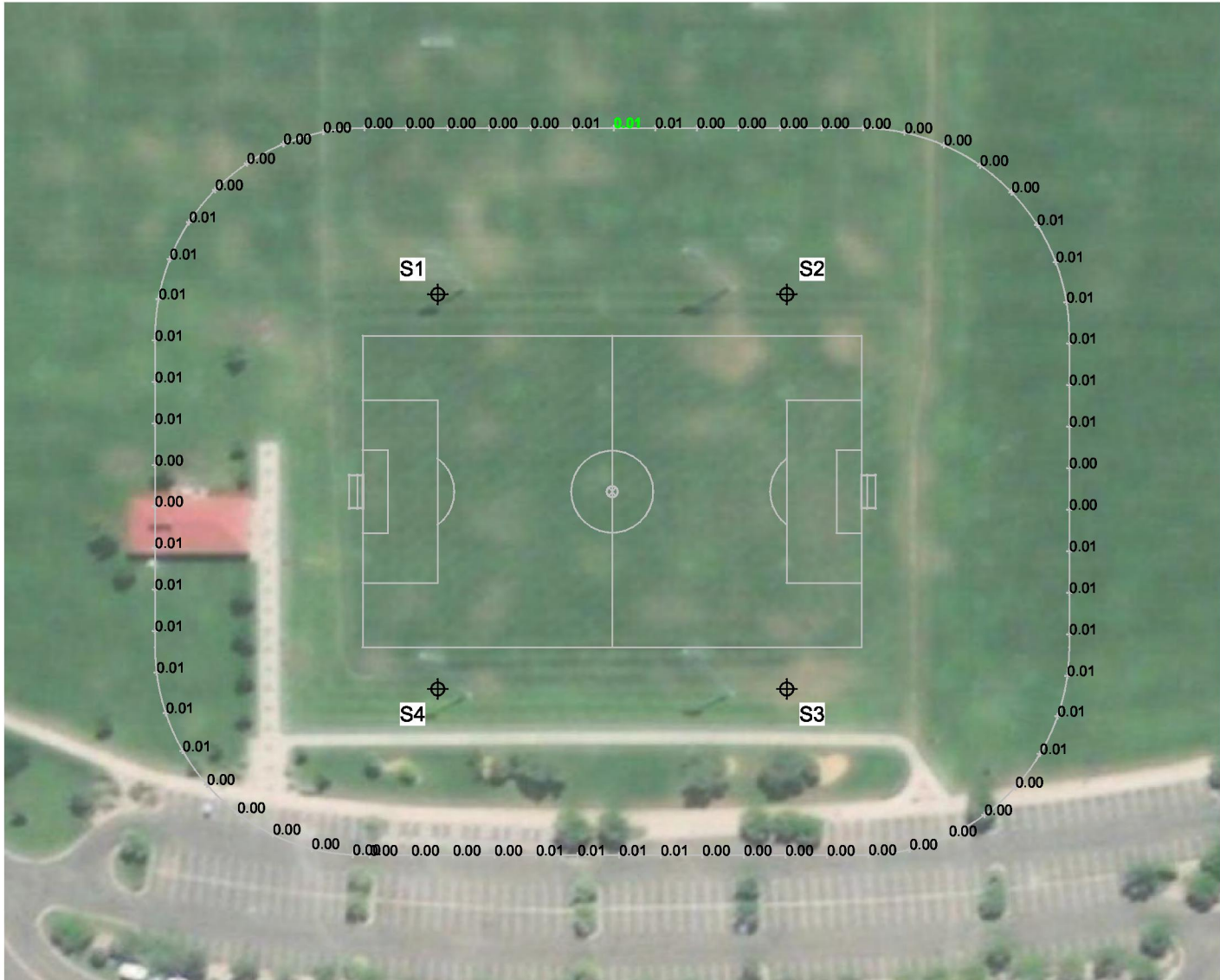
Applied Circuits: A
No. of Luminaires: 24
Total Load: 32.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 120



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
4	TOTALS					24	24	0

Canyon View Park Soccer
Grand Junction, CO

GRID SUMMARY

Name: Rattlesnake Field Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

Entire Grid
Scan Average: 0.0125
Maximum: 0.03
Minimum: 0.00
No. of Points: 71

LUMINAIRE INFORMATION

Applied Circuits: A
No. of Luminaires: 24
Total Load: 32.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 120



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1500	5	5	0
4	TOTALS					24	24	0

Canyon View Park Soccer
Grand Junction, CO

GRID SUMMARY

Name: Rattlesnake Field Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

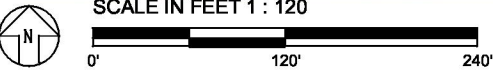
CANDELA (PER FIXTURE)
Entire Grid
Scan Average: 459.7027
Maximum: 909.91
Minimum: 6.97
No. of Points: 71
LUMINAIRE INFORMATION
Applied Circuits: A
No. of Luminaires: 24
Total Load: 32.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

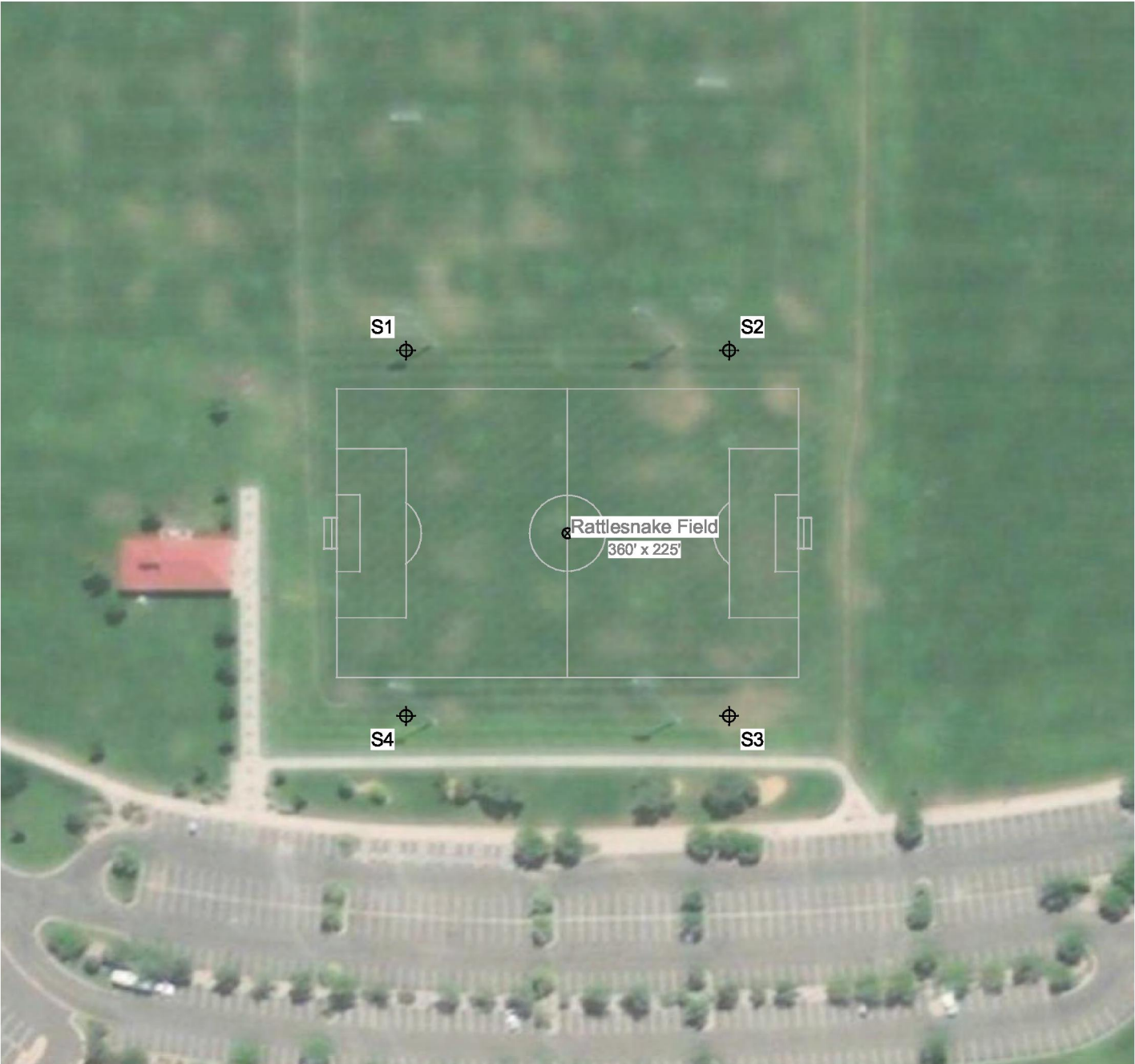
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗





Canyon View Park Soccer

Grand Junction, CO

EQUIPMENT LAYOUT

INCLUDES:

· Rattlesnake Field

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
4	S1-S4	70'	-	70'	TLC-LED-900	1
				70'	TLC-LED-1500	5
4	TOTALS					24

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (50)	220 (50)	240 (50)	277 (50)	347 (50)	380 (50)	480 (50)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3



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SCALE IN FEET 1 : 120



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

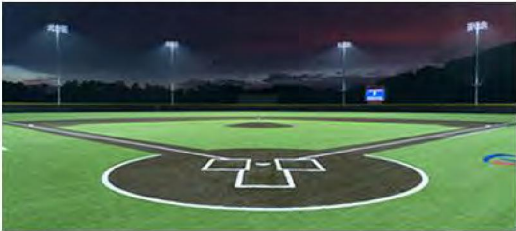
Canyon View Park Softball

Grand Junction, CO

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1-A2	60'	60'	2	TLC-LED-1500	2.86 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
A3-A4	60'	60'	2	TLC-LED-1500	2.86 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
A5-A6	60'	60'	2	TLC-LED-1500	2.86 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
A7-A8	60'	60'	2	TLC-LED-1500	2.86 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
B1-B2	70'	70'	1	TLC-LED-1200	1.17 kW	A
		70'	6	TLC-LED-1500	8.58 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
B3-B4	70'	70'	1	TLC-LED-1200	1.17 kW	B
		70'	6	TLC-LED-1500	8.58 kW	B
		16'	2	TLC-BT-575	1.15 kW	B
B5-B6	70'	70'	1	TLC-LED-1200	1.17 kW	C
		70'	6	TLC-LED-1500	8.58 kW	C
		16'	2	TLC-BT-575	1.15 kW	C
B7-B8	70'	70'	1	TLC-LED-1200	1.17 kW	D
		70'	6	TLC-LED-1500	8.58 kW	D
		16'	2	TLC-BT-575	1.15 kW	D
C1-C2	70'	70'	2	TLC-LED-1500	2.86 kW	A
		70'	2	TLC-LED-900	1.78 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
C3-C4	70'	70'	2	TLC-LED-1500	2.86 kW	B
		70'	2	TLC-LED-900	1.78 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
C5-C6	70'	70'	2	TLC-LED-1500	2.86 kW	C
		70'	2	TLC-LED-900	1.78 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
C7-C8	70'	70'	2	TLC-LED-1500	2.86 kW	D
		70'	2	TLC-LED-900	1.78 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
24			136		156.40 kW	

From Hometown to Professional



Canyon View Park Softball

Grand Junction, CO

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Liberty Cap Field	39.1 kW	34
B	Bookcliff Field	39.1 kW	34
C	Mt. Garfield Field	39.1 kW	34
D	Thunder Mountain Field	39.1 kW	34

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	80
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	16
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	8
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	32

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Bookcliff Field (Infield)	Horizontal Illuminance	50.5	37	61	1.68	1.36	B	34
Bookcliff Field (Outfield)	Horizontal Illuminance	30.3	19	45	2.46	1.59	B	34
Complex Spill	Horizontal	0	0	0.01	0.00		A,B,C,D	136
Complex Spill	Max Candela (by Fixture)	300	19.1	716	37.46	15.71	A,B,C,D	136
Complex Spill	Max Vertical Illuminance Metric	0.01	0	0.02	52.19		A,B,C,D	136
Liberty Cap Field (Infield)	Horizontal Illuminance	51.4	40	61	1.53	1.28	A	34
Liberty Cap Field (Outfield)	Horizontal Illuminance	30.1	19	46	2.46	1.58	A	34
Mt Garfield Field (Infield)	Horizontal Illuminance	51.1	38	61	1.58	1.35	C	34
Mt Garfield Field (Outfield)	Horizontal Illuminance	30.3	19	46	2.45	1.59	C	34
Thunder Mountain Field (Infield)	Horizontal Illuminance	51.6	38	63	1.64	1.36	D	34
Thunder Mountain Field (Outfield)	Horizontal Illuminance	30.4	19	47	2.43	1.60	D	34

From Hometown to Professional



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
2	B1-B2	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
2	C1-C2	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY

Name: Liberty Cap Field
Size: 315'/315'/315' - basepath 70'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	51.39	30.09
Maximum:	61	46
Minimum:	40	19
Avg / Min:	1.29	1.60
Guaranteed Max / Min:	2	2.5
Max / Min:	1.53	2.46
UG (adjacent pts):	1.39	1.59
CU:	0.73	
No. of Points:	25	203

LUMINAIRE INFORMATION

Applied Circuits: A
No. of Luminaires: 34
Total Load: 39.1 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

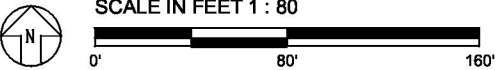
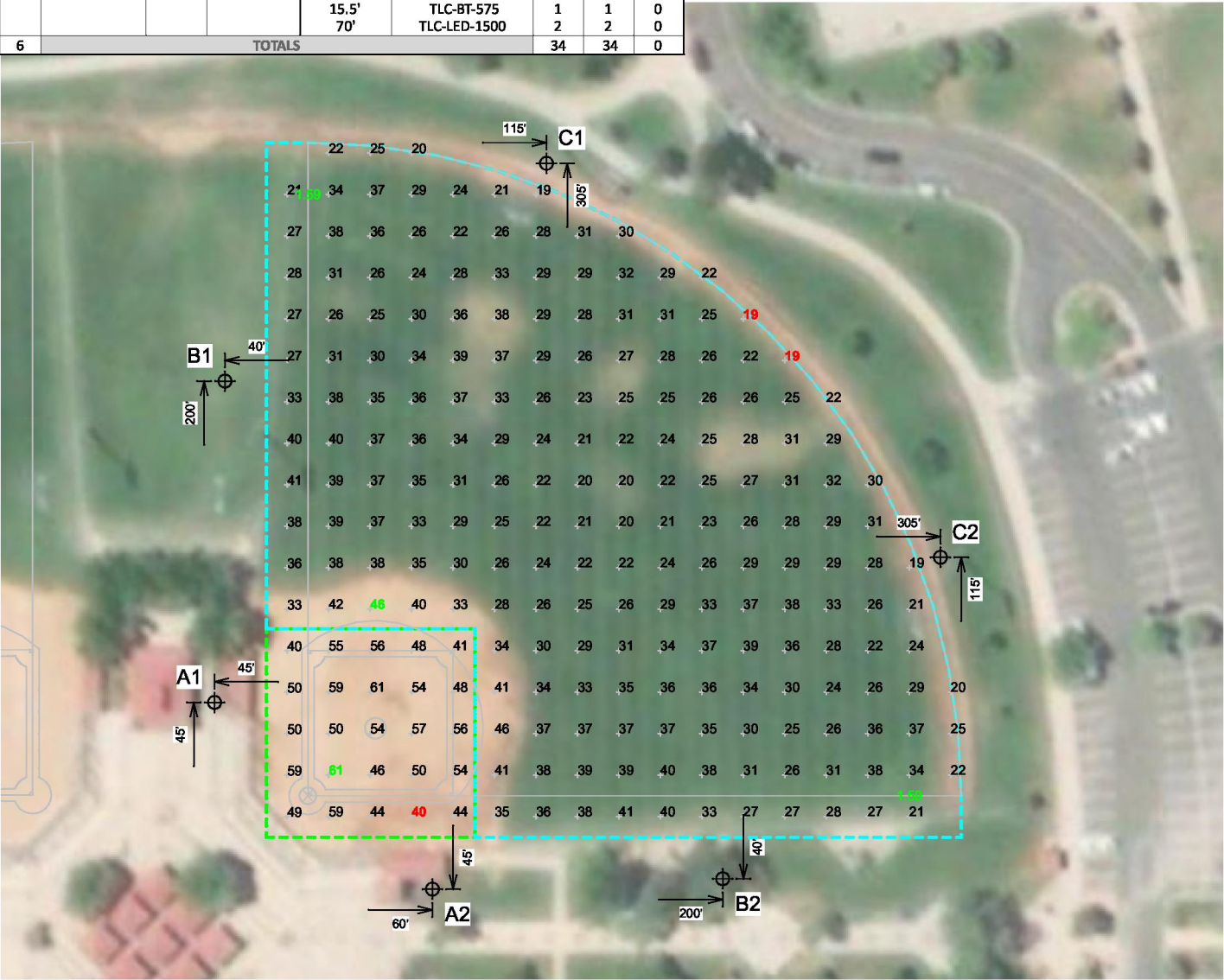
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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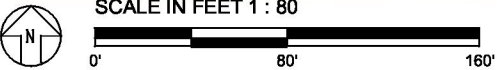
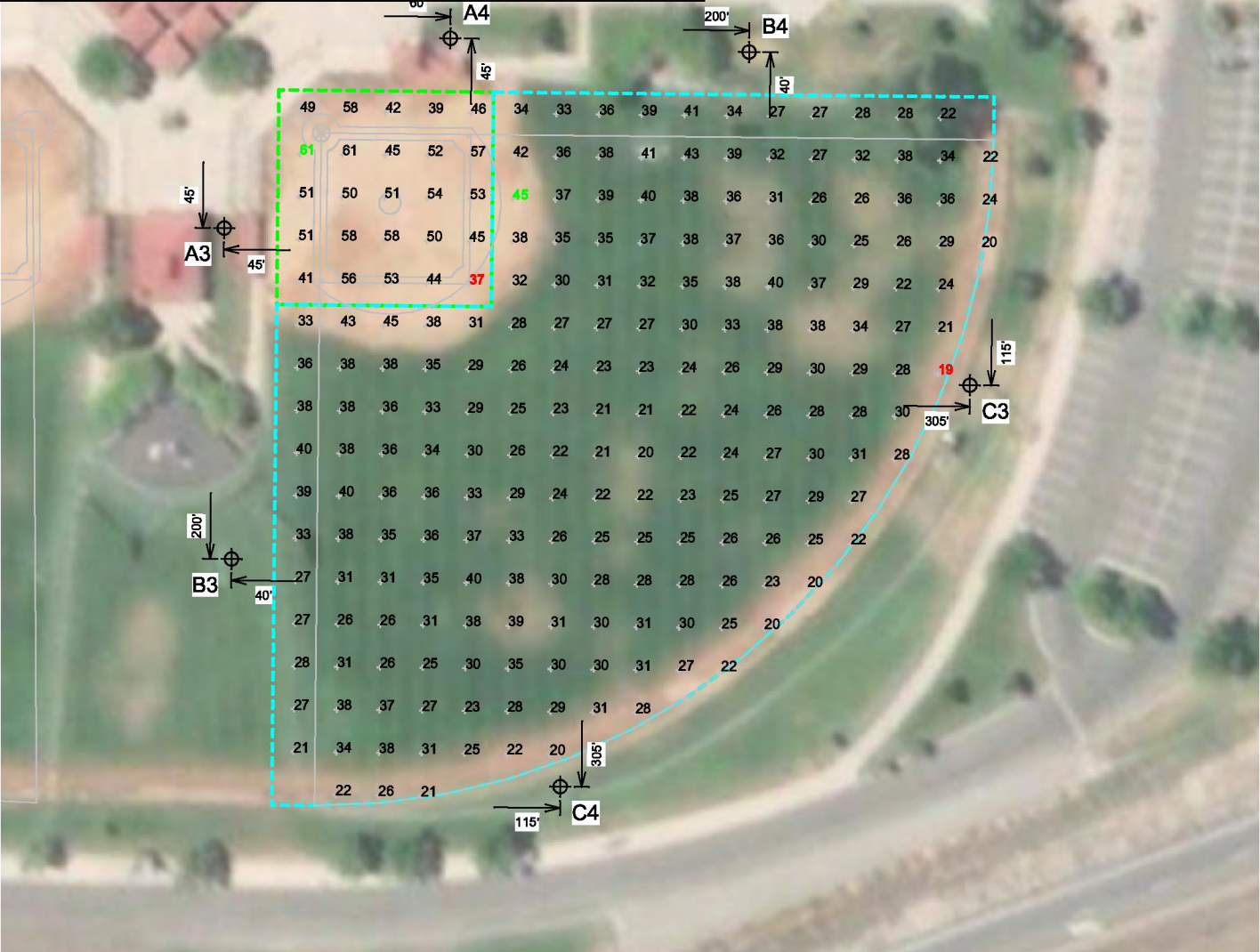
ILLUMINATION SUMMARY



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A3-A4	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
2	B3-B4	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
2	C3-C4	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0



ENGINEERED DESIGN By: Nathan Brown · File #192421C · 08-Mar-21

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY

Name:	Bookcliff Field
Size:	315'/315'/315' - basepath 70'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES		
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	50.46	30.28
Maximum:	61	45
Minimum:	37	19
Avg / Min:	1.38	1.64
Guaranteed Max / Min:	2	2.5
Max / Min:	1.68	2.46
UG (adjacent pts):	1.39	1.63
CU:	0.73	
No. of Points:	25	203
LUMINAIRE INFORMATION		
Applied Circuits:	B	
No. of Luminaires:	34	
Total Load:	39.1 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



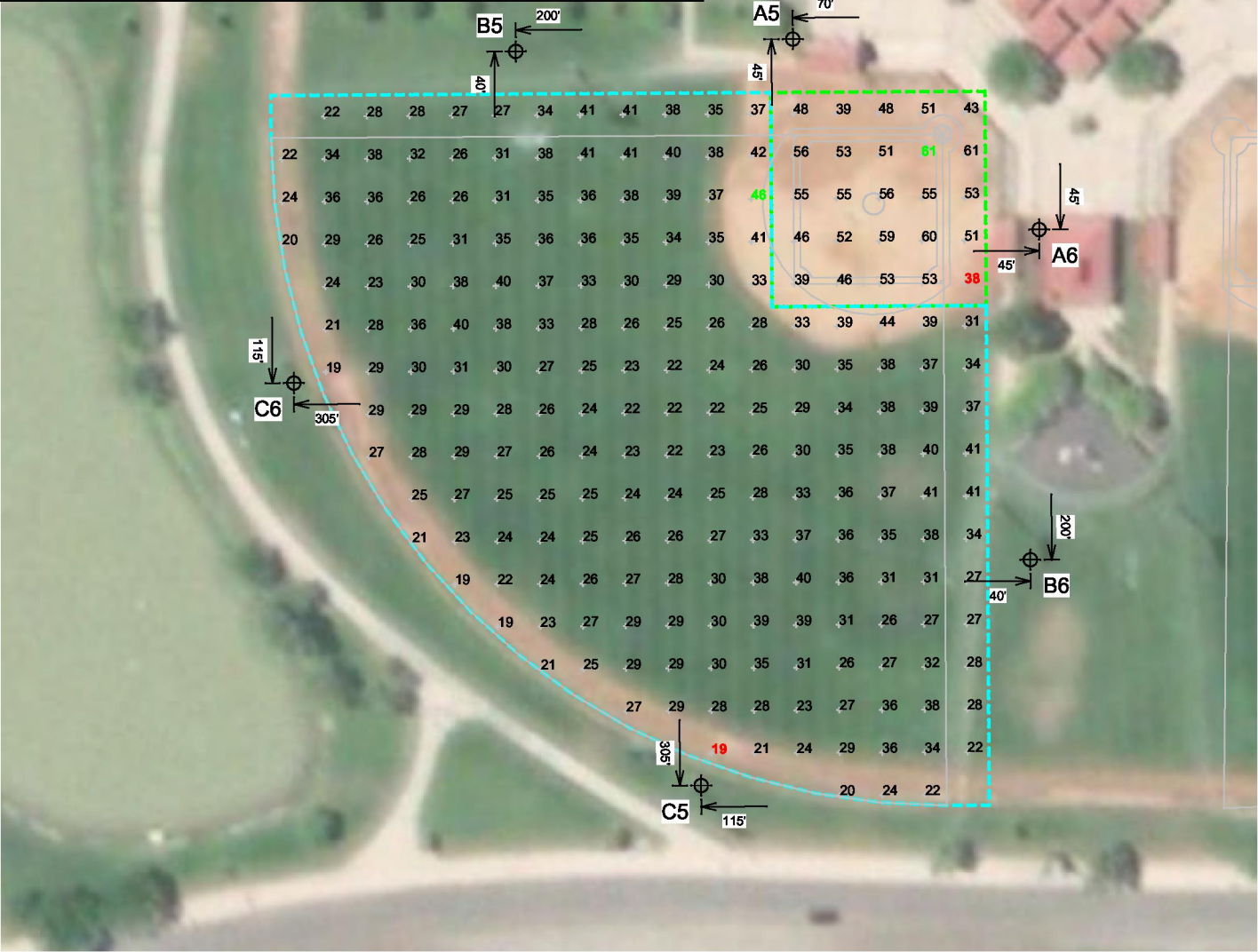
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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A5-A6	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
2	B5-B6	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
2	C5-C6	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0



Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Mt Garfield Field
Size: 315'/315'/315' - basepath 70'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES		
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	51.14	30.25
Maximum:	61	46
Minimum:	38	19
Avg / Min:	1.33	1.61
Guaranteed Max / Min:	2	2.5
Max / Min:	1.58	2.45
UG (adjacent pts):	1.43	1.57
CU:	0.73	
No. of Points:	25	203
LUMINAIRE INFORMATION		
Applied Circuits:	C	
No. of Luminaires:	34	
Total Load:	39.1 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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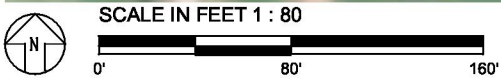
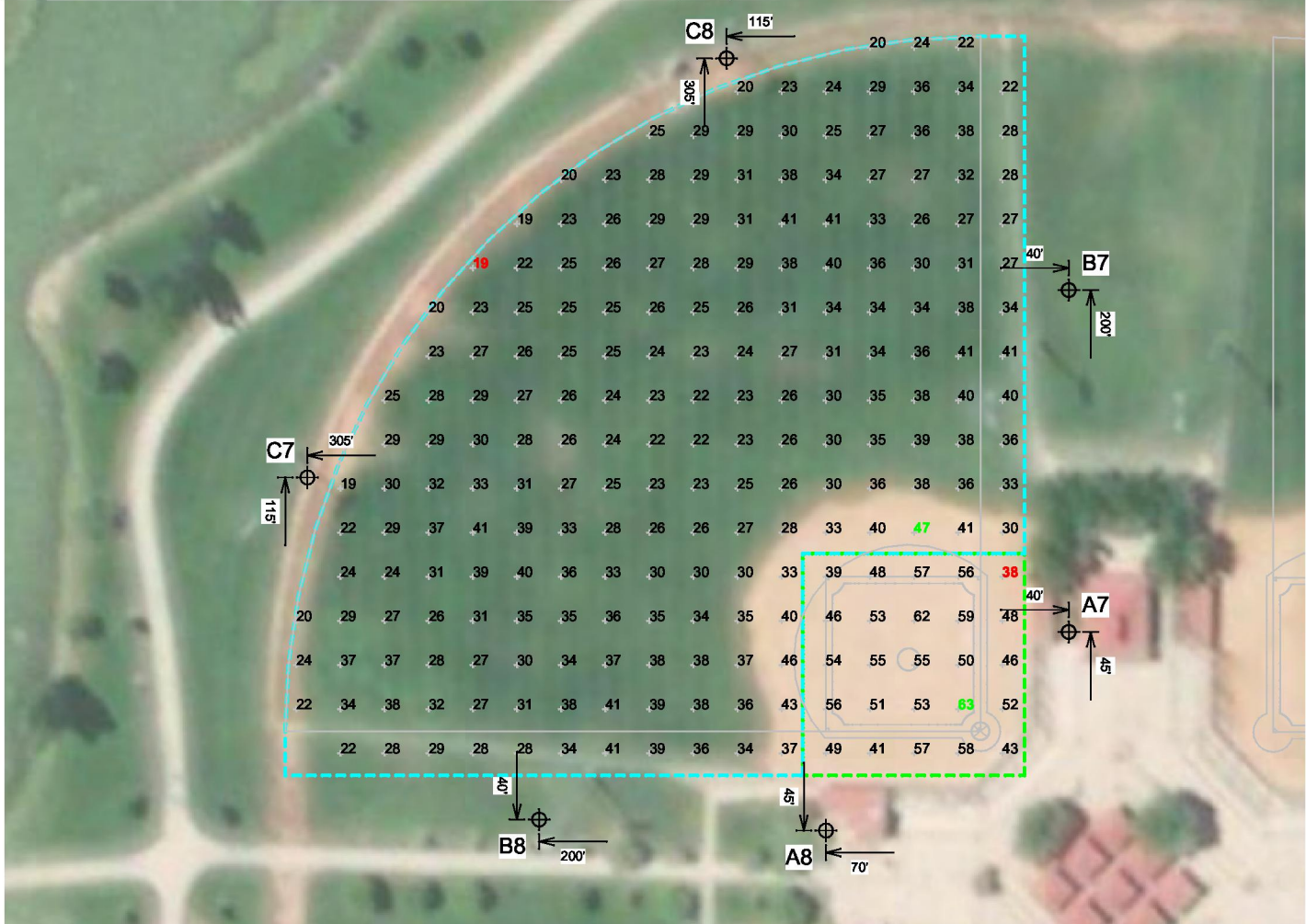
ILLUMINATION SUMMARY



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A7-A8	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
2	B7-B8	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
1	C7	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
6	TOTALS					34	34	0



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

Canyon View Park Softball
Grand Junction, CO

GRID SUMMARY

Name: Thunder Mountain Field
Size: 315'/315'/315' - basepath 70'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	51.55	30.39
Maximum:	63	47
Minimum:	38	19
Avg / Min:	1.34	1.58
Guaranteed Max / Min:	2	2.5
Max / Min:	1.64	2.43
UG (adjacent pts):	1.46	1.57
CU:	0.74	
No. of Points:	25	203

LUMINAIRE INFORMATION

Applied Circuits: D
No. of Luminaires: 34
Total Load: 39.1 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
8	A1-A8	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
8	B1-B8	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
7	C1-C7	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	-	70'	TLC-LFD-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
24	TOTALS					136	136	0

Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Complex Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

Entire Grid
Scan Average: 0.0016
Maximum: 0.01
Minimum: 0.00
No. of Points: 117

LUMINAIRE INFORMATION

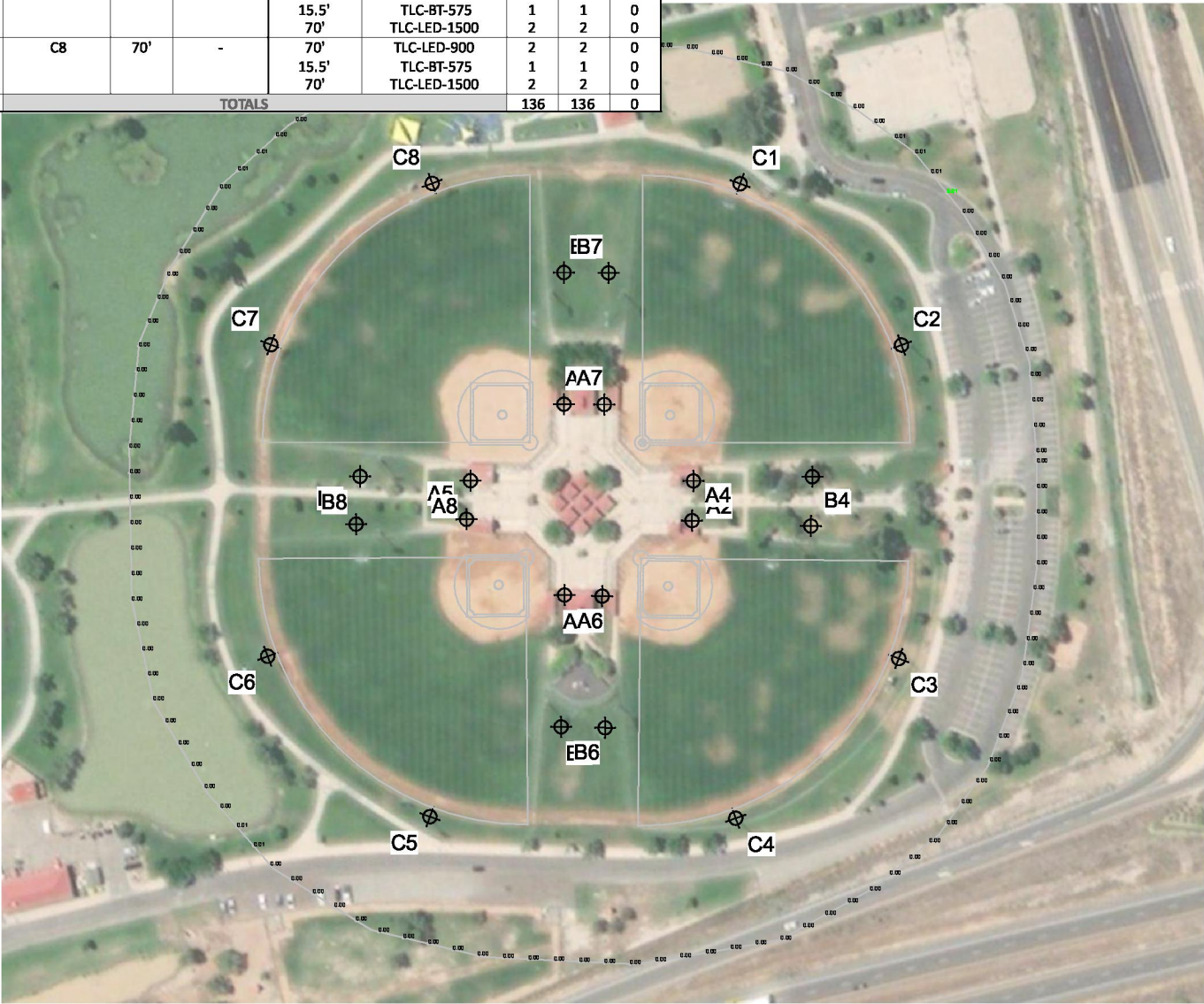
Applied Circuits: A, B, C, D
No. of Luminaires: 136
Total Load: 156.4 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200

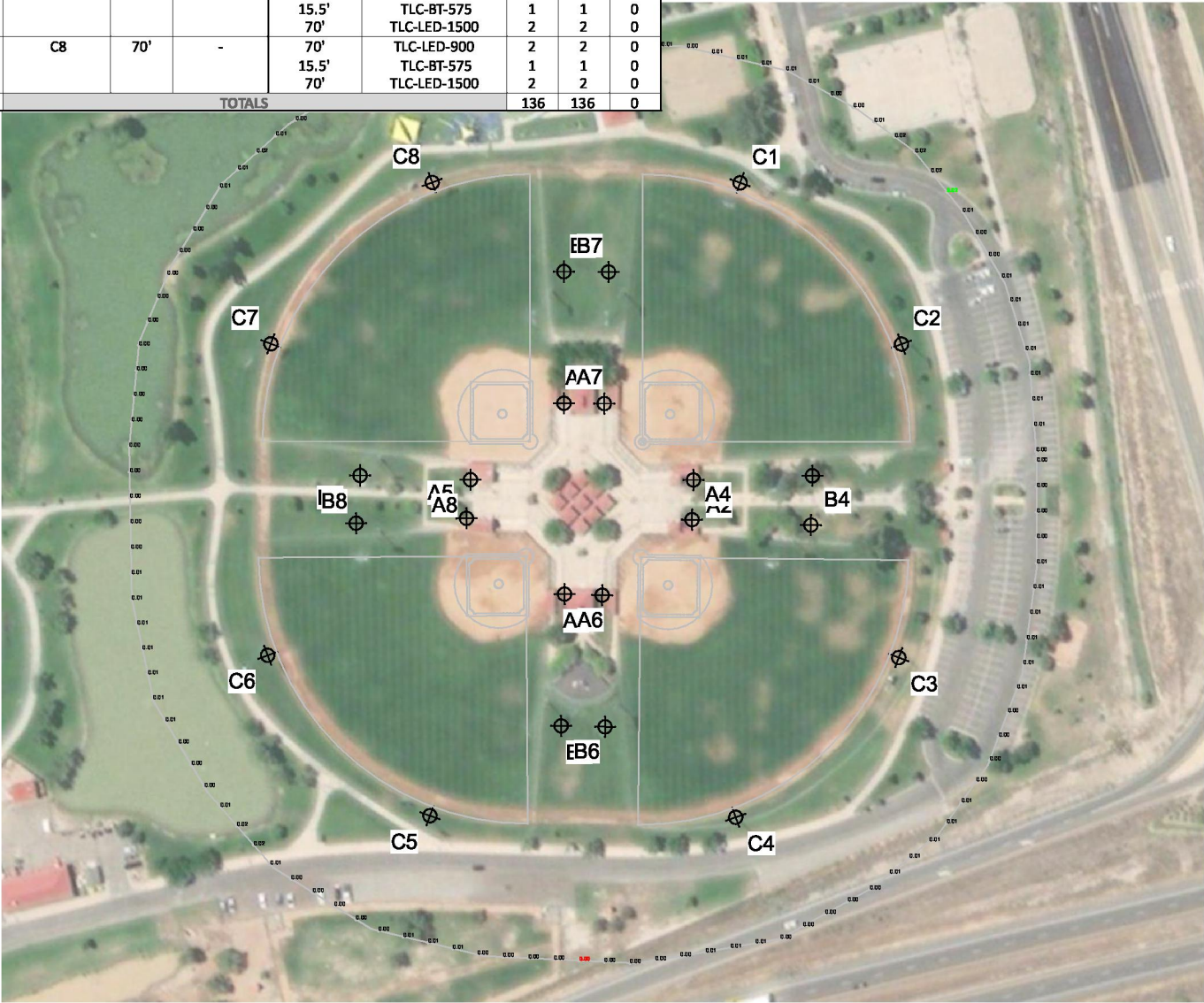


Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
8	A1-A8	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
8	B1-B8	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
7	C1-C7	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
24	TOTALS					136	136	0



Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Complex Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

Entire Grid
Scan Average: 0.0059
Maximum: 0.02
Minimum: 0.00
No. of Points: 117

LUMINAIRE INFORMATION

Applied Circuits: A, B, C, D
No. of Luminaires: 136
Total Load: 156.4 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume $\pm 3\%$ nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY



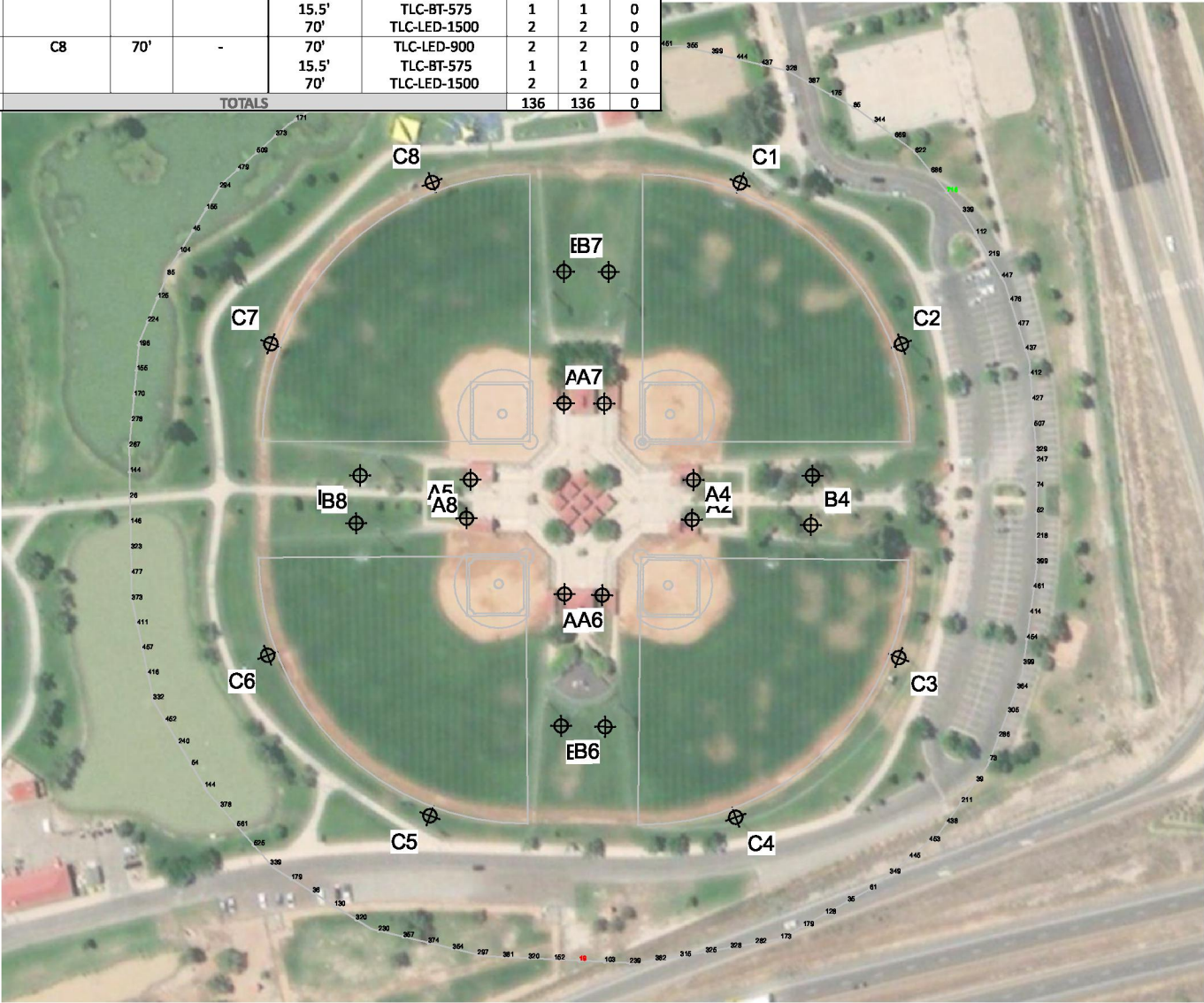
SCALE IN FEET 1 : 200



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
8	A1-A8	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1500	2	2	0
8	B1-B8	70'	-	70'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	6	6	0
7	C1-C7	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
1	C8	70'	-	70'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	2	2	0
24	TOTALS					136	136	0



Canyon View Park Softball

Grand Junction, CO

GRID SUMMARY

Name: Complex Spill
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)
Entire Grid
Scan Average: 300.2946
Maximum: 715.91
Minimum: 19.11
No. of Points: 117

LUMINAIRE INFORMATION

Applied Circuits: A, B, C, D
No. of Luminaires: 136
Total Load: 156.4 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume $\pm 3\%$ nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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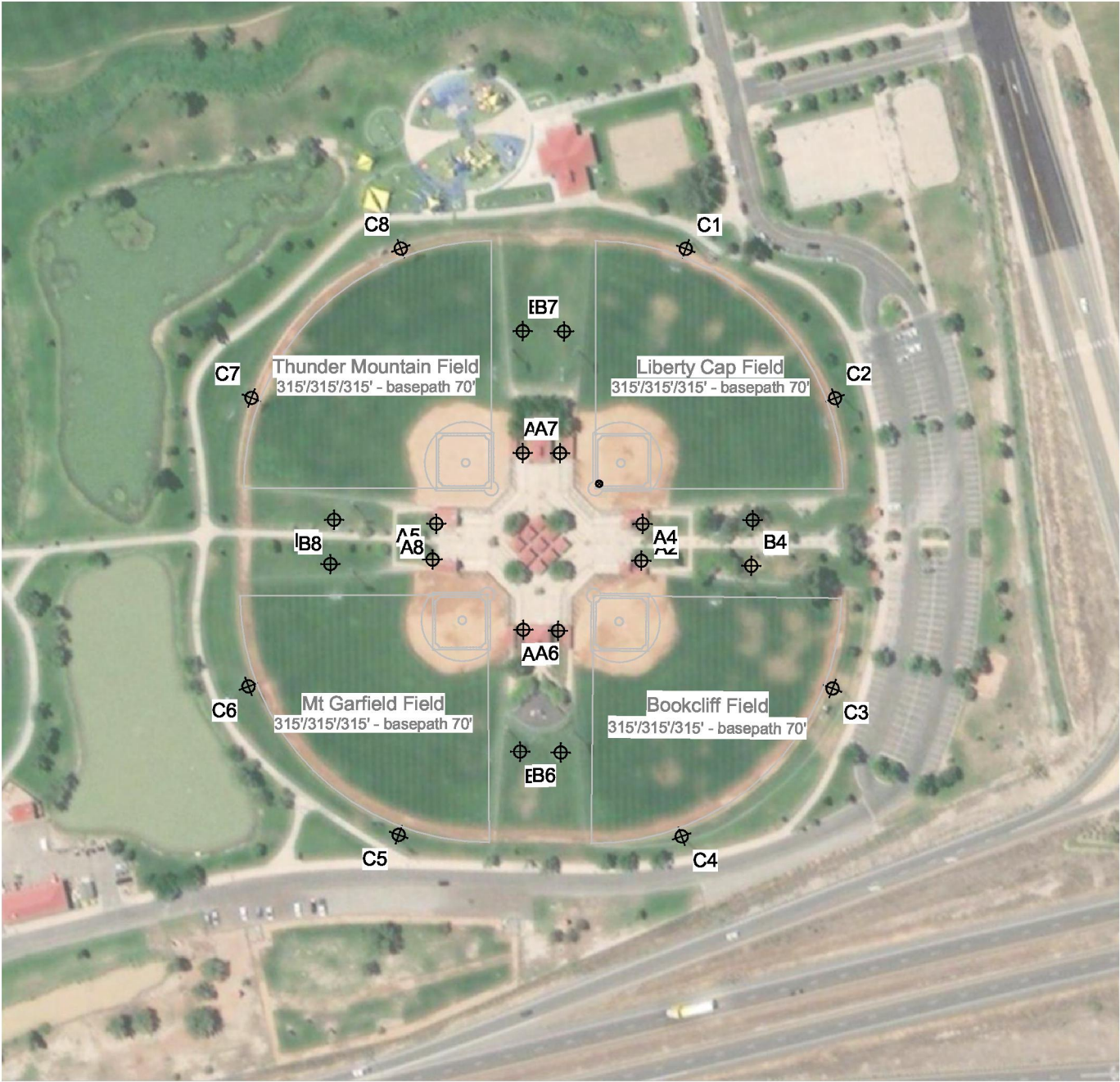
ILLUMINATION SUMMARY



SCALE IN FEET 1 : 200



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



Canyon View Park Softball

Grand Junction, CO

EQUIPMENT LAYOUT

INCLUDES:

- Bookcliff Field
- Liberty Cap Field
- Mt Garfield Field
- Thunder Mountain Field

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume $\pm 3\%$ nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

QTY	Pole			Luminaires		QTY / POLE
	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	
8	A1-A8	60'	-	15.5'	TLC-BT-575	1
				60'	TLC-LED-1500	2
8	B1-B8	70'	-	70'	TLC-LED-1200	1
				15.5'	TLC-BT-575	2
				70'	TLC-LED-1500	6
7	C1-C7	70'	-	70'	TLC-LED-900	2
				15.5'	TLC-BT-575	1
				70'	TLC-LED-1500	2
1	C8	70'	-	70'	TLC-LED-900	2
				15.5'	TLC-BT-575	1
				70'	TLC-LED-1500	2
24	TOTALS					136

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (50)	220 (50)	240 (50)	277 (50)	347 (50)	380 (50)	480 (50)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0	3.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5



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SCALE IN FEET 1 : 200



Pole location(s) \oplus dimensions are relative to 0,0 reference point(s) \otimes

D. CONTROLS AND MONITORING



Control System Summary

Project Specific Notes:

Project Information

Project #: 206267
 Project Name: Canyon View Park Soccer
 Date: 12/16/20
 Project Engineer: Nate Brown
 Sales Representative: Stephen Baker
 Control System Type: Control-Link™ Control and Monitoring System
 Communication Type: PowerLine-ST
 Scan: 206267A
 Document ID: 206267P1V1-1216101525
 Distribution Panel Location or ID: Canyon View Park
 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 48
QTY	SIZE (AMPS)
Total Contactors	4
Total Off/On/Auto Switches:	1

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

- 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.
- 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.
- 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.
- If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
- A single control circuit must be supplied per control system.
- Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

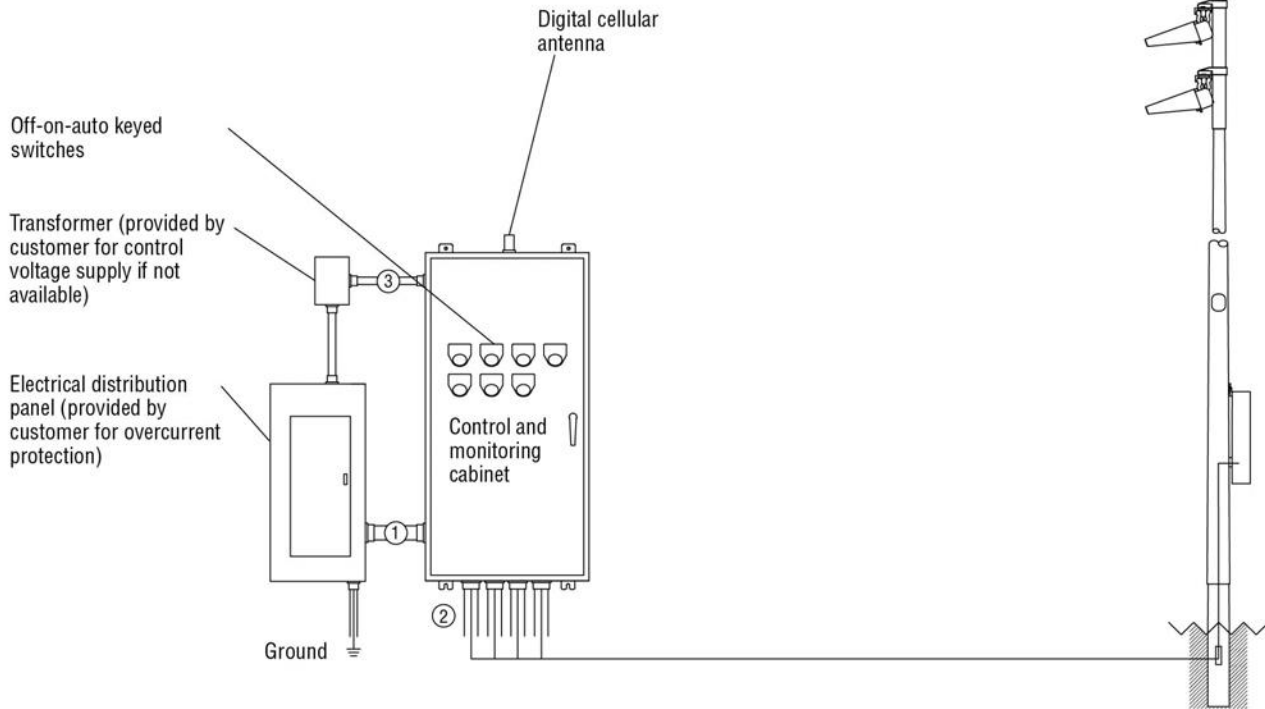
NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.



Control System Summary

Canyon View Park Soccer / 206267 - 206267A
Canyon View Park - 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

* 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.

R60-100-00_B

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



Control System Summary

Canyon View Park Soccer / 206267 - 206267A
Canyon View Park - Page 3 of 4

SWITCHING SCHEDULE

Field/Zone Description	Zones
Soccer	1

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 1553.0
	SEALED: 179.8

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
S1	Soccer	6	6	12.8	30	C1	1
S2	Soccer	6	6	12.8	30	C2	1
S3	Soccer	6	6	12.8	30	C3	1
S4	Soccer	6	6	12.8	30	C4	1

*Full Load Amps based on amps per driver.



Control System Summary

Canyon View Park Soccer / 206267 - 206267A
Canyon View Park - Page 4 of 4

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole S1	12.82		
1	1	C2	Pole S2	12.82		
1	1	C3	Pole S3	12.82		
1	1	C4	Pole S4	12.82		

ZONE SCHEDULE

ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 1	1	Soccer	S1	C1
			S2	C2
			S3	C3
			S4	C4



Control System Summary

Project Specific Notes:

Project Information

Project #: 192421
 Project Name: Canyon View Park
 Date: 03/15/21
 Project Engineer: Nate Brown
 Sales Representative: Stephen Baker
 Control System Type: Control-Link™ Control and Monitoring System
 Communication Type: PowerLine-ST
 Scan: 192421C
 Document ID: 192421P1V3-0315150426
 Distribution Panel Location or ID: Canyon View Park
 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	
2.Control and Monitoring Cabinet	24 X 72	
	QTY	SIZE (AMPS)
Total Contactors	24	30 AMP
Total Off/On/Auto Switches:	4	

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

- 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.
- 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.
- 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.
- If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
- A single control circuit must be supplied per control system.
- Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

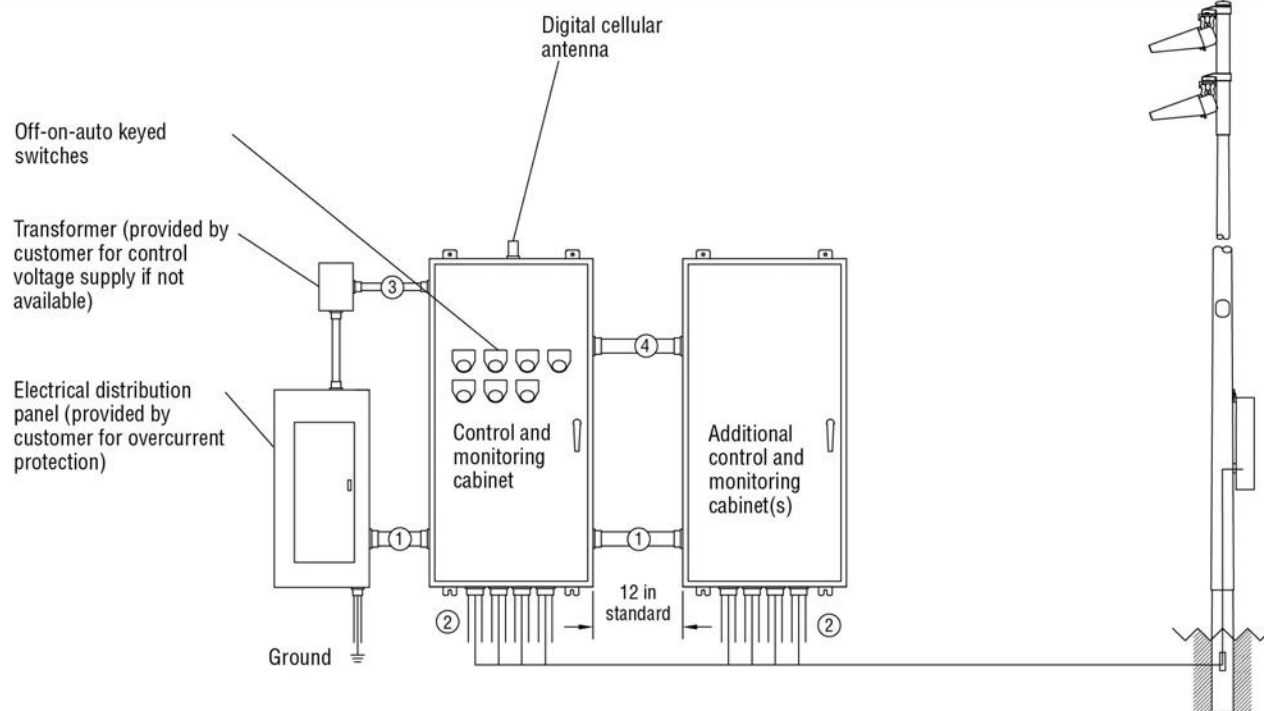
NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.



Control System Summary

Canyon View Park / 192421 - 192421C
Canyon View Park - Page 2 of 5

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
4	Control harnesses	*F	12	2	*F	Yes	C,E,F

* 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.
- F. Harness is provided in 8-ft length.

R60-101-00_B

IMPORTANT: Control wires (3,4) must be in separate conduit from line and load power wires (1, 2).



Control System Summary

Canyon View Park / 192421 - 192421C
Canyon View Park - Page 3 of 5

SWITCHING SCHEDULE

Field/Zone Description	Zones
Liberty Cap Field	1
Bookcliff Field	2
Mt Garfield Field	3
Thunder Mountain Field	4

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 6453.0
	SEALED: 699.8

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
A1	Liberty Cap Field	3	3	6.4	30	C1	1
A2	Liberty Cap Field	3	3	6.4	30	C2	1
B1	Liberty Cap Field	9	9	17.3	30	C3	1
B2	Liberty Cap Field	9	9	17.3	30	C4	1
C1	Liberty Cap Field	5	5	8.4	30	C5	1
C2	Liberty Cap Field	5	5	8.4	30	C6	1
A3	Bookcliff Field	3	3	6.4	30	C7	2
A4	Bookcliff Field	3	3	6.4	30	C8	2
B3	Bookcliff Field	9	9	17.3	30	C9	2
B4	Bookcliff Field	9	9	17.3	30	C10	2
C3	Bookcliff Field	5	5	8.4	30	C11	2
C4	Bookcliff Field	5	5	8.4	30	C12	2
A5	Mt Garfield Field	3	3	6.4	30	C13	3
A6	Mt Garfield Field	3	3	6.4	30	C14	3
B5	Mt Garfield Field	9	9	17.3	30	C15	3
B6	Mt Garfield Field	9	9	17.3	30	C16	3
C5	Mt Garfield Field	5	5	8.4	30	C17	3
C6	Mt Garfield Field	5	5	8.4	30	C18	3
A7	Thunder Mountain Field	3	3	6.4	30	C19	4
A8	Thunder Mountain Field	3	3	6.4	30	C20	4
B7	Thunder Mountain Field	9	9	17.3	30	C21	4
B8	Thunder Mountain Field	9	9	17.3	30	C22	4
C7	Thunder Mountain Field	5	5	8.4	30	C23	4
C8	Thunder Mountain Field	5	5	8.4	30	C24	4

*Full Load Amps based on amps per driver.



Control System Summary

Canyon View Park / 192421 - 192421C
Canyon View Park - Page 4 of 5

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole A1	6.41		
1	1	C2	Pole A2	6.41		
1	1	C3	Pole B1	17.28		
1	1	C4	Pole B2	17.28		
1	1	C5	Pole C1	8.43		
1	1	C6	Pole C2	8.43		
1	1	C7	Pole A3	6.41		
1	1	C8	Pole A4	6.41		
1	1	C9	Pole B3	17.28		
1	1	C10	Pole B4	17.28		
1	1	C11	Pole C3	8.43		
1	1	C12	Pole C4	8.43		
2	1	C13	Pole A5	6.41		
2	1	C14	Pole A6	6.41		
2	1	C15	Pole B5	17.28		
2	1	C16	Pole B6	17.28		
2	1	C17	Pole C5	8.43		
2	1	C18	Pole C6	8.43		
2	1	C19	Pole A7	6.41		
2	1	C20	Pole A8	6.41		
2	1	C21	Pole B7	17.28		
2	1	C22	Pole B8	17.28		
2	1	C23	Pole C7	8.43		
2	1	C24	Pole C8	8.43		

ZONE SCHEDULE

ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 1	1	Liberty Cap Field	A1	C1
			A2	C2
			B1	C3
			B2	C4
			C1	C5
			C2	C6
Zone 2	2	Bookcliff Field	A3	C7
			A4	C8
			B3	C9
			B4	C10
			C3	C11
			C4	C12
Zone 3	3	Mt Garfield Field	A5	C13
			A6	C14
			B5	C15
			B6	C16
			C5	C17

CONTINUED ON NEXT PAGE



Control System Summary

Canyon View Park / 192421 - 192421C
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ZONE SCHEDULE				
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 3	3	Mt Garfield Field	C6	C18
Zone 4	4	Thunder Mountain Field	A7	C19
			A8	C20
			B7	C21
			B8	C22
			C7	C23
			C8	C24

E. STRUCTURAL INFORMATION

Corporate: 100 1st Ave West · PO Box 808 · Oskaloosa, IA 52577 · 641/673-0411 · 800/825-6020 · Fax: 641/673-4740
Manufacturing: 2107 Stewart Road · PO Box 260 · Muscatine, IA 52761 · 563/263-2281 · 800/756-1205 · Fax: 800/374-6402
Web: www.musco.com · **Email:** lighting@musco.com



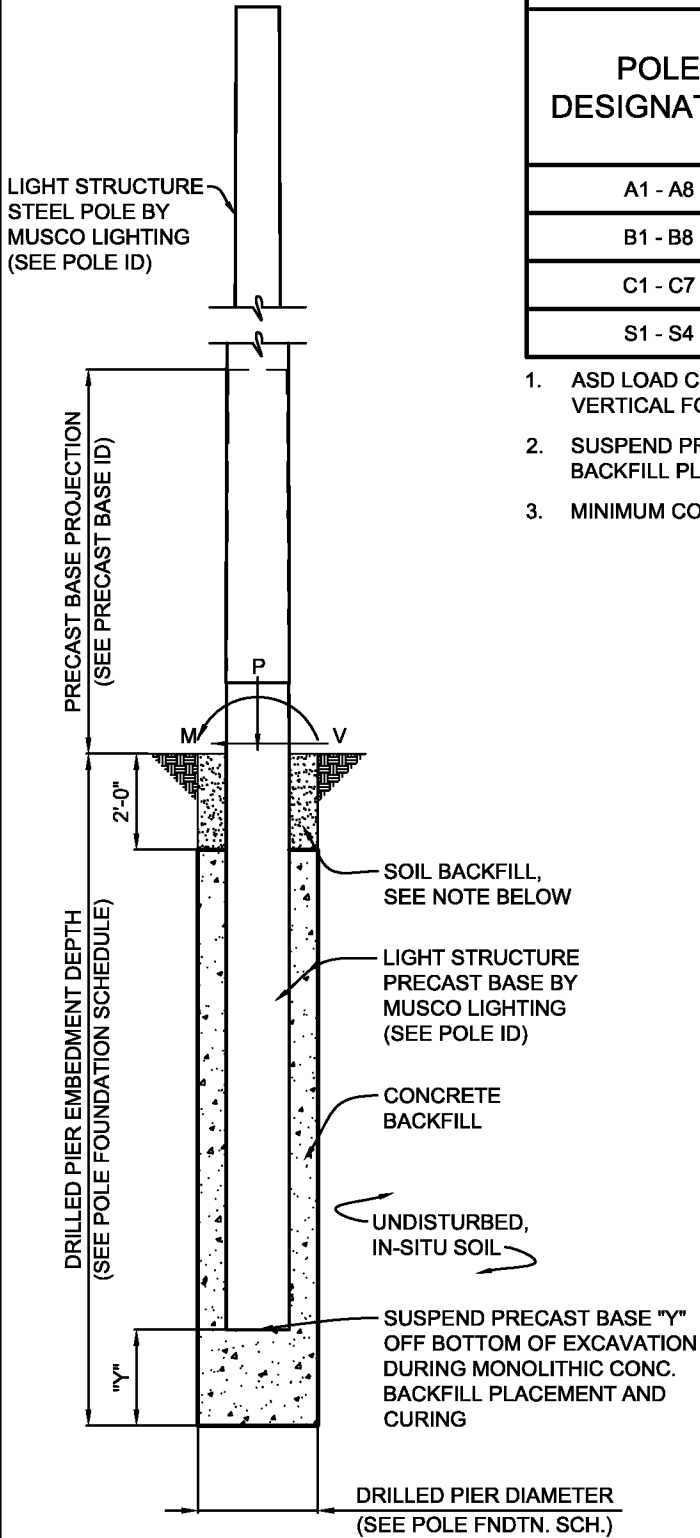
RE: Reusing of Existing Anchorbolt Bases

Musco Sports Lighting LLC will replicate bolt patterns on pole baseplates to match the existing foundation currently at the park. We recommend that a structural engineering firm is engaged to inspect and certify that the foundations will take the loading of the new system.

Musco will provide weights and EPA data required for a structural engineer to approve the use of the current bases.

Musco will still provide a 25 year parts and labor warranty, however, any issues related to, or caused by existing foundations failing will not be covered.

Stephen Baker
Musco Sports Lighting LLC
Sales Representative | Colorado
720-614-1115
Stephen.baker@musco.com



POLE FOUNDATION ELEV.
SCALE: NOT TO SCALE

SOIL BACKFILL NOTE:
THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL, WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98% FOR A COHESIONLESS SOIL BASED UPON STANDARD PROCTOR TESTING (ASTM D698).

POLE FOUNDATION SCHEDULE							
POLE DESIGNATION	FORCES (1.)			DRILLED PIER			
	MOMENT (M) FT-LBS	SHEAR (V) LBS	VERTICAL (P) LBS	DIAMETER INCHES	EMBEDMENT DEPTH	SUSPENSION "Y" (2.)	CONCRETE BACKFILL YD ³ (3.)
A1 - A8	30,250	846	891	48	12'-0"	2'-0"	4.5
B1 - B8	79,849	1,700	2,419	48	16'-0"	2'-0"	6.0
C1 - C7	50,615	1,165	1,505	48	14'-0"	2'-0"	5.3
S1 - S4	72,900	1,545	2,218	48	16'-0"	2'-0"	6.0

1. ASD LOAD COMBINATION D + 0.6W.
VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT)
2. SUSPEND PRECAST BASE "Y" OFF THE BOTTOM OF THE EXCAVATION DURING MONOLITHIC CONCRETE BACKFILL PLACEMENT AND CURING.
3. MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.

PRECAST BASE IDENTIFICATION					
PRECAST BASE TYPE	PRECAST BASE WEIGHT	PRECAST BASE LENGTH	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT	OUTSIDE DIAMETER
2B	1,690 LBS	17'-3"	7'-3"	10'-0"	12.00"
3B	2,470 LBS	20'-0"	8'-0"	12'-0"	13.38"
4B	3,490 LBS	22'-0"	8'-0"	14'-0"	15.75"

POLE IDENTIFICATION				
POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT ²)
A1 - A8	LSS60AA	2B	3 (2)	8.4
B1 - B8	LSS70C	4B	9 (7)	24.3
C1 - C7	LSS70A	3B	5 (4)	11.9
S1 - S4	LSS70C	4B	6 (6)	18.0

- POLES A1 - A8 & C1 - C7 HAVE (1) MUSCO LED FIXTURE AT 15'-6" AGL INCLUDED ABOVE.
- POLES B1 - B8 HAVE (2) MUSCO LED FIXTURES AT 15'-6" AGL INCLUDED ABOVE.

DESIGN NOTES

DESIGN PARAMETERS:
WIND: V = 115 MPH, V_{asd} = 89 MPH (EXPOSURE C, RISK CATEGORY II) PER INTERNATIONAL BUILDING CODE, 2018 EDITION (ASCE 7-16). DESIGN WIND PARAMETERS ARE AS NOTED, ACTUAL EXPOSURE MUST BE VERIFIED FOR THE SITE BY THE PROPER GOVERNING OFFICIAL.

GEOTECHNICAL PARAMETERS:
ALLOWABLE END BEARING SOIL PRESSURE: 1,000 PSF
ALLOWABLE LATERAL SOIL BEARING PRESSURE:
0 PSF/FT (GRADE TO -2'-0"); 80 PSF/FT (BELOW -2'-0")
IN ACCORDANCE WITH THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE, CHAPTER 18.

DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS MUST BE VERIFIED ON SITE. REFERENCE GEOTECHNICAL INVESTIGATION REPORT, PROJECT NO. 599.23, BY ROCKSOL CONSULTING GROUP, INC.; GRAND JUNCTION, CO.

A GEOTECHNICAL ENGINEER OR REPRESENTATIVE OF IS RECOMMENDED (NOT REQUIRED) TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.

ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES. FOUNDATIONS WILL THEN BE REVISED ACCORDINGLY. REVISIONS WILL BE ANALYZED PER RECOMMENDATIONS DIRECTED BY A REGISTERED ENGINEER.

ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT. TEMPORARY CASINGS OR DRILLERS SLURRY MAY BE USED TO STABILIZE THE EXCAVATION DURING INSTALLATION. CASINGS MUST BE REMOVED DURING CONCRETE BACKFILL PLACEMENT. CONCRETE BACKFILL MUST BE PLACED WITH A TREMIE WHEN SLURRY OR WATER IS PRESENT WITHIN THE EXCAVATION OR WHEN THE FREE DROP EXCEEDS 6'-0".

CONTRACTOR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS, AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR BRACING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.

CONCRETE:
CONCRETE SHALL BE AIR-ENTRAINED (COMPLY WITH ASTM C-260) AND MEET THE FOLLOWING MINIMUM REQUIREMENTS; COMPRESSIVE DESIGN STRENGTH AT 28 DAYS OF 4,500 PSI, MAXIMUM WATER-CEMENT RATIO w/cm = 0.45, PORTLAND CEMENT ASTM C-150 TYPE V, OR AS DIRECTED BY A GEOTECHNICAL ENGINEER. CALCIUM CHLORIDE ADMIXTURES NOT PERMITTED. PIERS AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM UNDISTURBED SOIL.

GENERAL NOTES:
FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H : 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO LIGHTING.

PRELIMINARY
FOR BID
PURPOSES ONLY

CANYON VIEW
PARK
FIELD LIGHTING
GRAND JUNCTION, CO

CORPORATE: 100 1st AVE WEST
OSKALOOSA, IA 52577
(800) 825-6020

STRUCTURAL
ENGINEERS, P.C.

114 NICHOLAS DRIVE
MARSHALLTOWN, IOWA 50158
PHONE NUMBER: 641-752-6334
EMAIL: MSL.INFO@SEPC.BIZ

DRAWING TITLE:
POLE AND FOUNDATION

SCALE: SEE PLAN

NOTES:
SCAN #192421C, 206267A

PROJECT NUMBER
192421

DATE
12 MARCH 2021

DRAWING NUMBER
C1

OF ONE



F. WARRANTY





Musco Constant 25™

25-Year Product Assurance & Warranty Program

Project name: _____ Project number: _____

Owner: _____ City: _____ State: _____

Covered product(s): _____

Date issued: _____ Expiration: _____

Musco Sports Lighting, LLC will provide all materials and labor to maintain operation of your lighting system to original design criteria for 25 years. Musco products and services are guaranteed to perform on your project as detailed in this document.

Light Performance

Specified illumination levels will be maintained and are marked as guaranteed in the Musco Illumination Summary.

Individual luminaire outages that occur during the warranty and maintenance period are repaired when the usage of any field is materially impacted.

Spill Light Control

If specified, spill light levels at identified locations are guaranteed to be controlled to the maximum values provided in the Musco Illumination Summary.

Energy Consumption

Total average kW consumption for your lighting system is guaranteed to be not more than the total load shown in the Musco Illumination Summary.

Monitoring, Maintenance, and Control Services

Musco shall monitor the performance of your lighting system, including on/off status, hours of usage, and luminaire outages. If outages that affect playability are detected, Musco will contact you and proactively dispatch technicians.

On-off control of your lighting system is provided via an easy-to-use web site scheduling system, smartphone app, phone, email, or fax. Our trained Control-Link Central™ service center staff is available toll-free 24/7. Regular usage reports are always available on Control-Link Central's web site.

Structural Integrity

Your project has been designed to _____ .
Structural integrity of equipment manufactured by Musco is guaranteed.

Musco has a team of people to ensure fulfillment of our product and services warranty and maintains financial reserves dedicated to support our fulfillment of this warranty. Please keep this document as your signed contract guaranteeing comprehensive service for the 25 year period.



Musco Constant 25™

25-Year Product Assurance & Warranty Program

Terms and Conditions

Service under this Contract is provided by Musco Sports Lighting, LLC ("Musco") or an authorized servicer approved by Musco. Services performed under this Contract shall consist of furnishing labor and parts necessary to restore the operation of the Covered Product(s) to original design criteria provided such service is necessitated by failure of the Covered Product(s) during normal usage. This Contract covers Product(s) consisting of Musco's Total Light Control – TLC for LED® with Control-Link® and any additional Musco manufactured product as listed on page 1.

"We", "us," and "our" mean Musco. "You" and "your" mean the purchaser of the Covered Product(s). No one has the authority to change this Contract without the prior written approval of Musco. Musco shall not assume responsibility for their agents or assignees other than as described below. If there is a conflict between the terms of this Contract and information communicated either orally or in writing by one or more of our employees or agents, this Contract shall control.

Additional Provisions

- 1. Availability of Service:** Control-Link Central™ operators shall be available 24/7 via web site, phone, fax, or email. Maintenance service specialists shall be available 8AM to 5PM Central Time, and services shall be rendered during these same hours in your local time zone, Monday through Friday (with the exception of national holidays). Hours of operation are subject to change without notice to you. Musco will exercise all reasonable efforts to perform service under this Contract, but will not be responsible for delays or failure in performing such services caused by adverse weather conditions, acts of any government, failure of transportation, accidents, riots, war, labor actions or strikes or other causes beyond its control.
- 2. Determination of Repairs:** Musco will utilize the field monitoring system and any information provided by the customer to determine when the usage of the field is materially impacted. From this information, Musco will determine needed repair and/or replacement of Covered Product(s) and parts. Repair will be with Product(s) of like kind and quality.
- 3. Your Requirements Under this Contract:** You must meet all electrical and installation requirements as specified by the manufacturer. In addition, you promise and assure: full cooperation with Musco, Musco's technicians and authorized servicers during telephone diagnosis and repair of the Covered Product(s); reasonable accessibility of the Covered Product(s); a nonthreatening and safe environment for service.

You agree to check fuses and to replace fuses as needed. Musco provides spare fuses in the lowest alpha-numeric numbered enclosure. Musco will replenish spare fuses used.

You agree to keep your control system online. This means keeping the required control voltage to the control system at all times. Any deviation from this practice must be discussed with Musco's Warranty Department.

- 4. Service Limitations — This Contract does not cover:** Maintenance, repair, or replacement necessitated by loss or damage resulting from any external causes such as, but not limited to, theft, environmental conditions, negligence, misuse, abuse, improper electrical/power supply, unauthorized repairs by third parties, attachments, damage to cabinetry, equipment modifications, vandalism, animal or insect infestation, physical damage to Covered Product(s) parts or components, failure of existing structures, supporting electrical systems or any non-Musco equipment, or acts of God/nature (including, but not limited to: earthquake, flood, tornadoes, typhoons, hurricanes, or lightning).

5. Contract Limitations:

- a. EXCLUSIONS FROM COVERAGE:** IN NO EVENT WILL MUSCO BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH INCLUDE, BUT ARE NOT LIMITED TO, ANY DELAY IN RENDERING SERVICE OR LOSS OF USE DURING THE REPAIR PERIOD OF THE COVERED PRODUCT(S) OR WHILE OTHERWISE AWAITING PARTS.
- b. Limitation of Liability:** To the extent permitted by applicable law, the liability of Musco, if any, for any allegedly defective Covered Product(s) or components shall be limited to repair or replacement of the Covered Product(s) or components at Musco's option. THIS CONTRACT IS YOUR SOLE EXPRESS WARRANTY WITH RESPECT TO THE COVERED PRODUCT(S). ALL IMPLIED WARRANTIES WITH RESPECT TO THE COVERED PRODUCT(S) INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY EXCLUDED.
- c. For the purposes of and by your acceptance of this Contract you acknowledge and agree that if a surety bond ("Bond") is provided the warranty and/or maintenance guarantee provided for in this Contract and any corresponding liability on behalf of the issuing surety under the Bond is limited to the first twelve (12) months of said warranty and/or maintenance guarantee coverage period. Any warranty and/or guarantee coverage period in excess of said initial 12 month period does not fall within the scope of the Bond and shall be the sole responsibility of Musco.**
- d. Musco requires reasonable access for a crane or man lift equipment to service the lighting system. Musco will not be responsible for damage from operating the vehicle on the property when the equipment is operated in the prescribed manner over the designated access route.**
- e. Obsolescence or Environmental Restrictions:** If during any maintenance or other work performed under this Warranty, any of the parts of the Covered Product(s) are found to be either obsolete, no longer available, or prohibited by any state or federal agency, Musco shall replace said parts with comparable parts and materials with equal operating characteristics solely at Musco's discretion. The cost of replacement of any obsolete cellular related technology shall be borne by you. Prior to completing any such work, Musco shall notify you of the cost (if any) you will incur in the replacement of such parts under this section.
- 6. Transfer and Assignment:** Except to owners, you shall not have the right to assign or otherwise transfer your rights and obligations under this Contract except with the prior written consent of Musco; however, a successor in interest by merger, operation of law, assignment or purchase or otherwise of your entire business shall acquire all of your interests under this Contract.
- 7. Governing Law:** Unless otherwise governed by applicable state law, the Contract shall be interpreted and enforced according to the laws of the State of Iowa.
- 8. Subrogation:** In the event Musco repairs or replaces any Covered Product(s), parts or components due to any defect for which the manufacturer or its agents or suppliers may be legally responsible, you agree to assign your rights of recovery to Musco. You will be reimbursed for any reasonable costs and expenses you may incur in connection with the assignment of your rights. You will be made whole before Musco retains any amounts it may recover.

Signature: _____

Vice President of Sales

G. COMMISSIONING AND TRAINING

Corporate: 100 1st Ave West · PO Box 808 · Oskaloosa, IA 52577 · 641/673-0411 · 800/825-6020 · Fax: 641/673-4740
 Manufacturing: 2107 Stewart Road · PO Box 260 · Muscatine, IA 52761 · 563/263-2281 · 800/756-1205 · Fax: 800/374-6402
 Web: www.musco.com · Email: lighting@musco.com



Comissioning, Testing and Training

Comissioning of the system shall take place with Control-Link Central following full installation of the lighting system. The contractor shall be responsible for calling Control Link Central to ensure that the system and all controls are functioning as required. Any issues will be problem solved with a trained commissioning technician and rectified. In the month of February 2021, Musco completed the commissioning of 97 new lighting systems and was actively supporting more than 4000 entities using Contol-Link.

Testing shall be completed on site by the local Musco Lighting representative, Stephen Baker based in Denver, CO. This will be completed the presence of the installing contractor and a representative from the City of Grand Junction. A Gossen Mavolux 5032C light meter that has been calibrated withing 12 months of the testing date shall be used. The illumination measurements shall be conducted in accordance with IESNA LM-5-04. Testing will also determine that the Musco Lighting system installed meets all IDA-Criteria for Community-Friendly Outdoor Sports Lighting v1.0.

Field Light Level Accountability:

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
2. The contractor/Musco Sports Lighting will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

Training shall be carried out by the local Musco Lighting representative, Stephen Baker based in Denver, CO. On-Site training shall be given as well as training on all aspects of the Control-Link remote control system. Stephen has been training owners for more than 7 years and completes multiple in person or virtual trainings every month. Controls training videos as well as full O&M manuals shall be provided to owner on project completion. The Following information will be included in O&M:

- Service Contracts
- Lighting Design
- Controls and monitoring information
- Warranty
- Aiming Information/Drawings