



NOTICE OF THE REGULAR MEETING OF THE  
**PLANNING & ZONING COMMISSION**

January 07, 2026 at 6:00 PM

Argyle Town Hall, 308 Denton Street, Argyle, TX 76226

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**AGENDA**

Notice is hereby given of the Regular Meeting of the Planning & Zoning Commission beginning at 6:00 PM, Wednesday, January 07, 2026, at Argyle Town Hall, 308 Denton Street, Argyle, TX 76226. The Items listed below are placed on the agenda for discussion and/or action.

**COMMISSION MEMBERS AND TOWN MANAGEMENT**

**Paul Kula, Chairperson, Place 1**

**David Snell, Vice-Chair, Place 5**

**Jody Johnson, Place 2**

**Matt Nelson, Place 3**

**Marilyn Lewis, Place 4**

**Kenton Miersma, Place 6**

**Michael Udovic, Place 7**

**Harrison Wicks, Community Development Director**

**Brenda McDonald, Town Attorney**

**CALL TO ORDER**

**PLEDGE OF ALLEGIANCE**

**American Flag**

**Texas Flag: "Honor the Texas Flag; I pledge allegiance to thee Texas, one state under God, one and indivisible."**

**OPEN FORUM**

*This is an opportunity for the public to address the Commission on any matter of public business, except public hearings. Any Comments related to public hearings will be heard when the specific hearing begins. Each speaker is limited to five (5) minutes; however, time limits can be adjusted by the Chairperson. Any response from a member of the Commission is limited to a statement of specific factual information, a recitation of existing policy, or direction to staff to place the subject on the agenda for a future Planning and Zoning Commission meeting.*

**CONSENT AGENDA**

*Any Commission member may request an item on the Consent Agenda to be taken up for individual consideration.*

1. Consider approval of the minutes of the Regular Planning and Zoning Commission Meeting of December 3, 2025.

## SPECIAL PRESENTATION

2. Receive a presentation on the formation of a Capital Improvement Advisory Committee and additional steps in the process of updating impact fees.

## STAFF REPORT

3. Active Development Project List and Town updates.

## PUBLIC HEARING ITEMS

4. Hold a public hearing, consider and make a recommendation to Town Council on a Specific Use Permit (SUP-25-003) for a Sports Court (Lighted) on a school site owned by the Argyle Independent School District (AISD) located on the north side of FM 407 on the James P Heath Addition, Lot 1, Block A (south part), Town of Argyle, Denton County, Texas.

## ADJOURN

**Note:** As authorized by Section 551.071 of the Texas Government Code (Consultation with Town Attorney), this meeting may be convened into closed Executive Session for the purpose of seeking confidential legal advice from the Town Attorney on any agenda item herein.

## CERTIFICATION

I hereby certify the above Notice of Meeting was posted on the bulletin board at Argyle Town Hall, a place convenient and readily accessible to the general public at all times, and to the Town's website in compliance with Chapter 551, Texas Government Code, on **December 31, 2025, by 5:00 p.m.** and remained posted for at least three (3) business days preceding the scheduled time of said meeting.

*Harrison Wicks*

Harrison Wicks, MPA

Director of Community Development



***Persons with disabilities who plan to attend this public meeting and who may need auxiliary aid or services are requested to contact the Argyle Town Hall 48 hours in advance, at 940-464-7273, and reasonable accommodations will be made for assistance.***

**MINUTES OF THE TOWN OF ARGYLE  
PLANNING AND ZONING COMMISSION REGULAR MEETING  
WEDNESDAY, DECEMBER 3, 2025**

A regular meeting of the Argyle Planning and Zoning Commission was held on Wednesday, December 3, 2025, at 6:00 PM. This was an OPEN MEETING, open to the public, subject to the open meeting laws of the State of Texas and, as required by law, was hereby posted on November 25, 2025, at 5:00 PM, at Argyle Town Hall, giving notice of time, date, place, and agenda thereof.

**PLANNING AND ZONING COMMISSION MEMBERS PRESENT:**

Paul Kula, Chairman  
David Snell, Vice-Chair  
Marilyn Lewis  
Matt Nelson  
Kenton Miersma  
Jody Johnson

**PLANNING AND ZONING COMMISSION MEMBERS ABSENT:**

Mike Udovic

**STAFF PRESENT:**

Mike Sims, Town Manager  
Brenda McDonald, Town Attorney  
Harrison Wicks, Director of Community Development

**REGULAR MEETING AGENDA**

**CALL TO ORDER – Chairman**

The regular meeting was called to order at 6:04 PM by Chairman Kula noting a quorum was present.

**PLEDGE OF ALLEGIANCE – American Flag**

**PLEDGE OF ALLEGIANCE – Texas Flag - “Honor the Texas Flag; I pledge allegiance to thee Texas, one state, under God, one and indivisible”.**

**OPEN FORUM:**

**Pursuant to Section 551.007 of the Texas Government Code, any member of the public has the opportunity to address the Planning and Zoning Commission concerning any matter of public business or any posted agenda item; however, the Act prohibits the Planning and Zoning Commission from deliberating any issues not on the public agenda and such non-agenda issues may be referred to Town staff for research and any future action; all persons addressing are limited to five (5) minutes and subject to council adopted rules and limitations permitted by law.**

Chairman Kula opened the meeting to public comment at 6:06 PM. With no speakers, Chairman Kula closed the open forum at 6:07 PM.

**CONSENT AGENDA**

- 1. Consider approval of the minutes of the Regular Planning and Zoning Commission Meeting of November 5, 2025.**

**2. Consider approval of the minutes of the Special Planning and Zoning Commission Meeting of November 18, 2025.**

Commissioner Lewis motioned to approve the consent agenda as presented. Commissioner Johnson seconded the motion. The motion carried unanimously by a vote of six (6) in favor to none (0) opposed.

**STAFF REPORT**

**3. Active Development Project List and Town Updates.**

Town staff provided the commission with recent development project updates and gave an overview of upcoming projects.

**PUBLIC HEARING ITEMS**

**4. Hold a public hearing, consider and make a recommendation to Town Council on a Specific Use Permit (SUP-25-003) for a Sports Court (Lighted) on a school site owned by the Argyle Independent School District (AISD) located on the north side of FM 407 on the James P Heath Addition, Lot 1, Block A (south part), Town of Argyle, Denton County, Texas.**

Director of Community Development Harrison Wicks provided a presentation on the item. The Commission discussed the item and considered the specific use permit request. AISD has requested this item be tabled to the next P&Z Commission meeting in order to provide more time for Town staff and AISD representatives to consider the application.

Commissioner Johnson motioned to table Specific Use Permit (SUP-25-003) for a Sports Court (Lighted) use on a school site owned by the Argyle Independent School District (AISD), to the next P&Z Commission meeting on January 7, 2026. Commissioner Nelson seconded the motion. The motion carried unanimously by a vote of six (6) in favor to none (0) opposed.

**5. Hold a public hearing, consider and make a recommendation to Town Council on a Specific Use Permit (SUP-25-004) for a Temporary Concrete Batch Plant use in the Argyle Landing Planned Development, located on the south side of FM 407 and southeast of Avalon Blvd in the Argyle Landing Addition, F.W. Thorton Survey, Abstract 1244, Town of Argyle, Denton County, Texas.**

Director of Community Development Harrison Wicks provided a presentation on the item and applicant Rome Barnes with Centurian American answered questions from the commissioners. The Commission discussed the item and considered the SUP request.

Chairman Kula opened the public hearing at 7:00 PM and the following individuals spoke:

1. Tom Bergmann, 11524 Hickory Falls Drive, Argyle, TX 76226 – In favor
2. Lauren Goodman, 7017 Broomsedge Road, Argyle, TX 76226 – In opposition
3. Travis Lechowit, 638 Forest Trail, Argyle, TX 76226 – In opposition
4. Jennifer Matte, 1145 Knightsbridge Road, Argyle, TX 76226 – In opposition
5. Matt Trevan, 7125 Antelope Drive, Argyle, TX 76226 – In opposition
6. Lori Camillo, 1022 Pioneer Circle W, Argyle, TX 76226 – In opposition
7. Abhishek Nalamothu, 3053 Lionsgate Drive, Argyle, TX 76226 – In opposition
8. Saurabh Tayal, 3072 Lionsgate Drive, Argyle, TX 76226 – In opposition

9. Sharon Womack, 806 Prairie Trail, Argyle, TX 76226 – In opposition
10. Karen Kiel, 629 Forest Trail, Argyle, TX 76226 – In opposition
11. Walter Ahel, 1044 Pioneer Circle W, Argyle, TX 76226 – In opposition
12. Abhishek Jain, 2041 Windsor Drive, Argyle, TX 76226 – In opposition
13. Mario Campos, 660 Forest Trail, Argyle, TX 76226 – In opposition

With no more speakers, Chairman Kula closed the public hearing at 7:38 PM.

Commissioner Nelson motioned to recommend denial to Town Council of the Specific Use Permit (SUP-25-004) for a Temporary Concrete Batch Plant use in the Argyle Landing Planned Development, as presented. Commissioner Johnson seconded the motion. The motion carried by a vote of five (5) in favor to one (1) opposed. Commissioner Miersma dissented.

## **WORKSHOP ITEMS**

### **6. Discuss the Town Center District and FM 407 small area plan.**

Town Manager Mike Sims provided a presentation on the small area plan and answered questions from the commissioners. In general, the Commissioners were favorable to the small area plan and constructive comments included that they liked the Main Street idea on the north side of FM 407. Main Street could achieve more density which would allow for a pedestrian friendly environment.

## **ADJOURNMENT**

Commissioner Lewis moved to adjourn the meeting. Commissioner Miersma seconded the motion. The motion carried unanimously by a vote of six (6) in favor to none (0) opposed at 9:17 PM.

**APPROVED THIS THE 7TH DAY OF JANUARY 2026.**

## **WITNESS:**

\_\_\_\_\_  
Paul Kula, Chairperson

\_\_\_\_\_  
Harrison Wicks, Director of Community  
Development



## PLANNING AND ZONING COMMISSION SPECIAL PRESENTATION

**Meeting**

**Date:** January 7, 2026

**To:** Chairman and Members of the Planning and Zoning Commission

**From:** Mike Sims, Town Manager

**Subject:** Discuss formation of a Capital Improvement Advisory Committee and additional steps in the process of updating impact fees.

**Background:**

At the October 20th Council meeting, Town Council approved a Professional Service Agreements for a Roadway Impact Fee Update and a Sewer Impact Fee Update. Final adoption of these updated fees requires oversight by a Council appointed Committee and other steps necessary to comply with State requirements for Impact Fees.

This item will provide the P&Z Commission with an overview of the Capital Improvement Advisory Committee (CIAC) and the Impact Fee update project. In order to comply with the requirements, staff will solicit Committee applications publicly and bring applications to Council at a future meeting in 2026.

**Staff Recommendation:**

This special presentation is for discussion only. No action is required.

**Attachments:**

Exhibit A – CIAC Presentation

# EXHIBIT A

Item 2.



## Impact Fees 101

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TOWN OF ARGYLE

December 15, 2025

# What are Impact Fees?



One-time fee for new development.



Mechanism to recover infrastructure costs required to serve future development.



Legal way to collect a flexible fee for infrastructure.

*This gives a City flexibility to spend money on high priority projects within a broader service area.*

# What are Impact Fees?

## What items **are** and **are not** payable with Impact Fees?

### *Components that **can** be paid for through an impact fee program:*

- ✓ Construction cost of capital improvements on the Impact Fee CIP
  - Roadway to thoroughfare standard
  - Upsized water/wastewater line
  - Traffic signals, bridges, sidewalks, etc.
- ✓ Survey and Engineering fees
- ✓ Land acquisition costs, including court awards
- ✓ Debt Service of Impact Fee CIP
- ✓ Planning Studies

### *Components that **cannot** be paid for through an impact fee program:*

- ✗ Projects not included in the Impact Fee CIP
- ✗ Repair, operation, and maintenance of existing facilities
- ✗ Upgrades to serve existing development
- ✗ Administrative costs of operating the impact fee program

# What Goes into the Study?



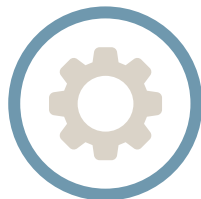
**CIAC /  
Public Input**



**Land Use  
Assumptions**



**T-Plan &  
Traffic  
Calming**



**Service Units**



**Capital  
Improvement Plans**



**Maximum  
Fee**

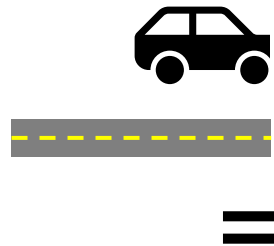
# Impact Fee Components



## Roadway Service Units



Single  
Family Home



0.94 trips/home (ITE)

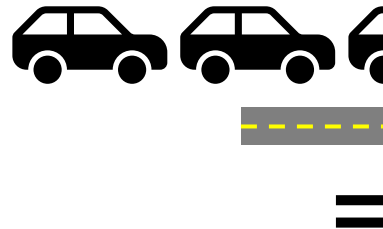
X 4.90 miles/trip (NHTS)

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4.61 veh-miles/home



Shopping  
Center



2.24 trips/1,000 SF (ITE)

X 2.8 miles/trip (NHTS)

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6.27 veh-miles/1,000 SF

# Why use Impact Fees?

## Equitable

e

Barring existing ordinances, development pays an equal fee whether first to develop or last to develop

Predictable

e

Fee schedule can be made available online  
Developers can rely on land use and IF CIP plans to make decisions about when, where, and what to build.

## Ensures Accountability

State law requires that impact fees be spent within a certain amount of time or be refunded to the property owner.

Proportional

I

Directly related to the amount of demand generated by the development.  
Calculation based on systemwide impact.

# Impact Fees FAQs

## Are there any Checks and Balances?

### Independent Licensed Professionals Prepare:



Land Use Assumptions



Master Plans



Capital Improvement Plan



Maximum Fee Impact Calculations

### Capital Improvement Advisory Committee (CIAC)

- Chapter 395.058 provides the CIAC role and makeup

# Role of Advisory Committee During Study

1. Advise and assist the City Council in adopting **land use assumptions**
2. Review the **capital improvements plan (CIP)** and file written comments
3. File written **comments** on the land use assumptions, capital improvements plan, and impact fee



# Role of Advisory Committee After Adoption

1. Monitor and evaluate implementation of the **capital improvements plan**;
2. File **semiannual reports** with respect to the progress of the capital improvements plan and report to the political subdivision any perceived inequities in implementing the plan or imposing the impact fee; and
3. Advise the political subdivision of the **need to update** or revise the land use assumptions, capital improvements plan, and impact fee.



# Legislative Updates to Ch. 395

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## **Increased Public Involvement**

- Made available an additional 60 days prior to date of publication of first notice of public hearing.
- Previously “on or before”

## **Limitation on Increased Impact Fees**

- Requires minimum 3 years before increases
  - Programmed escalation allowed

## **Revised CIAC Requirements**

- 50% representation from real estate, development, or building industries (previously 40%)
- Removed Planning and Zoning Commission as de facto CIAC

# Legislative Updates to Ch. 395

## **External Financial Audit**

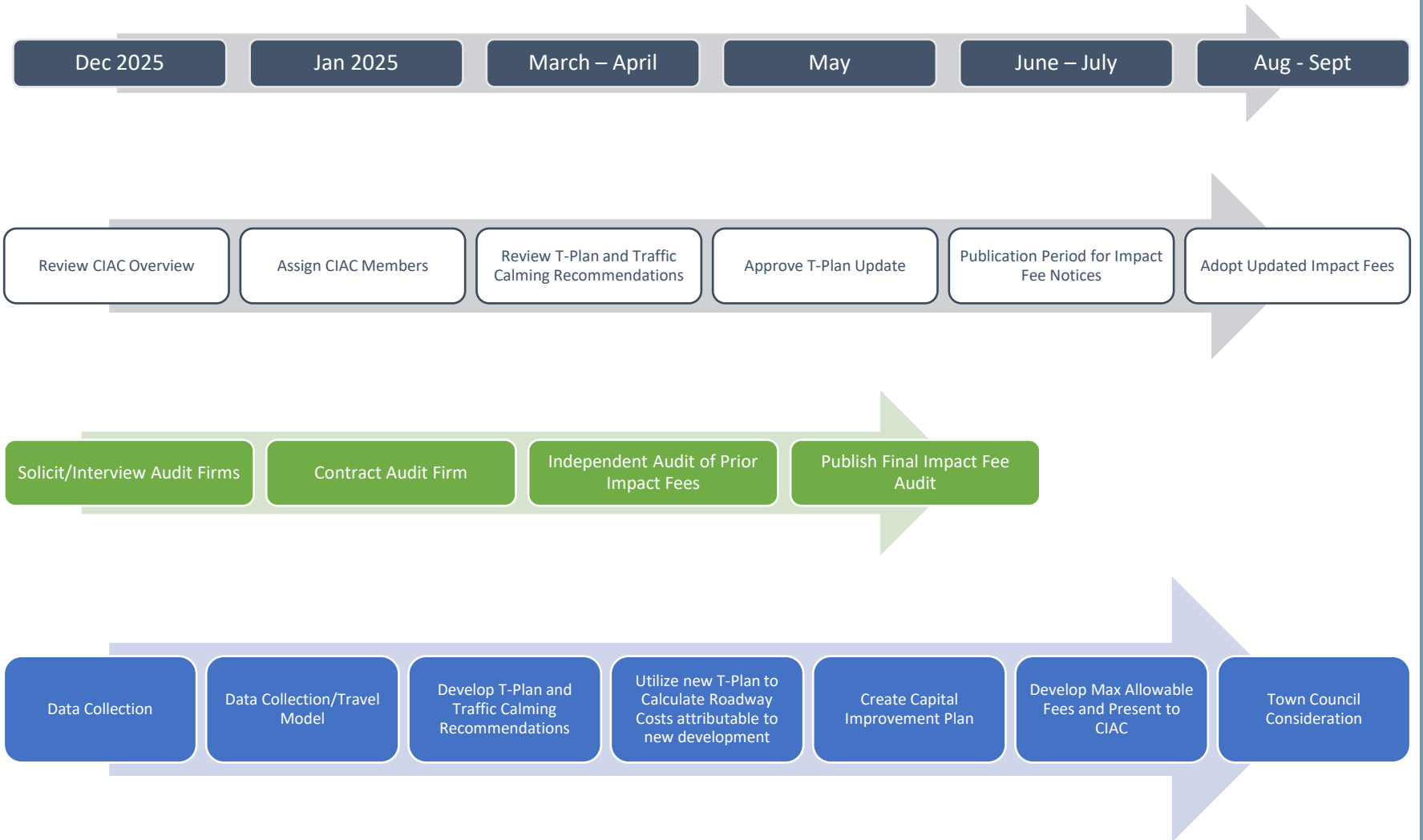
- Only applies to Impact Fee Updates/Changes
- Independent auditor - no work with City within previous 12 months
- Public hearing requirements

## **Impact Fee Credits**

Requires credits for water/wastewater impact fees for developments demonstrating water conservation and reuse technologies.

- Requires entities to adopt procedures for calculating, applying, reviewing, and approving credits.

# Overall Schedule (Roadways)



Active DRC Project List - 1.7.2026

SI	Project #	Project Name	Type/Location	Status	Comments
1	SUP-25-003	AlSD Middle School Light Sports Court Use	Specific Use Permit	Scheduled for PZ 1.7.26	Specific Use Permit (SUP-25-003) for a Sports Court (Lighted) on a school site owned by the Argyle Independent School District (AISD) located on the north side of FM 407 on the James P Heath Addition, Lot 1, Block A (south part), Town of Argyle, Denton County, Texas.
2	Z-25-004 & FLUP-25-001	Town owned 6-acre Property on FM 407	Zoning Change and Future Land Use Amendment	Scheduled for PZ 2.4.26	Staff is working with the property owner of the 12 acres to the south of the Town owned property on the zoning change and future land use plan amendment. A workshop has been scheduled for the 1/8 Comp Plan Advisory Committee meeting to receive their feedback. The Zoning/FLUP public hearing items are scheduled to come before the PZ commission during the meeting on 2/4/26.
3	N/A	Argyle Sports Academy	Construction Plans	Town Staff Review	Staff is continuing to review the construction plan submittal for the Argyle Sports Academy located on a portion of Lot 92, Block D in Argyle Landing, located in the F.W. Thornton Survey, Abstract Number 1244, Town of Argyle, Denton County, Texas.
4	Z-25-003	Heath Tract	Planned Development	Town Staff Review	Staff is continuing to work with the applicant on the planned development standards and concept plan. Staff sent 1st round comments to the applicants and is waiting for their resubmittal.
5	N/A	Marsden Tract - Argyle Marketplace	Construction Plans	Town Staff Review	Staff is beginning to review the construction plans for the Marsden Tract - Argyle Marketplace development, located on a 1.97-acre tract of unplatted land, known as A0308A S.A. Chambers, Tract 20, addressed as 409 US Hwy 377 South, Town of Argyle, Denton County, Texas.
6	N/A	Knights Ridge	Construction Plans	Town Staff Review	Staff is continuing to review the construction plans for Knights Ridge, Lots 1-25, 26X & 27X Block 1, being 72.126 acres situated in the T&P RR Co survey abstract no. 1293 Town of Argyle Denton County, Texas.
7	N/A	TXDOT Hwy 377 Expansion	AFA Agreement	Other Projects	Town Council approved the AFA agreement during their meeting on December 15, 2025. A budget amendment in the amount of \$811,275.52 will be presented to Town Council during their meeting on January 20, 2026.
8	N/A	Small Area Plan	FM 407 & Hwy 377	Other Projects	Staff has been working with GFF Planning on the Town Center District Small Area Plan. The project includes the Town owned property on FM 407, and encompasses the Argyle Nature Trail to the North on Cook Street. A joint meeting of Town Council, PZ Commission, and the Comp Plan Advisory Committee is scheduled for Thursday, January 15, 2026 to discuss the small area plan.



## PLANNING AND ZONING COMMISSION STAFF REPORT

**Meeting**

**Date:** January 7, 2026

**To:** Chairman and Members of the Planning and Zoning Commission

**From:** Harrison Wicks, Director of Community Development

**Subject:** Public Hearing – Specific Use Permit (SUP-25-003) for a Sports Court (Lighted) Use

**UPDATE:** Town staff recommends tabling this item to the next P&Z Commission meeting on February 4, 2026, to allow additional time for MUSCO light and AISD representatives to refine the lighting system plans to meet the Town’s standards.

**Purpose:**

Hold a public hearing, consider and make recommendation on a Specific Use Permit (SUP-25-003) for a Sports Court (Lighted) use on a school site owned by the Argyle Independent School District (AISD) located on the north side of FM 407 on the James P Heath Addition, Lot 1, Block A (south part), Town of Argyle, Denton County, Texas.

**Existing Condition of Property:**

The property is zoned Agricultural (A) and is occupied by an Argyle ISD future Middle School and Elementary School. The property is accessed from FM 407, with emergency access off Postmaster Lane.

**Adjacent Existing Land Uses and Zoning:**

North: Heath Estates Phase II Zoned A—Agricultural  
 South: FM 407 ROW and The Woods of Argyle Zoned SF-2.5—Single Family Residential Estate  
 East: Cactus Canyon Restaurant and Well Church, non-residential Lots  
 West: Undeveloped Property Zoned CR – Community Retail

**Background:**

The applicant is proposing the use of lighted sport courts and fields that would allow them to host sporting events, such as football, track, and tennis, in the evenings.

For this application, the applicant is proposing **four (4) ninety-foot tall poles**, with fourteen lights of various types on each pole, for the football field and track.

For the tennis courts, the applicant is proposing **thirty-six (36) twenty-four foot tall poles**, with Zone Large (ZNL) outdoor sport lights.

**Development Review Analysis:**

The Town Development Standards (TDS) define Sports Court (Lighted) as a surface designed and constructed for playing a sports game including but not limited to tennis, basketball, hockey, etc., along with all fencing, nets and related appurtenances including lighting for nighttime play.

In all zoning districts where the Sports Court (Lighted) use is listed on the use chart matrix, it is allowed by Specific Use Permit (SUP) only.

Town staff reviewed the submitted materials and per Sections 14.3.76-2 and 14.3.76-4 Lighting and Glare Standards of the TDS, lighting for night recreation is permitted provided the below requirements are met:

1. Light poles shall be placed on the site a setback equal to its height from all adjacent residential property.
2. All lighting sources shall be provided with full-cutoff shielding with opaque tops and reflectors to:
  - a. Eliminate all direct upward illumination
  - b. Eliminate all direct visibility of the lighting element at ground level at all subject property lines
  - c. Reduce light levels at ground level of all property lines of the subject property to the following levels based on the zoning of the adjacent properties:
    - i. Single-family — 0.25 footcandles
    - ii. Multi-family — 0.5 footcandles.
    - iii. Non-residential districts, streets — 3.0 footcandles.
    - iv. Industrial districts — 5.0 footcandles.
3. Light sources shall be of a down-light type, indirect, diffused, with full cutoff shielding installed and maintained so as to reduce glare effect
4. Shielding of Lights:
  - a. Lighting shall have full cutoff shielded and downcast fixtures.
  - b. The source of light on any fixtures shall be shielded from sight.

**Photometric Plan:**

After review of the photometric plans, the proposed lighting does not indicate spillage onto adjacent lots above the maximum required in the Town's standards.

Below are two exceptions to the Town's standards, however, based on the provided plans:

1. Section 14.2.76-2 (A)(1) "Eliminate all direct upward illumination."
  - a. The football/track submittal includes dedicated up lights mounted midway up the poles pointing directly up. This lighting is referred to as "ball tracker lighting."
2. Section 14.2.76-2 (A)(2) "Eliminate all direct visibility of the lighting element at ground level at all subject property lines."

- a. The application does not address this requirement. It is assumed the light manufacturer Musco can achieve this standard with proper shielding.

**Public Hearing Notice Responses:**

Letters were sent out to surrounding property owners within 200' of the subject property pursuant to the Texas Local Government Code, Subsection 211.006(d). Courtesy letters were also sent out to property owners within 1,000' of the subject property pursuant to the Town of Argyle Zoning Ordinance and a public hearing sign was posted on the subject property. At the time of writing this report, Staff has received five (5) responses from property owners within 1000 feet. Of the five (5) responses, three (3) are in favor, one (1) neutral, and one (1) opposed.

**Staff Recommendation:**

Staff recommend tabling the item to the next P&Z Commission meeting on February 4, 2026.

**Attachments:**

- Exhibit A – Football/Track Field plans
- Exhibit B – Tennis Court plans
- Exhibit C – Illumination Summary

# EXHIBIT A

MUSCO LIGHTING SUBMITTAL FOR PRODUCTION

PREPARED FOR:

## Argyle ISD New Middle School Football

Lighting Project  
Argyle, TX  
May 24, 2024

Project #231585

*Submitted by:*

**Musco Sports Lighting, LLC**

Attn: Melinda Peterson  
2107 Stewart Road  
Muscatine, Iowa 52761

Toll Free: 800-756-1205  
Fax: 800-374-6402



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- E. WARRANTY**
- F. PRODUCT INFORMATION**

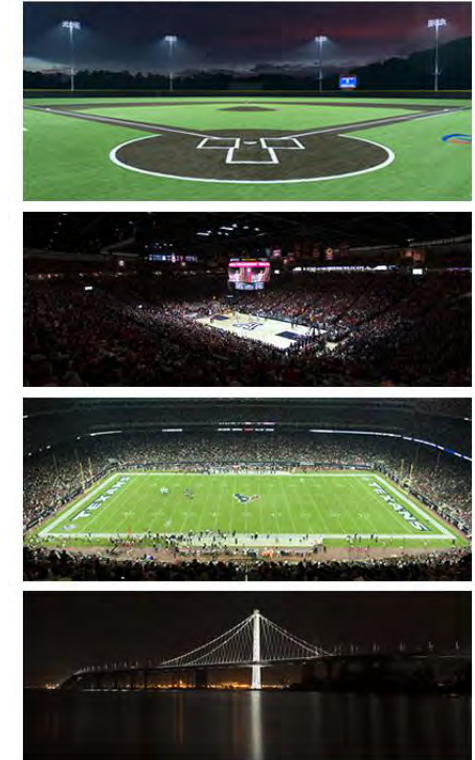
## A. BILL OF MATERIALS

Equipment Description	
4	Light-Structure System™ Total Light Control™ TLC-LED-550 luminaires
44	Light-Structure System™ Total Light Control™ TLC-LED-1500 luminaires
8	Light-Structure System™ Total Light Control™ TLC-BT-575 luminaires
4	90 ft. galvanized steel poles
4	Pre-cast concrete foundations (9,500 PSI) with integrated grounding
✓	Factory wired and assembled pole top luminaire assemblies
✓	Factory wired electrical component enclosures
✓	Factory built wire harnesses with plug-in connections
Controls	
1	24" x 72" Control and monitoring cabinet
1	24" x 48" Control and monitoring cabinet
✓	High/medium/low dimming
14	30-amp contactors
5	On-Off-Auto (OOA) switches
Warranty	
✓	Musco's Constant 25™ product assurance and warranty program that eliminates 100% maintenance costs for 25 years, including labor, materials, monitoring and guaranteed light levels.



## B. LIGHTING DESIGN

From Hometown to Professional



**Lighting System**

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F7-F10	90'	90'	5	TLC-LED-1500	7.05 kW	B
		90'	6	TLC-LED-1500	8.46 kW	A
		70'	1	TLC-LED-550	0.54 kW	C
		30'	2	TLC-BT-575	1.15 kW	A
<b>4</b>			<b>56</b>		<b>68.80 kW</b>	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	38.44 kW	32
B	Track	28.20 kW	20
C	Security	2.16 kW	4

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	8
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	44
TLC-LED-550	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	4

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage							
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4

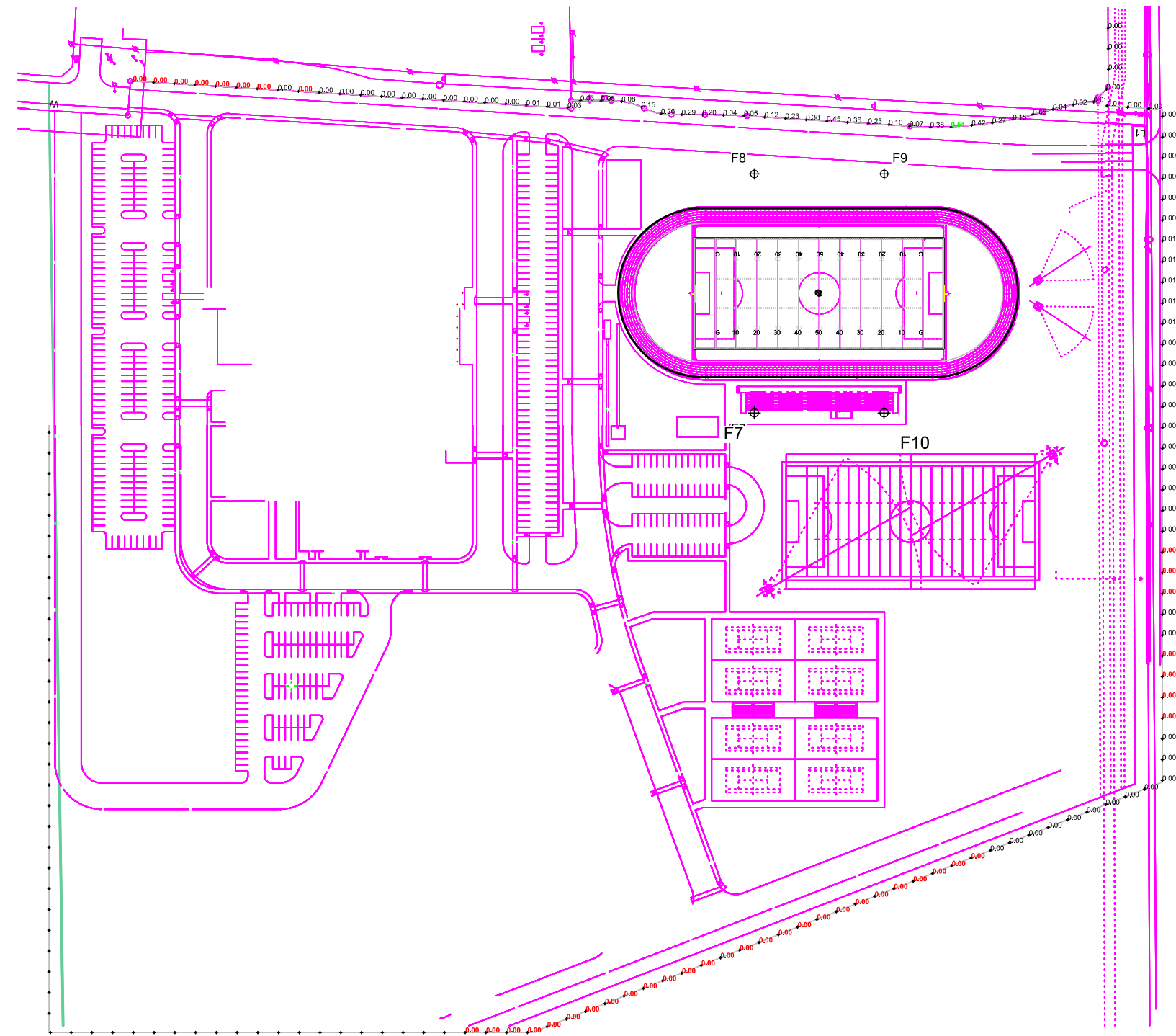
**Light Level Summary**

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
East Bleacher	Horizontal	8.81	2	13	8.58	4.41	C	4
Football	Horizontal Illuminance	37.9	32	43	1.37	1.18	A	32
Property Spill	Horizontal	0.01	0	0	0.00		A,B,C,D,E	56
Property Spill	Max Candela (by Fixture)	423	0	4143	0.00		A,B,C,D,E	56
Track	Horizontal Illuminance	44.7	30	60	2.05	1.49	A,B	52
West Bleacher	Horizontal	8.34	1	13	12.44	8.34	C	4
Zero Grid	Horizontal	3.76	0	74	0.00		A,B,C,D,E	56
Zero Grid (Cd)	Max Candela (by Fixture)	52776	0	1124344	0.00		A,B,C,D,E	56



Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	88.9'	TLC-LED-1500	11	11	0
				70'	TLC-LED-550	1	1	0
				30'	TLC-BT-575	2	2	0
4				Totals		56	56	0

\*Above Grade level relative to the field



# Argyle ISD Middle School

Argyle, TX

Item 4.

Grid Summary	
Name	Property Spill
Spacing	30.0' x 10.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	0.01
Maximum	0
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	0.00
CU	0.00
No. of Points	191
<b>LUMINAIRE INFORMATION</b>	
Applied Circuits	A,B,C,D,E
No. of Luminaires	56
Total Load	68.80 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.

SCALE IN FEET 1 : 200  
 0' 200' 400'  
 ENGINEERED DESIGN By: • File #231585D • 23-Jan-24

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



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Grid Summary

Name Zero Grid
Spacing 20.0' x 20.0'
Height 3.0' above grade

Illumination Summary

Table with 2 columns: Metric and Value. Includes Scan Average (3.76), Maximum (74), Minimum (0), Avg/Min (-), Max/Min (-), UG (adjacent pts) (100.73), CU (0.94), No. of Points (5550), LUMINAIRE INFORMATION, Applied Circuits (A,B,C,D,E), No. of Luminaires (56), Total Load (68.80 kW).

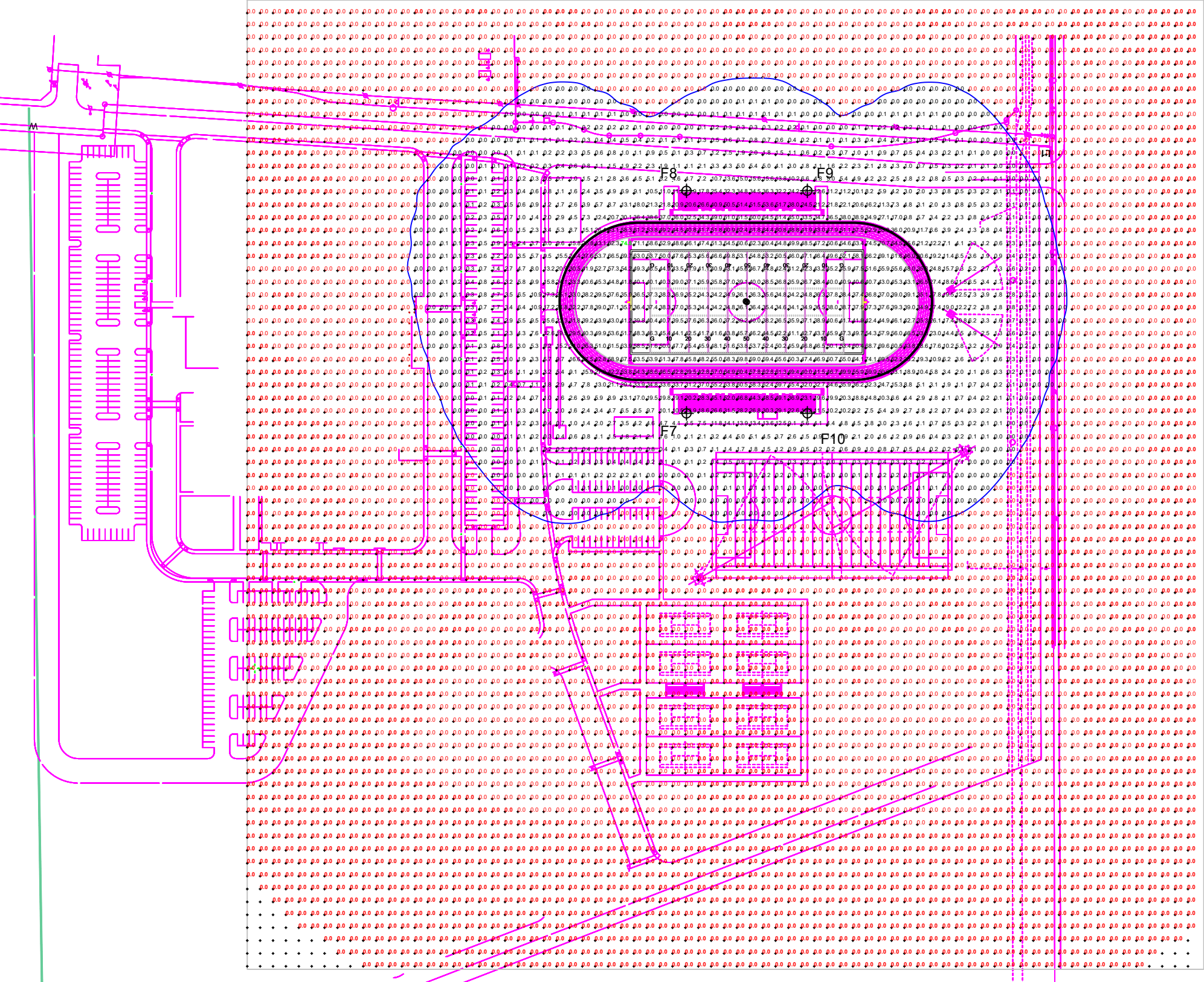
Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

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.

NOTES: Contour Line at 0FC



SCALE IN FEET 1 : 180
0' 180' 360'
ENGINEERED DESIGN By: • File #231585D • 23-Jan-24

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



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Equipment Layout

INCLUDES:  
 - Football  
 - Track

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

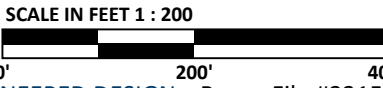
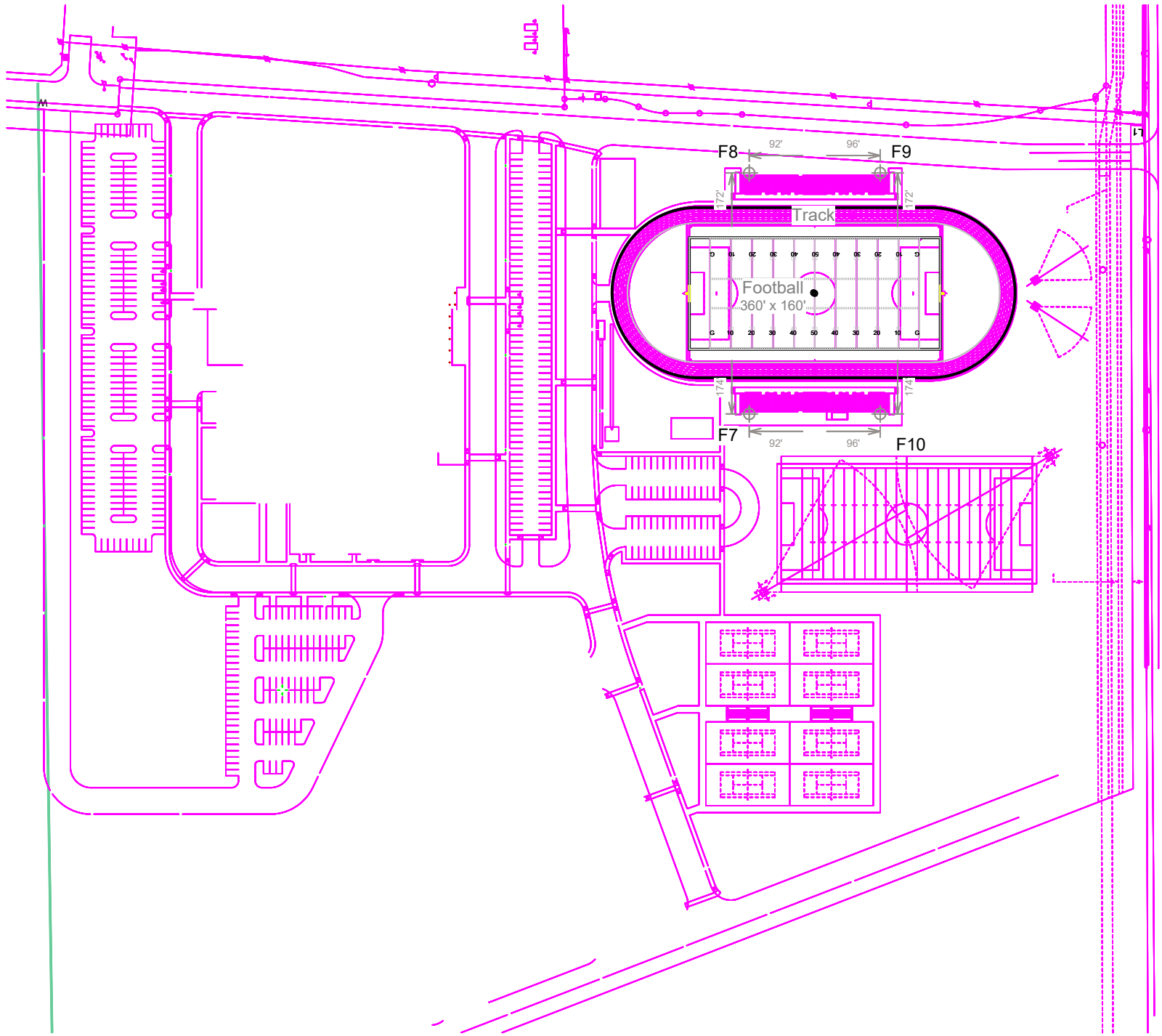
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	Pole			Luminaires		
	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
4	F7-F10	90'	-	88.9'	TLC-LED-1500	11
				70'	TLC-LED-550	1
				30'	TLC-BT-575	2
4	Totals					56

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage							
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4



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



## C. CONTROLS AND MONITORING

## Project Information

### Control System

Control System ID: 1 of 1  
 Control System Type: Control-Link® Control and Monitoring System  
 Communication Type: PowerLine-ST

### Project Notes:



### Power Requirements

#### Control cabinet(s):

Control voltage (phase to neutral) 120/60  
 VA loading - Inrush 4003.0  
 VA loading - Sealed 440.0

#### Lighting Circuits:

Voltage/Hertz/Phase 480/60/3

### Equipment Listing

Description	Qty	Size (in)
Control and monitoring cabinet - primary	1	24 X 72
Control and monitoring cabinet - secondary	1	24 X 48
Contactors, 30 amperes	14	-
Off/On/Auto switches	5	-

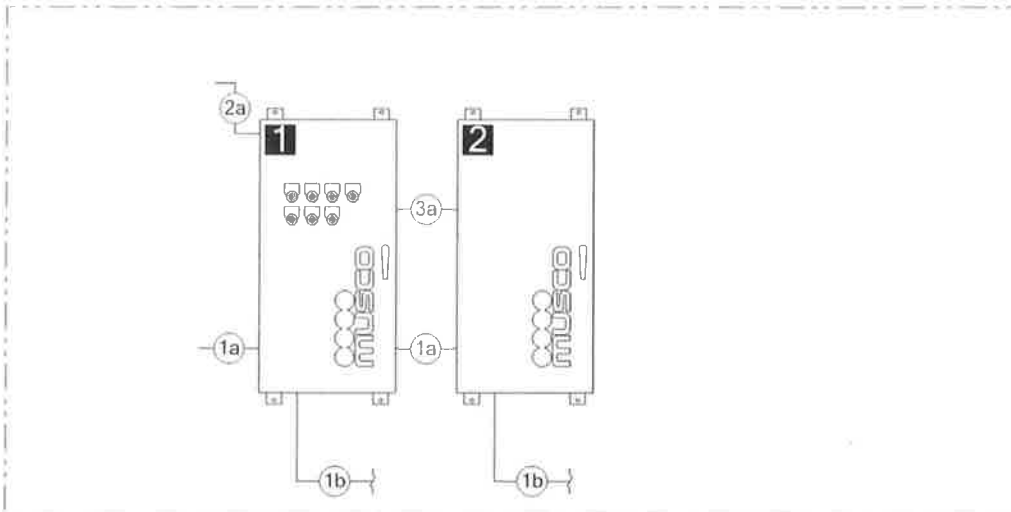
### Important Notes:

1. Please confirm that the lighting circuit voltage listed above is accurate for this facility. This is the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole location. Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each circuit at each pole location. Contactors are 3 pole and 100% rated for the published continuous load.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. Size overcurrent devices using the full load amps column of the Circuit Summary by Switch chart (Minimum power factor is 0.9). Size conduit per code unless otherwise specified as larger to allow for harness connectors.
6. Avoid use of in-ground junction/pull boxes when possible. If used, all wire connectors must be UL listed for Wet Locations to prevent leakage current.
7. Control power wiring must be in separate conduit from line or load power wiring. Communication cables must be in separate conduit from any power wiring.
8. Refer to Installation Instructions for more details on equipment information and the installation requirements.

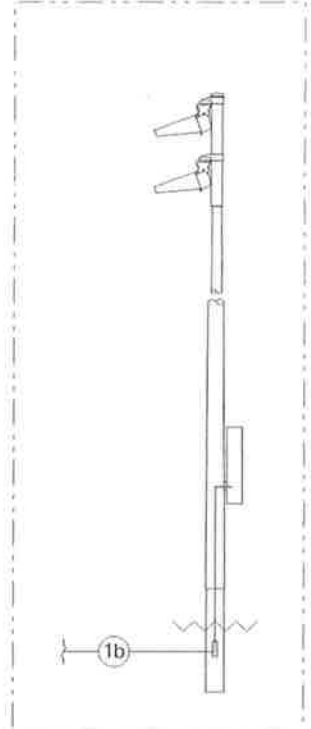
## Equipment Layout and Connection Details



Control cabinet location



Lighting system



### Connection Details

ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.
3a	Control harnesses - Secondary cabinet to primary cabinet. Harness is provided by Musco in 8-foot length. Use minimum 2 inch diameter conduit for harness connector.

### Equipment

ID	Description
1	Control and monitoring cabinet - primary
2	Control and monitoring cabinet - secondary

## Circuit Summary

Switching Schedule	
Field/Switch Description	Switches
Football	1
Track	2,3
Track	2
Bleacher	3
Tennis 1-4	4
Tennis 5-8	5

### Control Module ID: 1

### Lighting Circuit Voltage: 480/60/3

Circuit Summary by Switch							
Switch	Zone Description	Pole ID	Qty of Fixtures	Full load amperes	Contactor Size (Amps)	Cabinet #	Contactor ID
1	Football	F7	8	15.09	30	1	C1
	Football	F8	8	15.09	30	1	C2
	Football	F9	8	15.09	30	1	C3
	Football	F10	8	15.09	30	1	C4
2	Track	F7	5	12.57	30	1	C5
	Track	F8	5	12.57	30	1	C6
	Track	F9	5	12.57	30	1	C7
	Track	F10	5	12.57	30	1	C8
3	Bleacher	F10, F7	2	2.41	30	1	C9
	Bleacher	F8, F9	2	2.41	30	1	C10
4	Tennis 1-4	P1	0	0	30	2	C11
	Tennis 1-4	P2	0	0	30	2	C12
5	Tennis 5-8	P3	0	0	30	2	C13
	Tennis 5-8	P4	0	0	30	2	C14

## D. STRUCTURAL INFORMATION

ARGYLE ISD NEW MS  
FOOTBALL  
FIELD LIGHTING  
ARGYLE, TX



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	PROJECT NUMBER 231585
SCALE: SEE PLAN	DATE 15 FEBRUARY 2024
NOTES: SCAN #231585D	DRAWING NUMBER C1
	OF ONE

POLE FOUNDATION SCHEDULE						
POLE DESIGNATION	FORCES (1.)			DRILLED PIER		
	MOMENT (M) FT-LBS	SHEAR (V) LBS	VERTICAL (P) LBS	DIAMETER INCHES	EMBEDMENT DEPTH	CONCRETE BACKFILL YD <sup>3</sup> (2.)
F7 - F10	148,559	2,496	4,465	30	18'-0"	1.6

- ASD LOAD COMBINATION D + 0.6W. VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT).
- MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.
- POTENTIAL FOR ENCOUNTERING ROCK BEFORE REACHING EMBEDMENT DEPTH. ROCK AUGERING EQUIPMENT MAY BE REQUIRED.

PRECAST BASE IDENTIFICATION					
PRECAST BASE TYPE	PRECAST BASE WEIGHT	PRECAST BASE LENGTH	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT	OUTSIDE DIAMETER
6B	6,930 LBS	26'-1"	8'-1"	18'-0"	20.56"

POLE IDENTIFICATION				
POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT <sup>2</sup> )
F7 - F10	LSS90B	6B	14 (6+5)	37.2

- POLES F7 - F10 HAVE (1) MUSCO LED FIXTURE AT 70'-0" AGL INCLUDED ABOVE.
- POLES F7 - F10 HAVE (2) MUSCO LED FIXTURES AT 30'-0" AGL INCLUDED ABOVE.

### DESIGN NOTES

**DESIGN PARAMETERS:**  
WIND: V = 110 MPH, V<sub>asd</sub> = 85 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: 2,000 PSF  
ALLOWABLE LATERAL SOIL BEARING PRESSURE:  
0 PSF/FT (GRADE TO -3'-0"); 200 PSF/FT (BELOW -3'-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 ENGINEERING REPORT, PROJECT NO. G23-2329, PREPARED BY GEOTEX ENGINEERING, LLC; FORT WORTH, TX.

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.

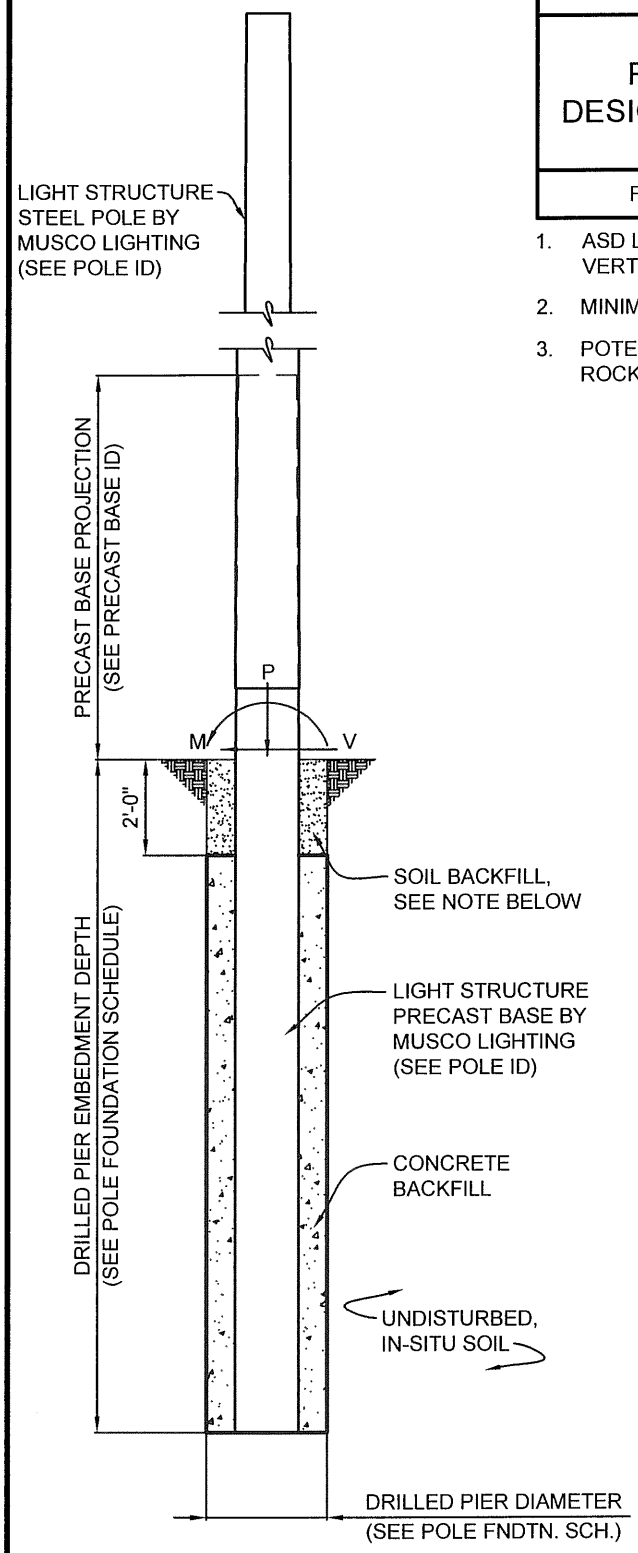
ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES. FOUNDATIONS 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.

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 AND HAVE A MINIMUM COMPRESSIVE DESIGN STRENGTH AT 28 DAYS OF 3,000 PSI. 3,000 PSI CONCRETE SPECIFIED FOR EARLY POLE ERECTION, ACTUAL REQUIRED MINIMUM ALLOWABLE CONCRETE STRENGTH IS 1,000 PSI. ALL PIERS AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM UNDISTURBED SOIL.

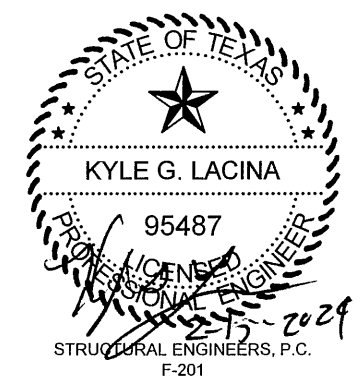
**GENERAL NOTES:**  
FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H : 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO LIGHTING.



### 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).



## E. WARRANTY



# Musco Constant 25™

25-Year Product Assurance & Warranty Program

Project name: Argyle ISD New Middle School Football Project number: 231585  
 Owner: Argyle ISD City: Argyle State: TX  
 Covered product(s): Light-Structure System™ with TLC for LED™ technology  
 Date issued: Date of Shipment Expiration: Date of Shipment + 25 Years

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 IBC, 2018, 105mph, Exposure C.  
 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:

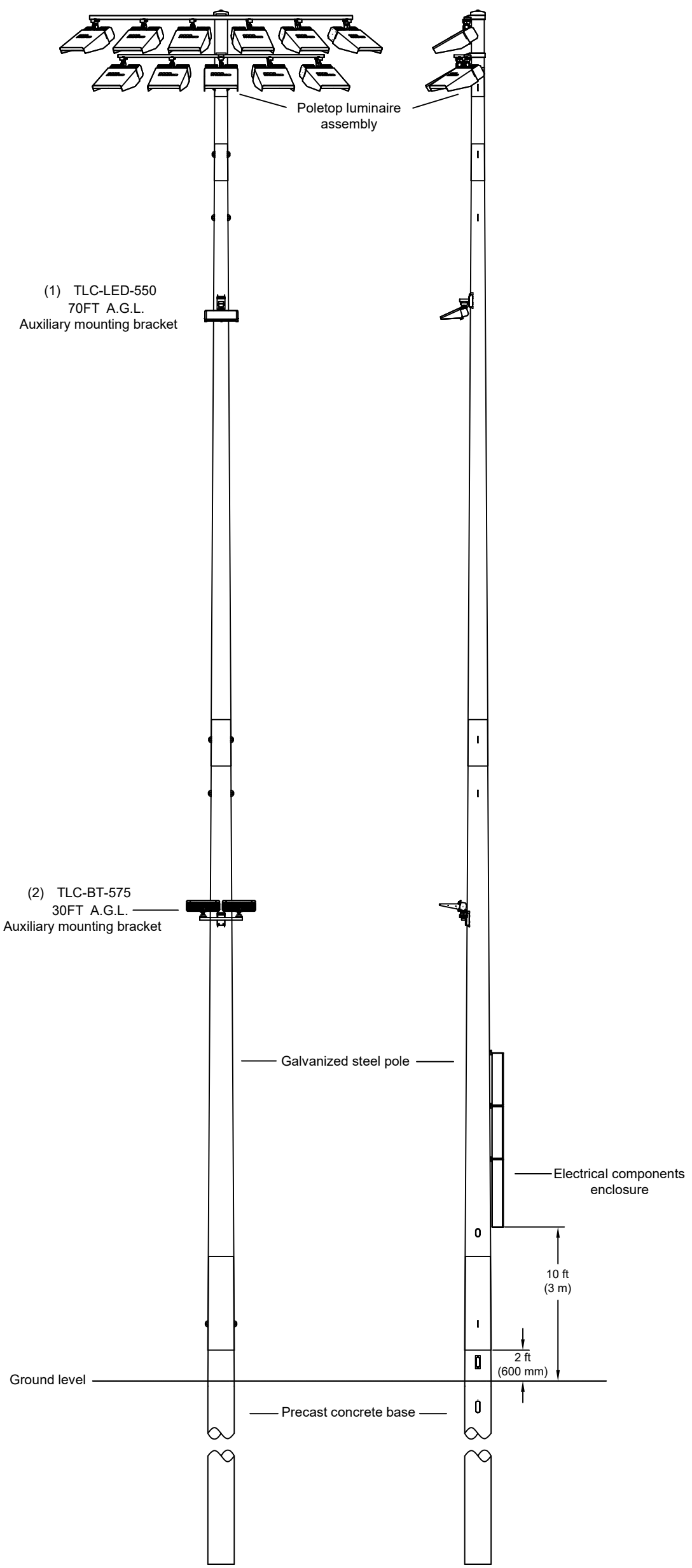
- a. **EXCLUSIONS FROM COVERAGE:** IN NO EVENT WILL MUSCO BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH INCLUDE, BUT ARE NOT LIMITED TO, ANY DELAY IN RENDERING SERVICE OR LOSS OF USE DURING THE REPAIR PERIOD OF THE COVERED PRODUCT(S) OR WHILE OTHERWISE AWAITING PARTS.
  - 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

## F. PRODUCT INFORMATION

Information contained herein is the confidential property of Musco Sports Lighting, LLC and/or its parent company, affiliates, successors and assigns. Reproduction, without express written permission is prohibited.



**POLE(S): F7-F10**

Musco 90FT Light-Structure System™ pole  
TLC for LED™ luminaires  
(11) TLC-LED-1500

PROJECT NUMBER:  
231585  
DRAWN BY:  
T.Burch  
SCALE:  
NTS  
DATE:  
05/23/2024  
DRAWING NUMBER:  
231585P1  
1 OF 1 SHEETS

DATE:	BY:	R.L.	REVISIONS:

**MUSCO** Lighting

CORPORATE OFFICE:  
P.O. Box 808  
100 1st Avenue West  
Oskaloosa, Iowa 52577  
+1-800-825-6020  
+1-641-673-0411

Argyle ISD Middle School  
Argyle TX  
Pole Configuration Drawing **B**

**TLC for LED®**

# 5 Easy Pieces™

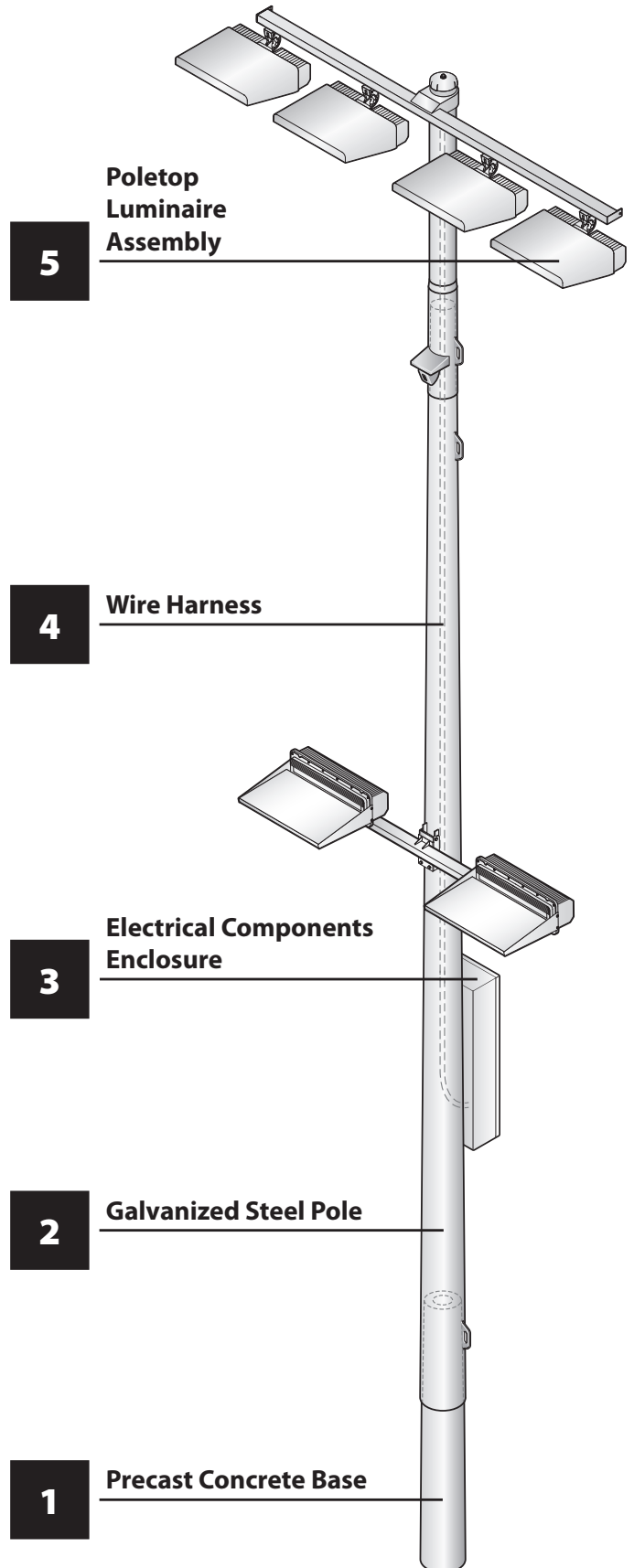
## Complete System from Foundation to Poletop

Factory wired, aimed, and tested

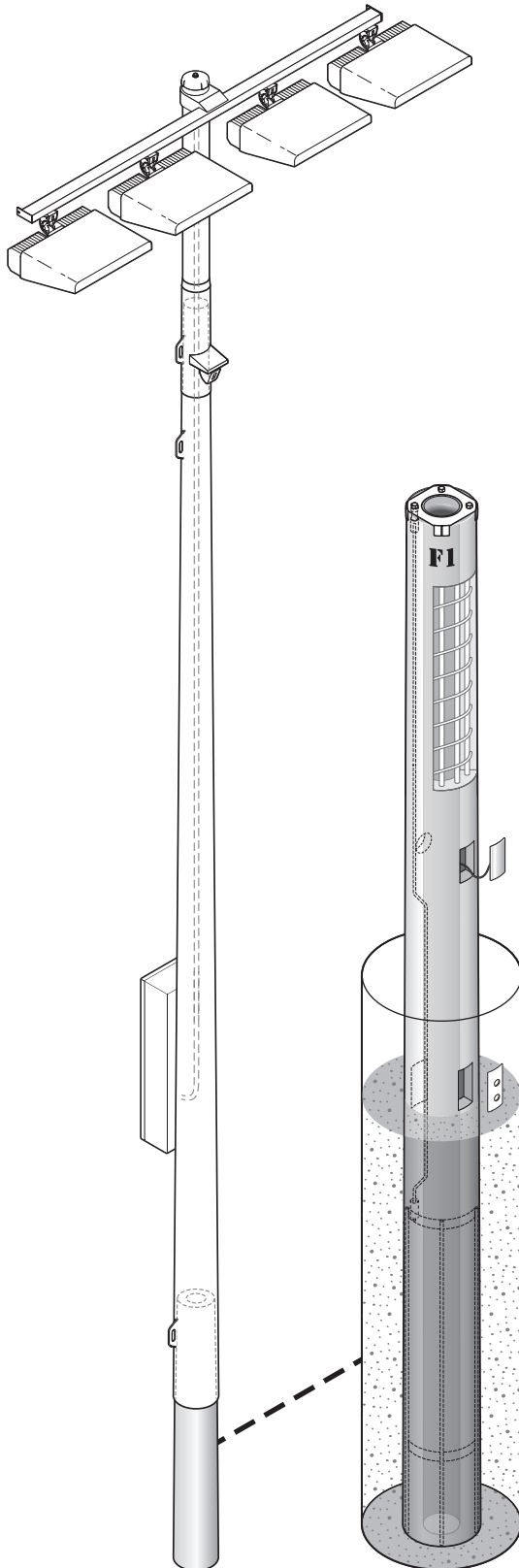
Fast, trouble-free installation

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 mm<sup>2</sup>) 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.

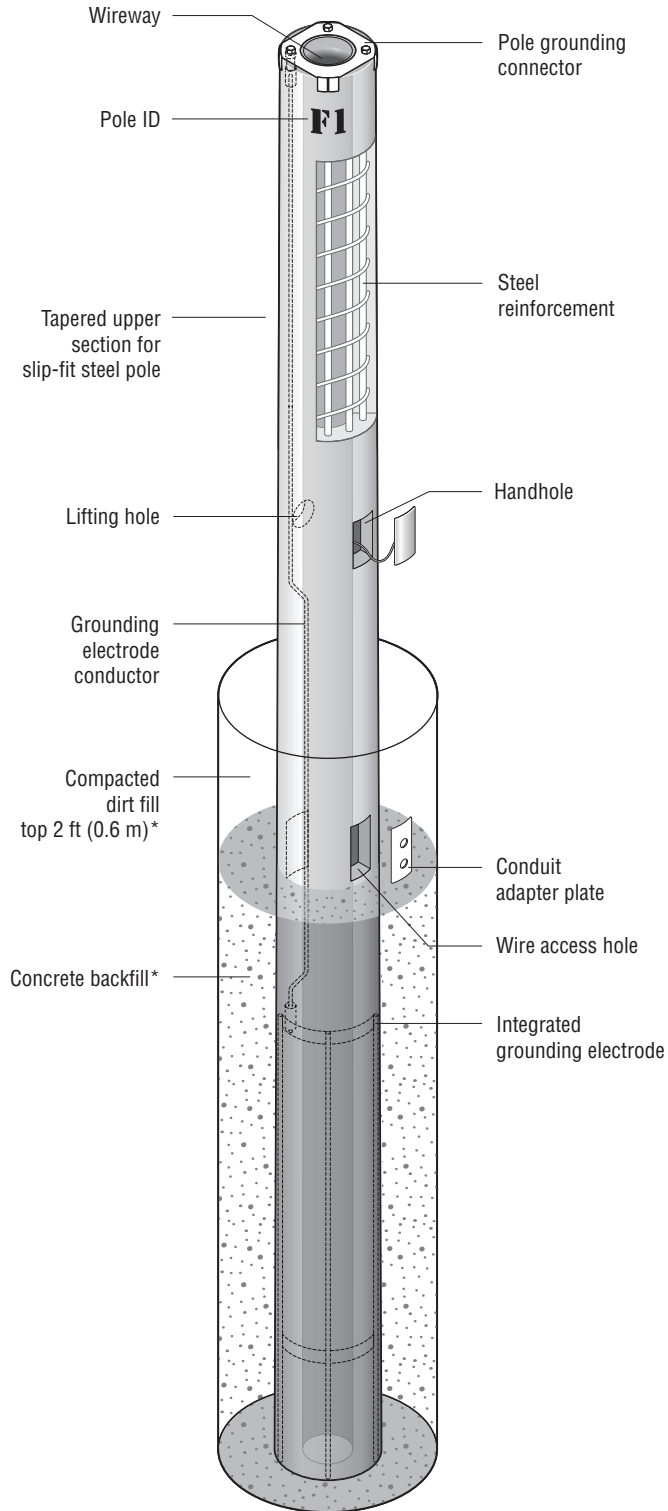
**Construction**

- Spun concrete construction
- Prestressed steel vertical strands and coil spiral for strength throughout base
- Minimum design strength is 9500 lb/in<sup>2</sup> (65.5 MPa) at 28 days
- Meets ASTM C1804 design requirements

**Quality Assurance Tests**

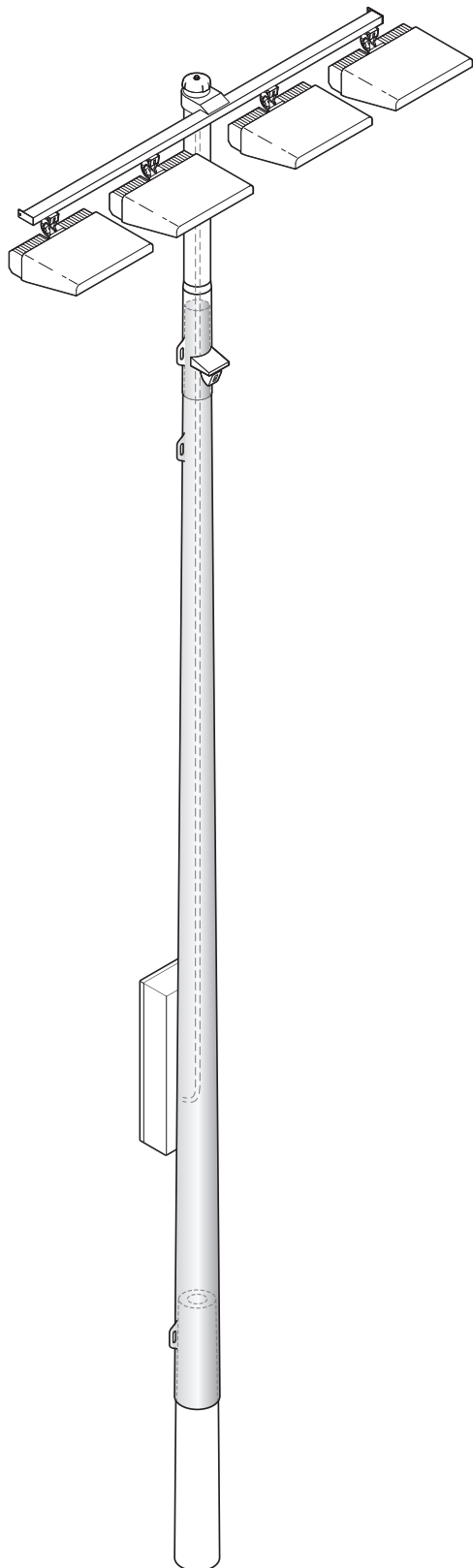
- 28-day compressive strength
- Bending moment capacity
- Grounding system continuity

**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.

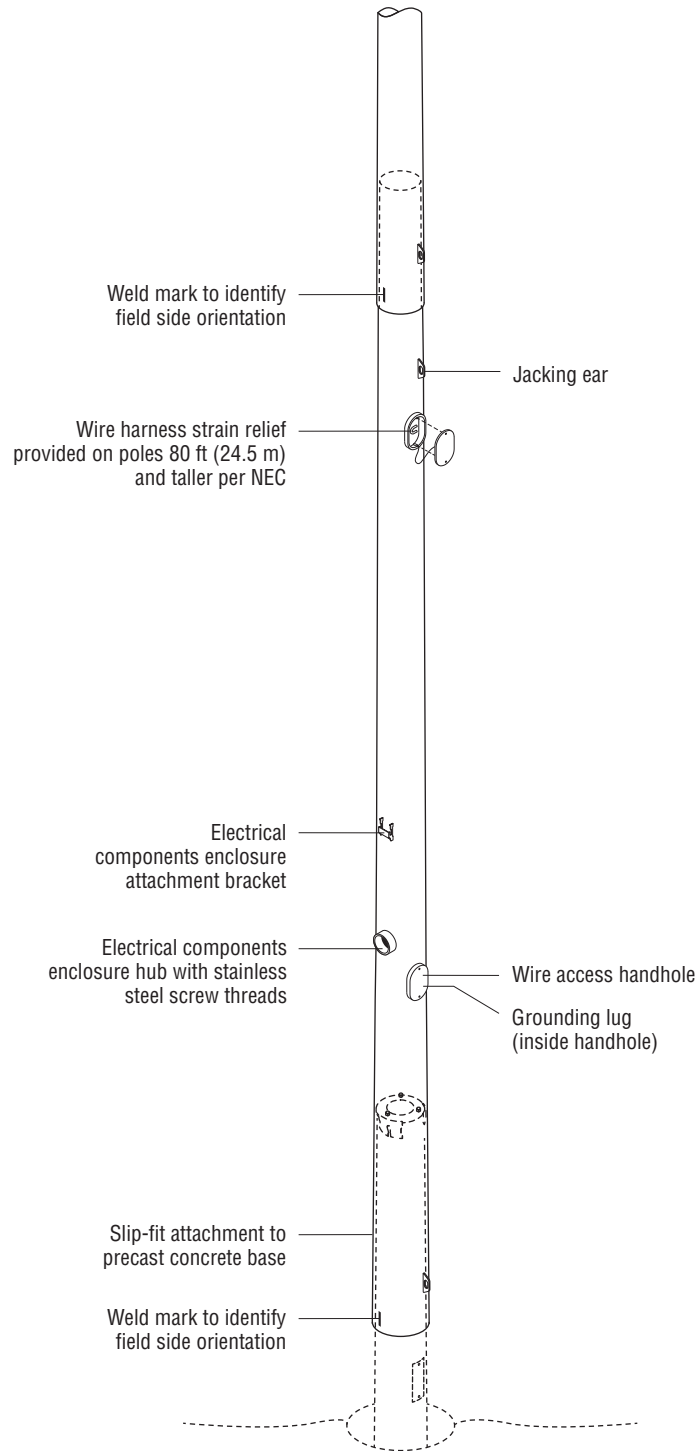
**Construction**

- 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

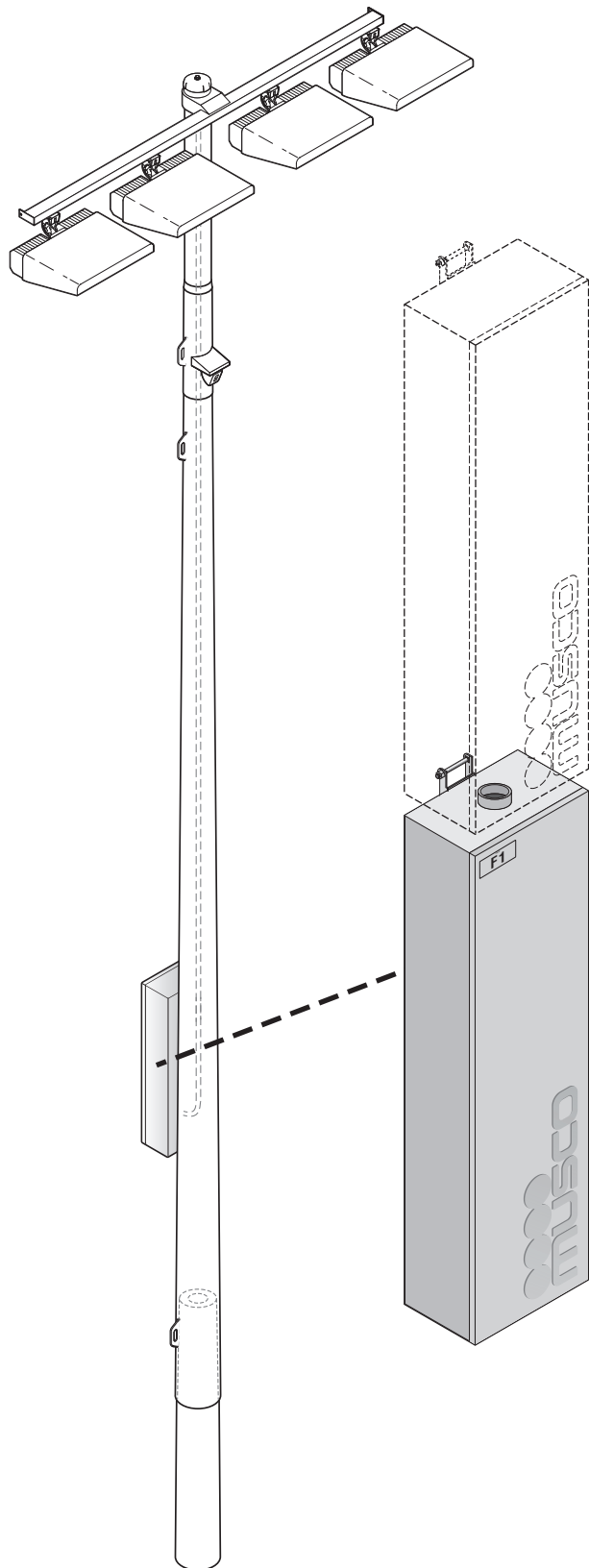
**Quality Assurance Tests**

- 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**

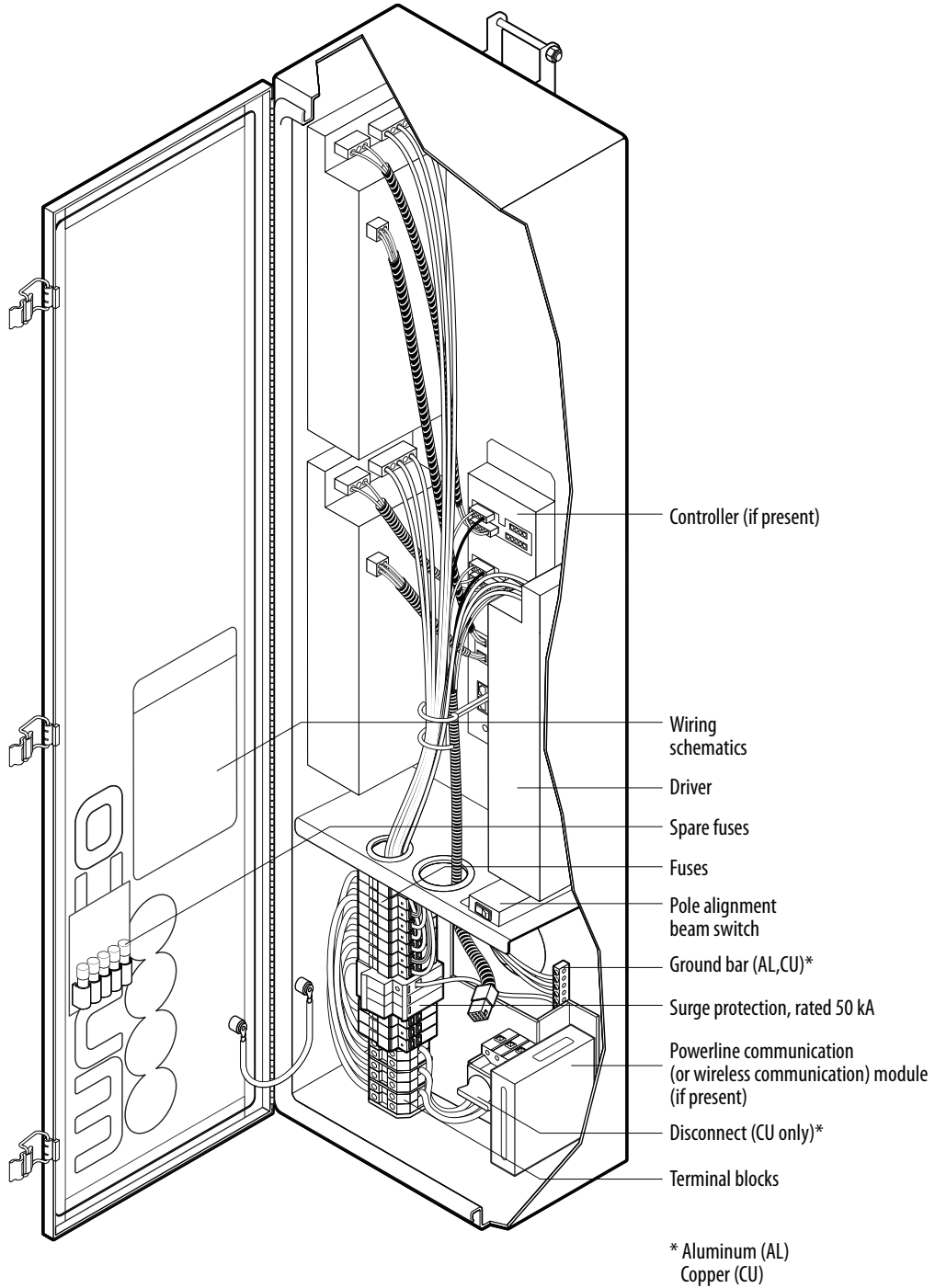
- 0.08 inch (2 mm) thick, powder-coated aluminum
- Enclosure ratings: NEMA 3R, IP54
- Designed to operate in up to 50° C (122° F) ambient temperature
- Full length stainless steel hinge
- All stainless steel fasteners passivated and coated
- Meets touchsafe standards
- Up to four drivers per enclosure
- Approximate weight 65 lb (29 kg)
- Lower enclosure size 14 in (356 mm) wide x 9 in (229 mm) deep x 52.5 in (1334 mm) high
- Upper enclosure size 14 in (356 mm) wide x 9 in (229 mm) deep x 40.5 in (1029 mm) high

**Quality Assurance Tests**

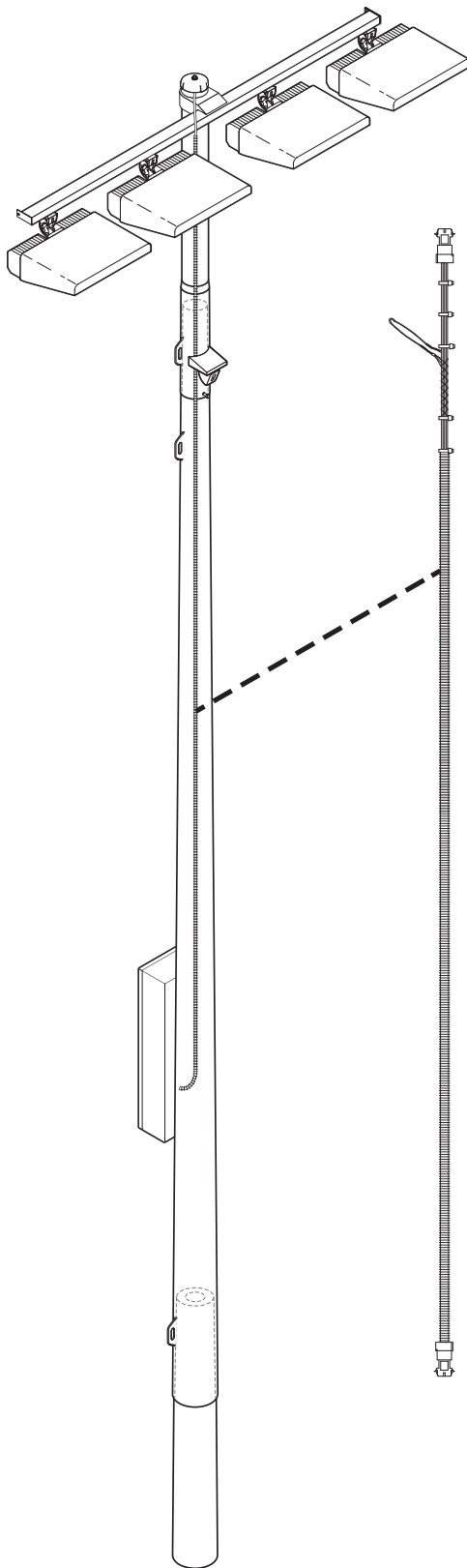
- Grounding continuity
- High potential dielectric withstand
- Full functionality test

**5 Easy Pieces™**

**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**

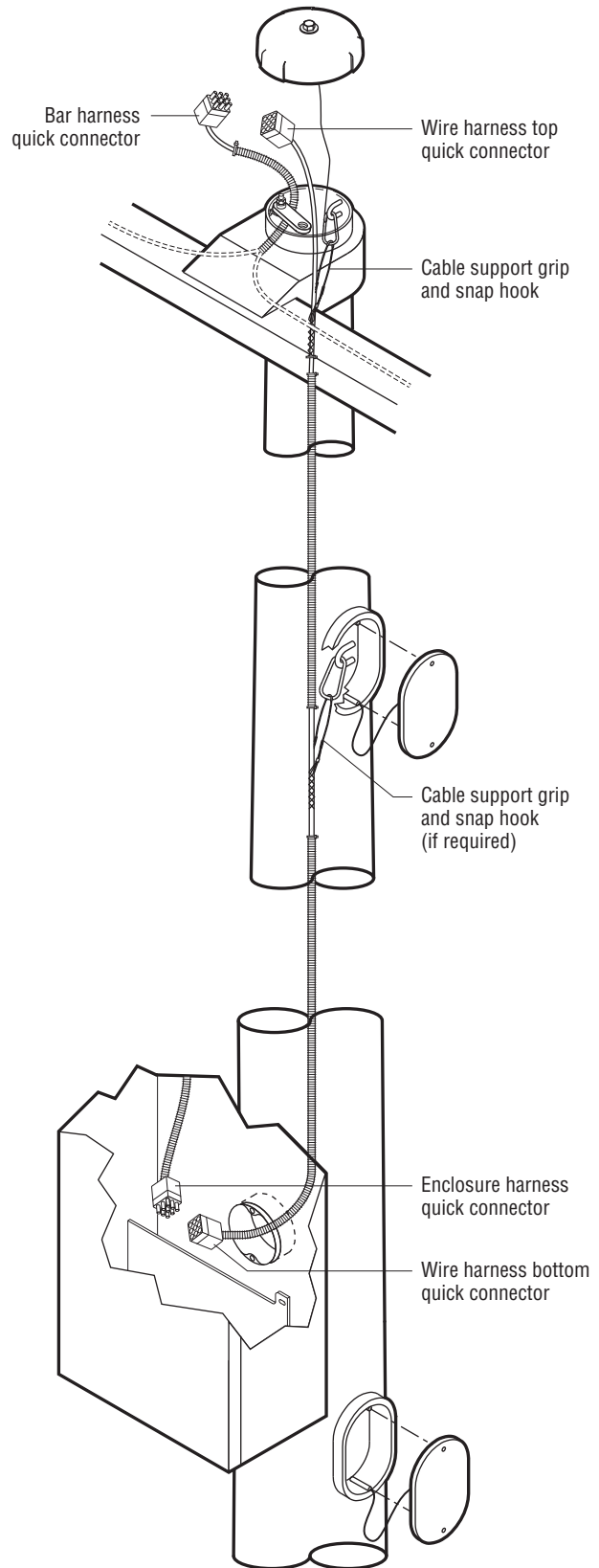
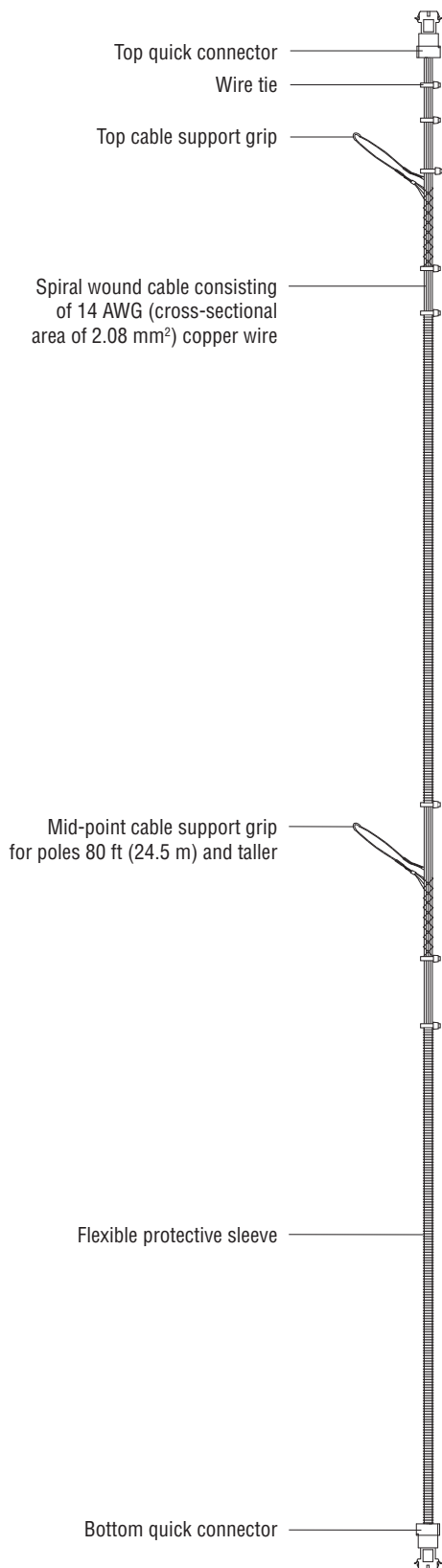
**Construction**

- Spiral wound, wrapped cable, 14 AWG (cross-sectional area of 2.08 mm<sup>2</sup>) 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

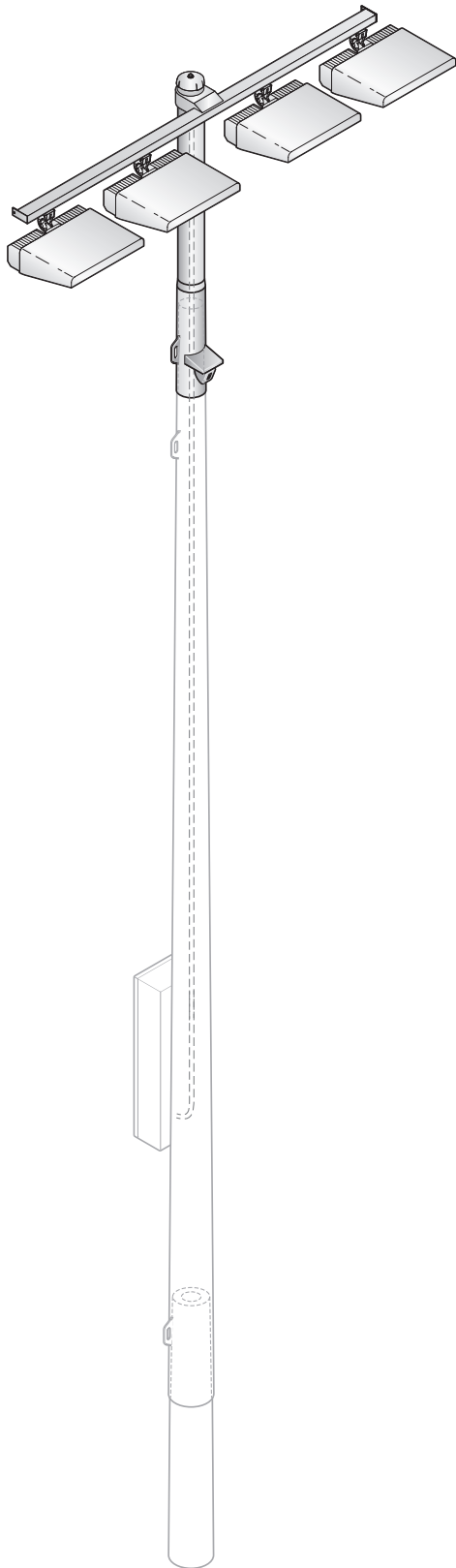
**Quality Assurance Tests**

- 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**

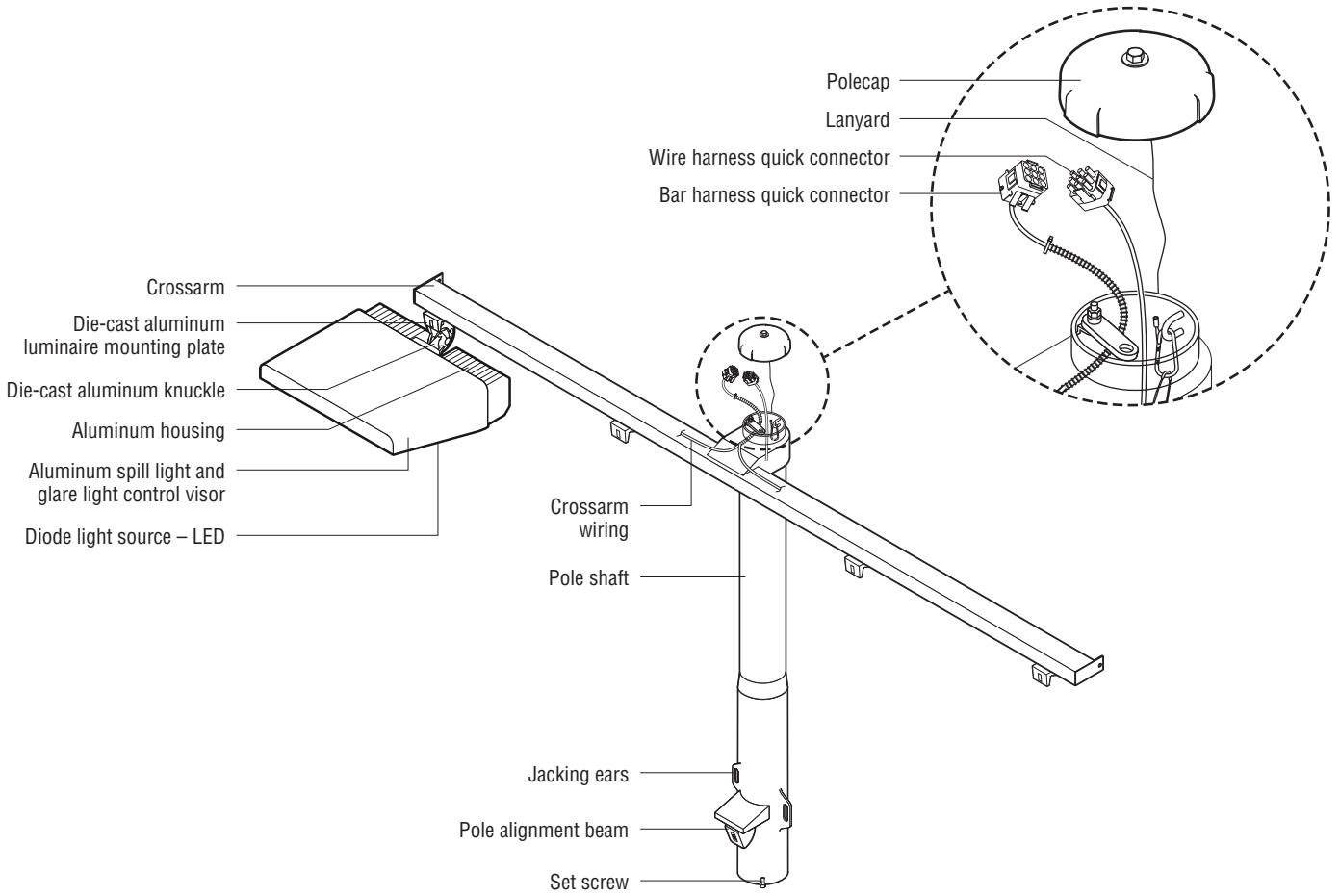
- Crossarms and pole shaft hot-dip galvanizing inside and outside after fabrication meets ASTM-A123 and EN 1461 standards
- All aluminum components are powder-coated or anodized to mil-A-8625F and BS 5599
- Luminaire and knuckle are powder-coated die-cast aluminum
- All stainless steel fasteners are passivated and coated
- Crossarms are constructed of rectangular steel tubing
- Polecap is attached with stainless steel lanyard and securing bolt

**Quality Assurance Tests**

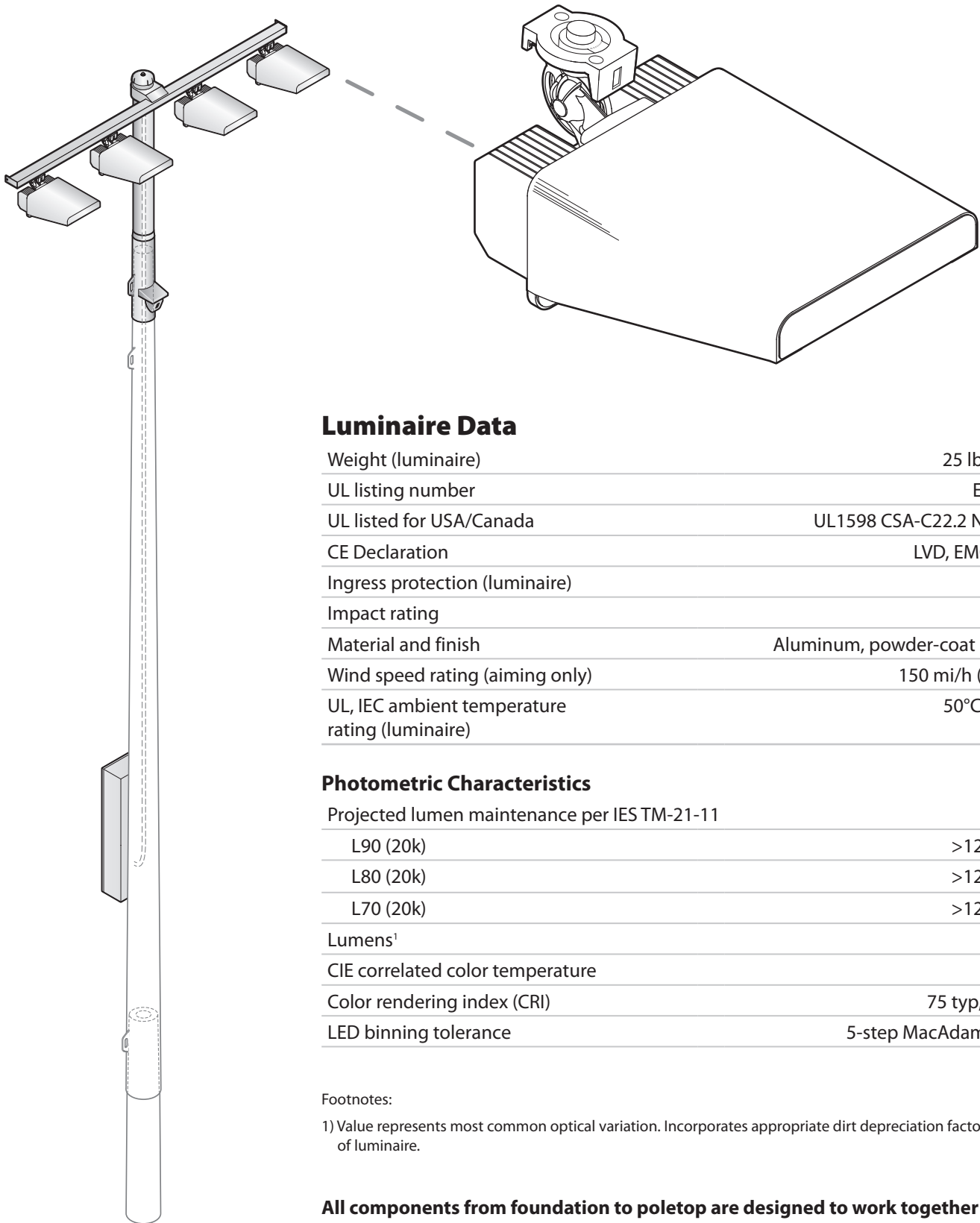
- Galvanizing thickness
- High potential dielectric withstand
- Electrical continuity

**5 Easy Pieces™**

**TLC for LED® – Poletop Luminaire Assembly, Weld On**



**TLC-LED-550 Luminaire and Driver**



**Luminaire Data**

Weight (luminaire)	25 lb (11 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)	IP66
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 <sup>1</sup>	67,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	5-step MacAdam Ellipse

Footnotes:

1) Value represents most common optical variation. Incorporates appropriate dirt depreciation factor for life of luminaire.

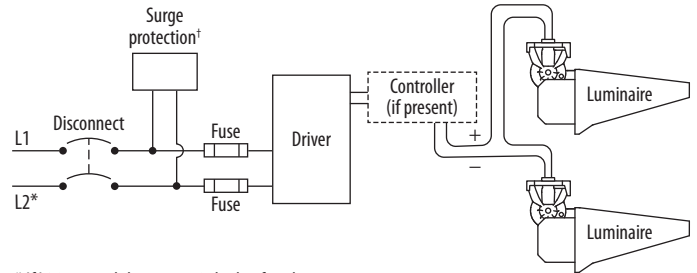
**All components from foundation to poletop are designed to work together in Light-Structure System™ to ensure reliable, trouble-free operation.**

## TLC-LED-550 Luminaire and Driver

### Electrical Data

Rated wattage <sup>1</sup>	
Per driver	1080 W
Per luminaire	540 W
Number of luminaires per driver	1 - 2
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%
Dimming mode	optional
Range, energy consumption	15 - 100%
Range, light output	20 - 100%
Flicker	<2%
Total harmonic distortion (THD) at full output	<20%

### Typical Wiring



\* If L2 is neutral then not switched or fused.  
 † Not present if indoor installation.

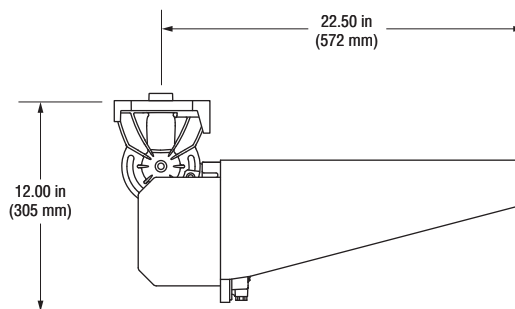
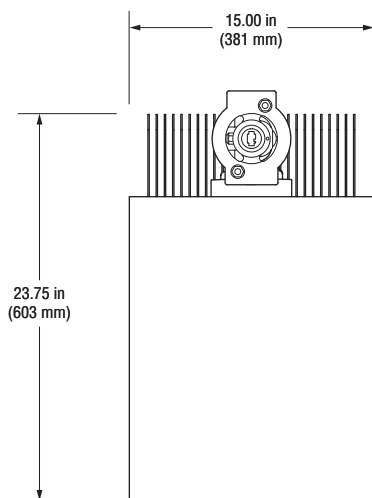
	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
<b>Max operating current per luminaire<sup>2</sup></b>	3.32 A	3.19 A	3.02 A	2.89 A	2.88 A	2.40 A	1.92 A	1.75 A	1.66 A	1.60 A	1.39 A

### Footnotes:

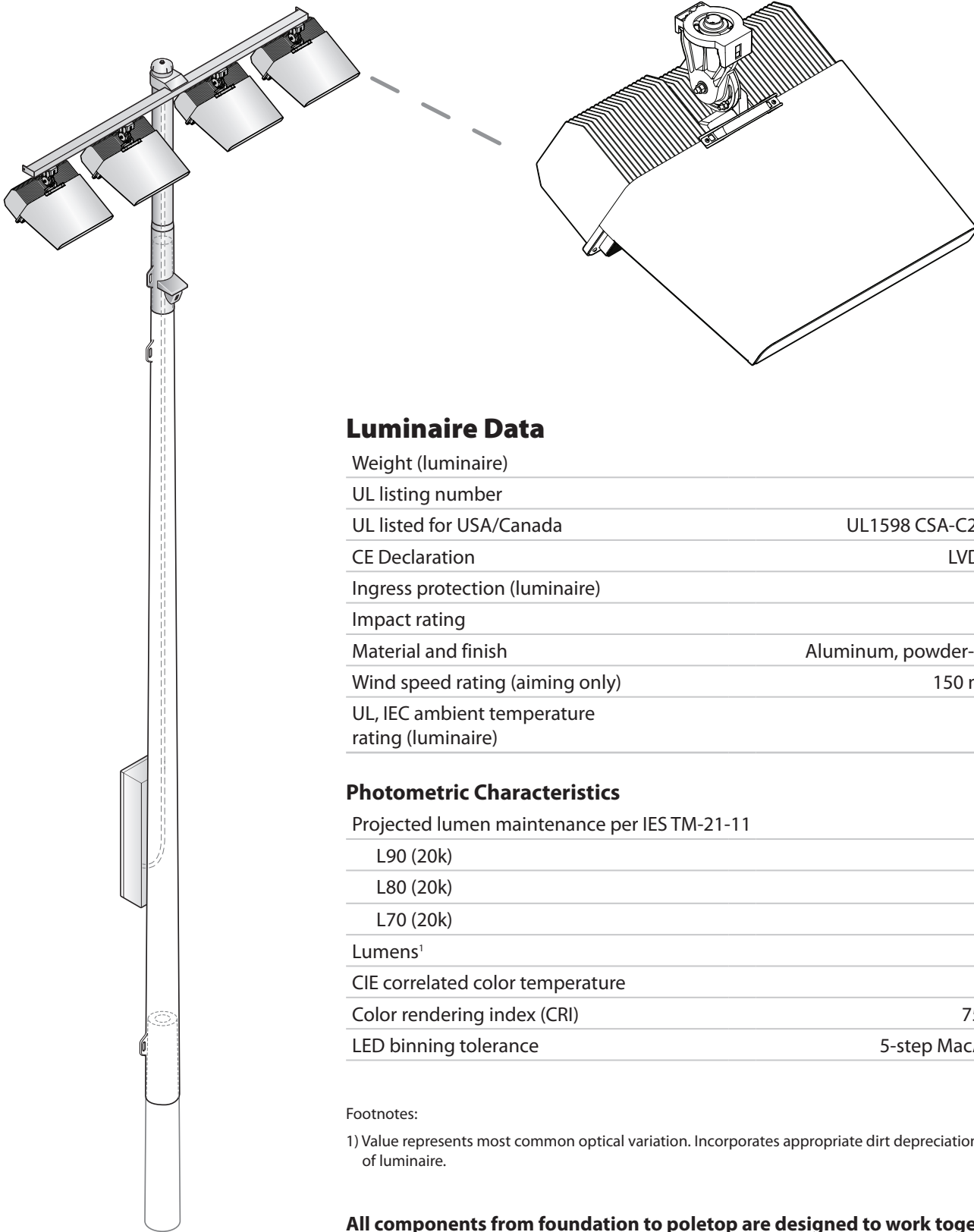
- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

### Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.



**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)	IP66
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 <sup>1</sup>	181,000
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
LED binning tolerance	5-step MacAdam Ellipse

Footnotes:

1) Value represents most common optical variation. Incorporates appropriate dirt depreciation factor for life of luminaire.

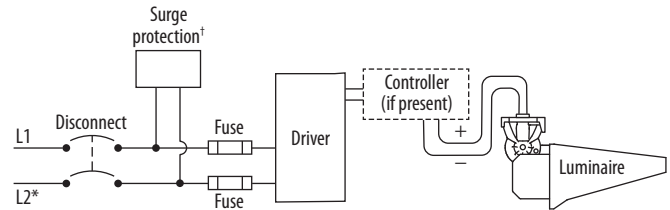
**All components from foundation to poletop are designed to work together in Light-Structure System™ to ensure reliable, trouble-free operation.**

## TLC-LED-1500 Luminaire and Driver

### Electrical Data

Rated wattage <sup>1</sup>	
Per driver	1410 W
Per luminaire	1410 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%
Dimming mode	optional
Range, energy consumption	10 – 100%
Range, light output	15 – 100%
Flicker	<2%
Total harmonic distortion (THD) at full output	<20%

### Typical Wiring



\* If L2 is neutral then not switched or fused.  
 † Not present if indoor installation.

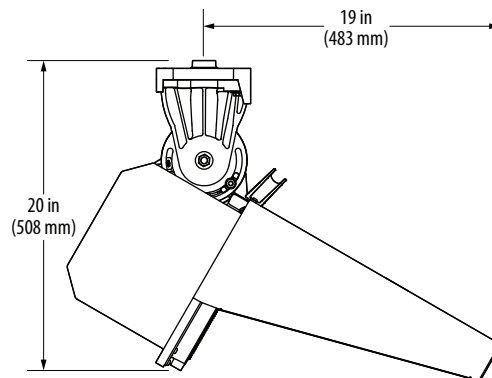
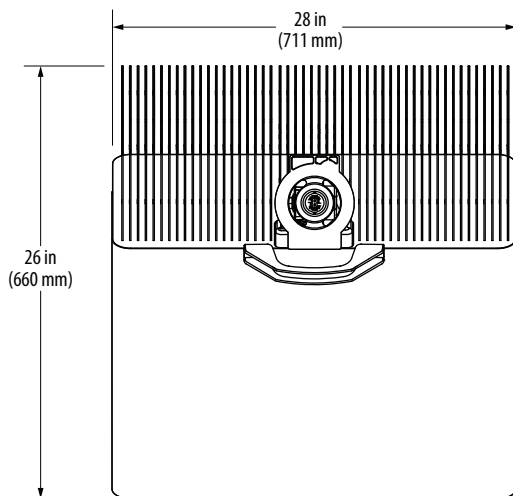
	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
<b>Max operating current per luminaire<sup>2</sup></b>	8.71 A	8.37 A	7.92 A	7.57 A	7.26 A	6.29 A	5.02 A	4.59 A	4.36 A	4.20 A	3.63 A

### Footnotes:

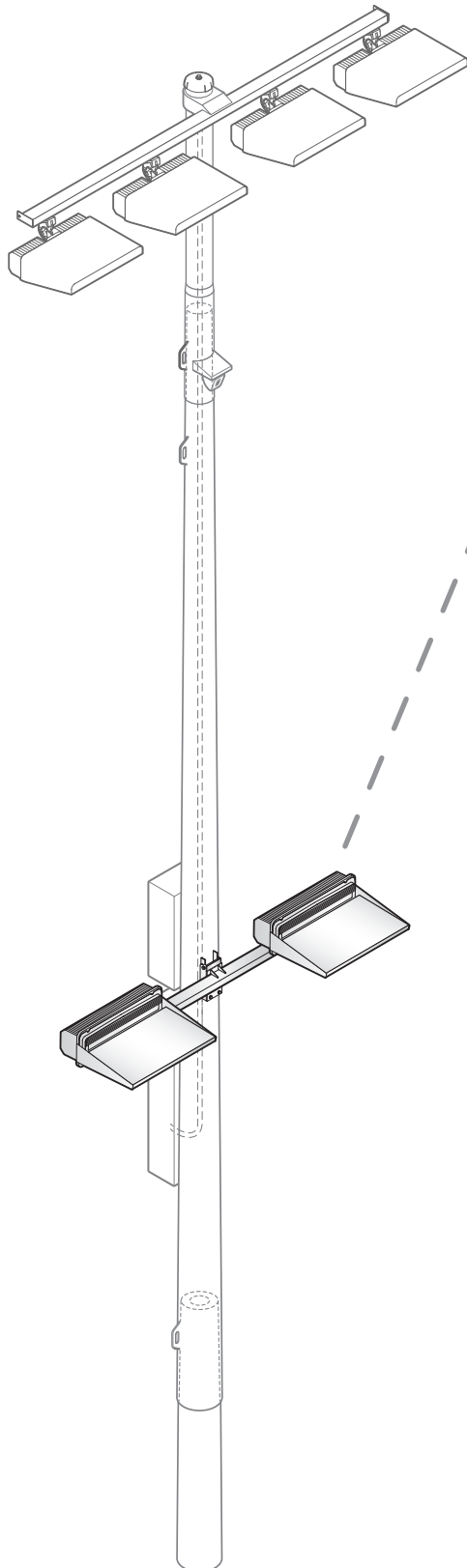
- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

### Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.



**Luminaire and Driver – 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
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 <sup>1</sup>	52,000
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.

**All components from foundation to poletop are designed to work together in Light-Structure System™ to ensure reliable, trouble-free operation.**

# Luminaire and Driver – TLC-BT-575

## Driver Data

### Electrical Data

Rated wattage<sup>1</sup>

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

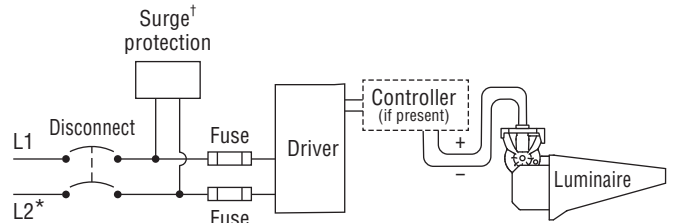
UL, IEC ambient temperature rating, electrical components enclosure 50°C (122°F)

Ingress protection, electrical components enclosure IP54

Efficiency 95%

Total harmonic distortion (THD) at full output <20%

## Typical Wiring



\* If L2 is neutral then not switched or fused.  
 † Not present if indoor installation.

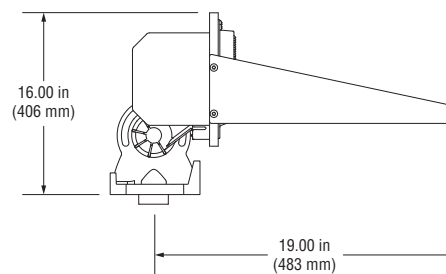
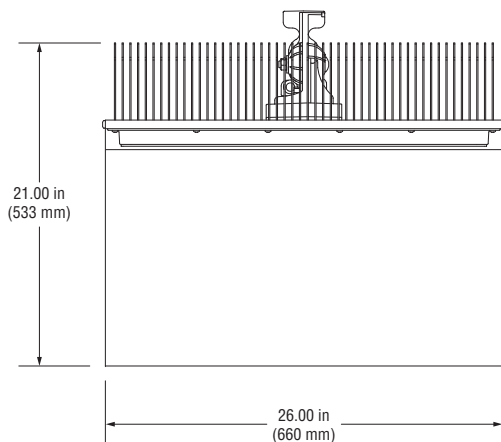
	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
<b>Max operating current per luminaire<sup>2</sup></b>	3.48 A	3.35 A	3.16 A	3.03 A	2.90 A	2.51 A	2.01 A	1.83 A	1.74 A	1.68 A	1.45 A

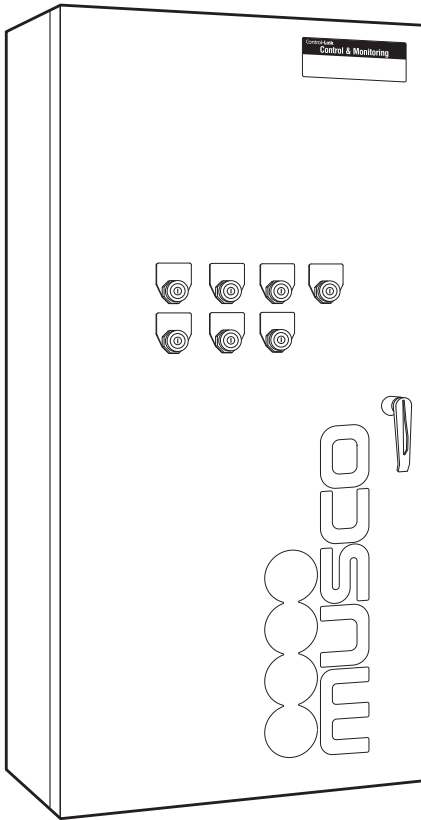
### Footnotes:

- 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.





## Overview

Control-Link® Control and Monitoring System provides remote on/off control, dimming, system monitoring, and management of your lighting system.

## Features

### Control

- Lighting system and auxiliary equipment
- Control with: Control-Link website, smartphone app, phone call, email, or fax up to 10 years in advance
- Seven controllable lighting zones
- Three customizable dimming levels (factory set at 100%, 50%, 20%)
- Multi-level user security settings
- Door-mounted or remote-mounted on/off/auto switches allow for manual override of automated control

### Monitoring

- Detects luminaire outages and other issues that affect light quality

### Management and Support

- Control-Link Central™ service center provides support 24 hours a day, 7 days a week for scheduling, monitoring, and reporting
- Luminaire outage notification within the next business day
- Customized usage reports through website

## Technical Specifications

### Control and Monitoring Cabinet Ratings

UL 508A Listed .....	E204954
CE declaration .....	LVD, EMC, RoHS
IEC 60439-1 compliant .....	UL test report 05NK26317
IEC Emissions/Immunity .....	Class A compliant
Operating temperature .....	-4°F to 140°F (-20°C to 60°C)
FCC Part 15 .....	Class A compliant
Weight for 72 inch (1829 mm) cabinet .....	180 lb (82 kg)
Weight for 48 inch (1219 mm) cabinet .....	140 lb (64 kg)
Short Circuit Current Rating (SCCR)	
with 30 A contactors*	18 kA
with 60 or 100 A contactors*	25 kA
*Minimum circuit breaker interrupt rating must be greater than or equal to SCCR rating listed above.	

### Construction

#### Control and Monitoring Cabinet

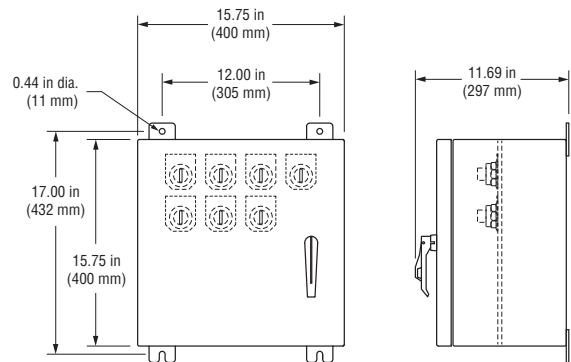
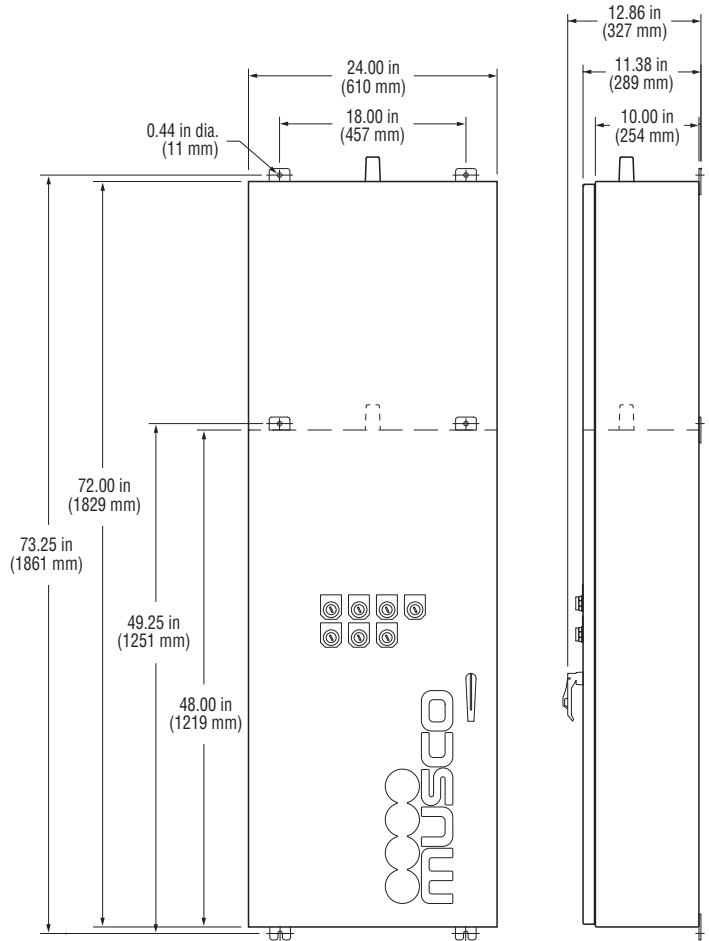
- NEMA type 4 (IP65) cabinet
- Powder-coated aluminum 5052 H32 cabinet and panel
- Lockable, 3-point latch
- Supports lighting system voltage up to 480 V
- Requires 120 V or 230 V phase-to-neutral control voltage
- Protective cover isolates high voltage

#### On/Off/Auto Manual Switches Cabinet (optional)

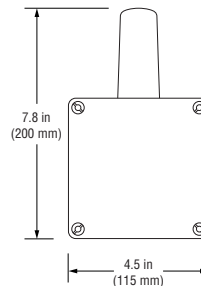
- NEMA type 4 (IP65) cabinet
- Powder-coated aluminum 5052 H32 cabinet and panel
- Lockable door
- Hinged interior panel for switch mounting

#### Remote Wireless Antenna Cabinet (for wireless communication)

- Cast aluminum with texture gray paint finish
- Omnidirectional antenna
- Operating temperature: -40°C (-40°F) to 85°C to (185°F)
- Frequency: 900 MHz or 2.4 GHz



Manual switches cabinet



Remote wireless antenna cabinet

## Internal Details

- Factory wired, programmed, and tested
- Internally fused
- Control power terminal blocks provided
- One control circuit operates entire cabinet
- Plug-in wire harnesses provided to connect multiple cabinets

## Control Module

Receives and stores schedules from Control-Link Central™ service center, operates your equipment, and verifies schedules were carried out.

- Executes scheduled on/off or dimming events.
- Stores schedules for up to 7 days
- Reboots automatically and executes current schedule when power is restored, in case of power interruption
- Monitors Musco lighting system and reports issues to keep facilities operating and to help plan routine maintenance. Alerts Control-Link Central service center to schedule appropriate action or maintenance.

## Communication Modules

Communication with Control-Link Central is done via an integrated, high speed, cellular connection with no additional monthly charges during the warranty period.

Communication with light poles is done via powerline communication or wireless communication.

- Powerline communication requires a dedicated 20A circuit (lighting circuit distribution panel)
- Wireless communication requires a dedicated antenna to be mounted at least 3 ft above the cellular antenna, and 7 ft total distance away, and line of sight to lighting poles.

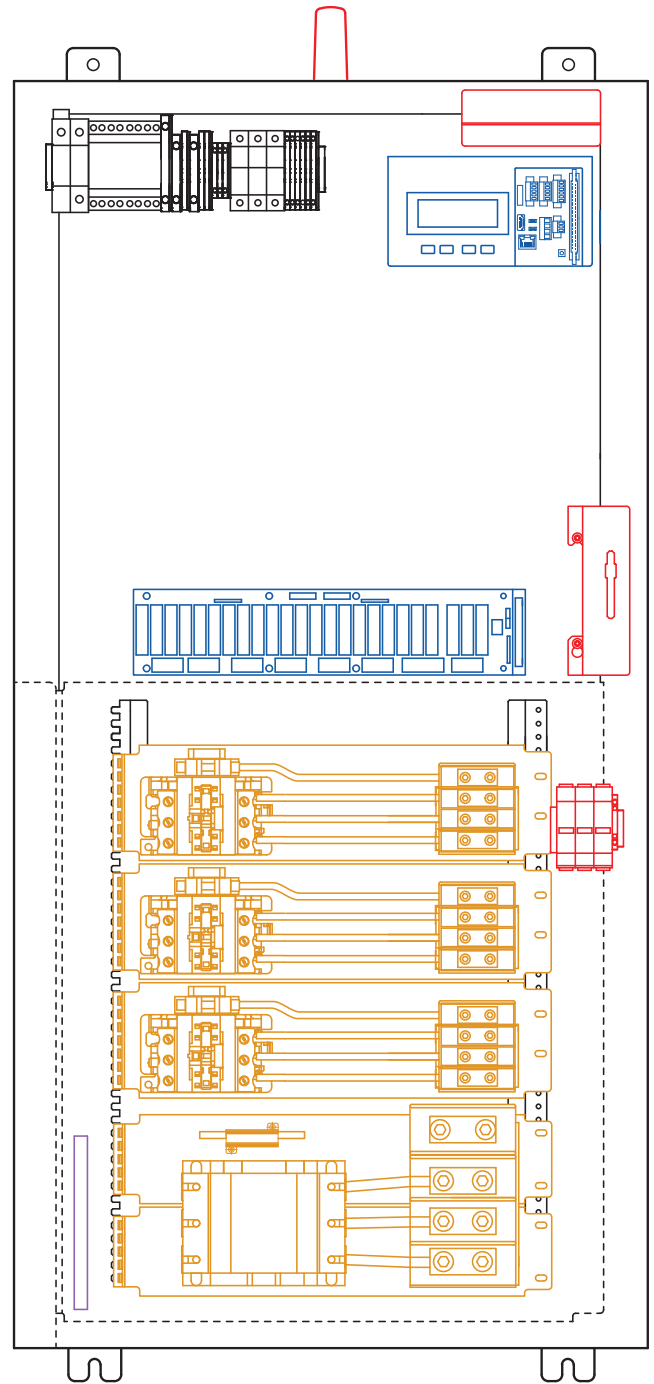
## Contactor Modules

Operates equipment based on control module schedules.

- Compliant with IEC 60947-4-1 for continuous operation at 100% of rated current
- Contactors rated for 30, 60, or 100 amps

## Ground Bar

Provides integral ground bar for lighting equipment grounding.



**UL Product Certification for:**

Musco Sports Lighting, LLC  
 100 1st Ave W  
 PO Box 808  
 Oskaloosa, IA 52577  
 USA



UL Category	Covers	UL Number
<b>High-Intensity Discharge Surface-Mounted Luminaires</b>	<ul style="list-style-type: none"> <li>Green Generation™ luminaires and remote ballast assemblies</li> <li>SportsCluster® and SportsCluster-2® luminaires and remote ballast assemblies</li> <li>Light-Structure 2™ and Light-Structure System™ luminaires and remote ballast assemblies</li> <li>1000 W Light-Pak™ and Light-Pak indoor luminaires with Multi-Watt™ control system</li> <li>1000 W Show-Light™ and Show-Light Green™ luminaires with hooded light actuator system and remote ballast assemblies</li> <li>2000 W Mirtran™ luminaire</li> <li>Stadium 2K Fixture™ 2000 W luminaire and Hot Restrike Green™ 2000 W hot restrike luminaire</li> </ul>	E33316
<b>Management Equipment, Energy</b>	Lighting control systems for: <ul style="list-style-type: none"> <li>Control-Link® control and monitoring system</li> <li>Control-Link retrofit control system</li> </ul>	E139944
<b>Industrial Control Panels</b>	Control panels and enclosures for: <ul style="list-style-type: none"> <li>Control-Link® control and monitoring system</li> <li>Control-Link retrofit control system</li> <li>Lighting contactor cabinets</li> <li>Multi-Watt™ control systems</li> </ul>	E204954
<b>Emergency Lighting and Power Equipment</b>	<ul style="list-style-type: none"> <li>Auxiliary Lighting Interface Cabinet (ALIC)</li> </ul>	E311491
<b>Luminaire Fittings</b>	Galvanized steel poles 12 ft (3.7 m) or less for: <ul style="list-style-type: none"> <li>Poles for Mirtran™ luminaire mounting</li> <li>Rooftop poles</li> <li>Special applications</li> </ul>	E132445
<b>Luminaire Pole in Excess of 12 ft (3.7 m)</b>	Galvanized steel poles greater than 12 ft (3.7 m) for: <ul style="list-style-type: none"> <li>Light-Structure System™ luminaire mounting</li> <li>Sportspole™ structure or mounting system and special applications</li> </ul>	E325078

UL Category	Covers	UL Number
<b>Devices, Scaffolding</b>	Service platforms for: <ul style="list-style-type: none"> <li>• Light-Structure System™ luminaires and remote ballast assemblies</li> <li>• SportsCluster® System luminaires and remote ballast assemblies</li> </ul>	SA7004
<b>Lightning Conductors, Air Terminals, and Fittings</b>	<ul style="list-style-type: none"> <li>• Light-Structure System™ pole structure concrete base</li> </ul>	E337467
<b>Light-Emitting-Diode Surface-Mounted Luminaires</b>	<ul style="list-style-type: none"> <li>• LED luminaires and driver assemblies</li> <li>• LED auxiliary luminaires</li> </ul>	E338094

A copy of the UL Certificate of Compliance is available upon your request.

## **Manufacturer's Certification of Corrosion Protection for Light-Structure System™ and SportsCluster® Lighting Systems**

The following standard corrosion protection is provided on your equipment:

- All exposed components are constructed of corrosion-resistant material and/or coated to protect against corrosion.
- All exposed carbon steel is hot-dip galvanized, meeting ASTM A123 and ISO/EN 1461.
- All exposed aluminum is powder-coated with high-performance polyester or anodized. All exterior reflective inserts are anodized, coated with a clear, high-gloss, durable fluorocarbon, and protected from direct environmental exposure to prevent reflective degradation or corrosion.
- All exposed hardware and fasteners are stainless steel, passivated, and coated with an aluminum based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Alternately, for hardware in non-stressed applications, an electroless nickel coating meeting ASTM B733 may be used. Pole strapping used to mount certain equipment to light poles is annealed grade 304 stainless steel and passivated.
- Certain structural fasteners are carbon steel, galvanized meeting ASTM A153 and ISO/EN 1461 (for hot-dip galvanizing), or ASTM B695 (for mechanical galvanizing).

This corrosion protection package only applies to equipment manufactured by Musco.

Musco Sports Lighting, LLC



Greg Kubbe  
Director of Product Performance



# EXHIBIT B

Item 4.

Bell & McCoy Lighting and Controls  
4630 Nall Road  
Farmers Branch TX 75244  
Phone: (972) 406-8700  
Fax: (972) 406-8706

**Date: Dec 3, 2024**

Job Name  
**ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 - ARGYLE TX**  
DALLAS24-168357  
ARGYLE TX

Bid Date  
Nov 27, 2024

Submittal Date  
Dec 2, 2024

*Architect:*  
CORGAN-DALLAS (INSTITUTIONAL)  
401 NORTH HOUSTON STREET  
DALLAS TX 75202

*Engineer:*  
ESTES MCCLURE & ASSOCIATES, INC  
3608 WEST WAY  
TYLER TX 75703

Date: Dec 3, 2024



# Transmittal

Item 4.1

Bell & McCoy Lighting and Controls  
4630 Nall Road  
Farmers Branch TX 75244  
Phone: (972) 406-8700  
From: **KAITLYNN ROBISON**

**Project** ARGYLE ISD - ARGYLE MIDDLE SCHOOL  
#1 - ARGYLE TX  
**Quote#** DALLAS24-168357  
**Location** ARGYLE TX  
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- |                                   |   |        |
|-----------------------------------|---|--------|
| <input type="checkbox"/> Drawings | <input type="checkbox"/> Specifications | Other: |
| <input type="checkbox"/> Prints   | <input type="checkbox"/> Information    |        |
| <input type="checkbox"/> Plans    | <input type="checkbox"/> Submittals     |        |

THESE ARE TRANSMITTED FOR:

- |  |   |                                 |
|--|---|---------------------------------|
| <input type="checkbox"/> Prior Approval        | <input type="checkbox"/> Resubmittal for Approval | <input type="checkbox"/> Record |
| <input type="checkbox"/> Approval              | <input type="checkbox"/> Corrections              | Bids due on:                    |
| <input type="checkbox"/> Approval as Submitted | <input type="checkbox"/> Your Use                 | Other:                          |
| <input type="checkbox"/> Approval as Noted     | <input type="checkbox"/> Review and Comment       |                                 |

Type	MFG	Part
T1	LSI INDUSTRIES	ZNL 78L CT HV 50 CR7P BRZ
T1	LSI INDUSTRIES	5RP B3 S07G24 S BRZ/ABKIT 5RP S07G STL PL 1X30 11BC/KIT BCVR 5SRBC BRZ
T2	LSI INDUSTRIES	ZNL 78L CT HV 50 CR7P BRZ
T2	LSI INDUSTRIES	5RP B3 S07G24 D180 BRZ/ABKIT 5RP S07G STL PL 1X30 11BC/KIT BCVR 5SRBC BRZ

**Job Name:**

ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
ARGYLE TX  
Architect: CORGAN-DALLAS (INSTITUTIONAL)  
(DALLAS)

**Catalog Number:**

ZNL 78L CT HV 50 CR7P BRZ

**Type:**

T Item 4.

Notes:

DALLAS24-168357



Catalog #: \_\_\_\_\_ Project: \_\_\_\_\_ Type: \_\_\_\_\_

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

# ZONE™ Large (ZNL)

## Outdoor Sports Light



IP66 IK08

**"LSI ZNL IS SPECIFIED AS A SPECIALTY FIXTURE ON FIXTURE SCHEDULE WITH NO SUBSTITUTION ALLOWED"**



OVERVIEW	
Lumen Range	50,000 - 78,000
Wattage Range	375 - 648
Efficacy Range (LPW)	114 - 146
Weight lbs (kg)	60 (27.2)
Control Options	IMSBT, ALB, ALS, 7-Pin

### QUICK LINKS

[Ordering Guide](#)
[Performance](#)
[Photometrics](#)
[Dimensions](#)

### FEATURES & SPECIFICATIONS

#### Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 68 lbs in carton

#### Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types CT and FT.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 95%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377.
- Minimum CRI of 70
- Integral louver (IL) and integral half louver (IH) options available for enhanced back-light control.

#### Electrical

- High-performance driver features overvoltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).

- L90 Calculated Life: >100k Hours (See Lumen Maintenance on Page 3)
- Total harmonic distortion: <20%
- Operating temperature: 50L and 60L: -40°C to +50°C (-40°F to +122°F). 65L and 78L: -40°C to +40°C (-40°F to +104°F)
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

#### Controls

- Optional integral passive infrared Blue-tooth™ programmable motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink wireless control system options allow for programming and group control while reducing energy and maintenance costs and optimizing light quality (see controls section for more details).

#### Installation

- Designed to mount to square or round poles.
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block (accepts up to 12 ga. wire).

- 5' Dimming and Power leads included when Fixed Mounting Studs are ordered.
- Utilizes both B3 and B5 drill patterns for easy fastening of LSI products. (See drawing in poles section).

#### Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to <https://www.lsicorp.com/resources/terms-conditions-warranty/> for more information.

#### Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- Dark Sky compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications applications are qualified.
- IK08 rated luminaire per IEC 66262 mechanical impact code.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](http://www.designlights.org/QPL) to confirm which versions are qualified.
- Patented Silicone Optics (US Patent NO. 10,816,165 B2)





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 ZNL 78L CT HV 50 CR7P BRZ

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## ZONE Large Outdoor Sports Light

Have questions? Call us at (800) 436-7800

# Furnish as Corrected

Type: \_\_\_\_\_

### ORDERING GUIDE

[Back to Quick Links](#)

**TYPICAL ORDER EXAMPLE: ZNL 60L CT UNV 50 ALBCS1 BLK IH**

Prefix	Output	Distributions	Orientation	Voltage	Color Temperature
<b>ZNL - Zone Large</b>	50L - 50,000 lms 60L - 60,000 lms 65L - 65,000 lms <b>78L - 78,000 lms</b> Custom Lumen Packages <sup>1</sup>	<b>CT - Court Optic</b> FT - Forward Throw	<b>(Blank) - Standard (no rotation)</b> L - Optics rotated left 90° R - Optics rotated right 90°	<b>UNV - Universal Voltage (120-277V)</b> <b>HV - High Voltage (347-480V)</b>	<b>50 - 5,000 CCT</b> 40 - 4,000 CCT 30 - 3,000 CCT

**ARCHITECT TO VERIFY FINISH**

Controls	Finish	Options
<p><b>(Blank) - None</b></p> <p><b>Wireless Controls System</b>                      ALS - AirLink Synapse Control System                      ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor                      ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor                      ALSB - AirLink Synapse Integral Controller and Dynamic Behaviors Drivers                      ALBMR1LR - AirLink Blue Long Range Wireless Motion &amp; Photo Sensor Controller (8-15' mounting height)<sup>3</sup>                      ALBMR2LR - AirLink Blue Long Range Wireless Motion &amp; Photo Sensor Controller (16-40' mounting height)<sup>3</sup></p> <p><b>Stand-Alone Controls</b>                      EXT - 0-10v Dimming leads extended to housing exterior  <b>CR7P - 7 Pin Control Receptacle ANSI C136.4122</b>                      IMSBTL1 - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height<sup>3</sup>                      IMSBTL2 - Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height<sup>3</sup></p>	<p><b>BLK - Black</b>  <b>BRZ - Dark Bronze</b>                      GPT - Graphite                      MSV - Metallic Silver                      PLP - Platinum Plus                      GRN - Green                      WHT - White</p>	<p><b>(Blank) - None</b>                      IH - Integral Half Louver (Moderate Spill Light Cutoff)                      IL - Integral Louver (Sharp Spill Light Cutoff)                      FMS - Fixed Mounting Studs<sup>4</sup></p>



**Need more information?**  
[Click here for our glossary.](#)

**Have additional questions?**  
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### Accessory Ordering Information<sup>5</sup>

CONTROLS ACCESSORIES <sup>5</sup>	
Description	Order Number
Twist Lock Photocell (120V) for use with CR7P <sup>7</sup>	122514
Twist Lock Photocell (208-277V) for use with CR7P <sup>7</sup>	122515
Twist Lock Photocell (347V) for use with CR7P <sup>7</sup>	122516
Twist Lock Photocell (480V) for use with CR7P <sup>7</sup>	1225180
AirLink 5 Pin Twist Lock Controller <sup>7</sup>	661409
AirLink 7 Pin Twist Lock Controller <sup>7</sup>	661410
AirLink Synapse Central Base Station	TBD
AirLink Synapse Remote Access 12 month subscription	TBD
AirLink Synapse Dynamic Behavior Software	TBD
Shorting Cap for use with CR7P <sup>7</sup>	149328

FUSING OPTIONS <sup>6</sup>	
Single Fusing (120V)	See Fusing Accessory Guide
Single Fusing (277V)	
Double Fusing (208V, 240V)	
Double Fusing (480V)	
Double Fusing (347V)	

EXTERNAL SHIELDING OPTIONS	
3" External Shield	See Shielding Guide
6" External Shield	

1 Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.  
 2 Control device or shorting cap must be ordered separately. See Accessory Ordering Information.  
 3 Motion sensors are field configurable via an app that can be downloaded from your smartphone's native app store. See controls section for more details.  
 4 For use with ZNL upswep arm only. Please see accessory table for ordering details.  
 5 Accessories are shipped separately and field installed.  
 6 Fusing must be located in hand hole of pole. See [Fusing Accessory Guide](#) for compatibility.  
 7 "CLR" denotes finish. See Finish options.





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# ZONE Large Outdoor Sports Light

Type: \_\_\_\_\_

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## ACCESSORIES

MOUNTING ACCESSORIES	
Side Arm	<p><b>Universal Mounting Bracket</b>                      Mounts to ≥ 3" square or round (tapered/straight) poles with (2) mounting hole spaces between 3.5" to 5"</p> <p><b>Part Number: BKA UMB CLR</b></p> 
	<p><b>Quick Mount Plate</b>                      True one person installation to existing/new construction poles with hole spaces between 2.4 to 4.6"</p> <p><b>Part Number: BKS PQM B3B5 XX CLR</b></p> 
	<p><b>15° Tilt Quick Mount Plate</b>                      True one person installation to existing/new construction poles with hole spaces between 2.4 to 4.6"</p> <p><b>Part Number: BKS PQ15 B3B5 XX CLR</b></p> 
Tenon / Slipfitter	<p><b>Adjustable Slipfitter</b>                      Mounts onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon and provides 180° of tilt (max 45° above horizontal)</p> <p><b>Part Number: BKA ASF CLR</b></p> 
	<p><b>Square Tenon Top</b>                      Mounts onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon and allows for mounting up to 4 luminaires</p> <p><b>Part Number: BKA XNM *</b></p> 
	<p><b>Square Internal Slipfitter</b>                      Mounts inside 4" or 5" square pole and allows for mounting up to 4 luminaires</p> <p><b>Part Number: BKA X_ISF * CLR</b></p> 
Wall Mount/ Wood Pole	<p><b>Wall Mount Bracket</b>                      Mounts onto vertical wall surface ( hardware/anchors not included)</p> <p><b>Part Number: BKS XBO WM CLR</b></p> 
	<p><b>Wood Pole Bracket</b>                      Mounts onto wooden poles (6" minimum OD, hardware/anchors not included)</p> <p><b>Part Number: BKS XBO WP CLR</b></p> 

SHIELDING, POLES & MISC. ACCESSORIES	
Shielding	<p><b>Integral Louver</b>                      Field Install Integral Louver provides maximum backlight control by shielding each individual row of LEDs</p> <p><b>Part Number: 686485</b></p> 
	<p><b>Integral Half Louver</b>                      Field Install Integral Half Louver provides great backlight control without impacting front side distribution.</p> <p><b>Part Number: 743416</b></p> 
	<p><b>External Shield</b>                      External shield blocks view of light source from anyside of luminaire, additional shielding configurations available</p> <p><b>Part Number: 785970BLK (3") / 785962BLK (6")</b></p> 
Poles	<p><b>Square Poles</b>                      14 - 39" steel and aluminum poles in 4", 5" and 6" sizes for retrofit and new construction</p> <p><b>Part Number: 45Q/55Q/65Q</b></p> 
	<p><b>Round Poles</b>                      10 - 30" steel and aluminum poles in 4" and 5" sizes for retrofit and new construction</p> <p><b>Part Number: 48R/58R</b></p> 
	<p><b>Tapered Poles</b>                      20" - 39" steel and aluminum poles for retrofit and new construction</p> <p><b>Part Number: RTP</b></p> 
Misc.	<p><b>Bird Spikes</b>                      10' linear bird spike (4' recommended per luminaire) silicone adhesive and application tool</p> <p><b>Spike Part Number: 751631</b>  <b>Adhesive Part Number: 751632</b>  <b>Caulk Gun Part Number: 751636</b></p> 

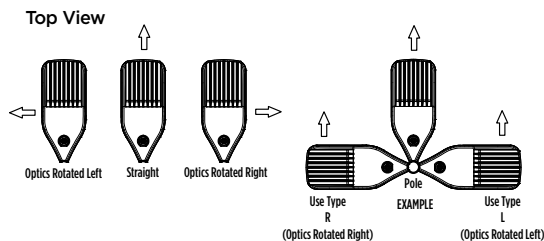
Replace CLR with paint finish description

Replace XX with SQ for square pole or RD for round pole (≈3" OD)

Replace \* with S (Single), D180 (Double @180°), D90 (Double @90°), T90 (Triple), Q90 (Quad)

Replace \_ with 4 (4" square pole) or 5 (5" square pole)

## OPTICS ROTATION



## ACCESSORIES/OPTIONS

### Integral Louver (IL) and House-Side Shield (IH)

Integral louver (IL) and half louver (IH) accessory shields available for improved backlight control without sacrificing street side performance. LSI's Integral Louver (IL) and Integral House-Side Shield (IH) options deliver backlight control that significantly reduces spill light behind the poles for applications with pole locations close to adjacent properties. The design maximizes forward reflected light while reducing glare, maintaining the optical distribution selected, and most importantly eliminating light trespass. Both options rotate

Luminaire Shown with Integral Louver (IL)



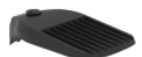
Luminaire Shown with IMSBT Option



### 7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with CR7P





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 ZNL 78L CT HV 50 CR7P BRZ

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DALLAS24-168357

# ZONE Large Outdoor Sports Light

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## PERFORMANCE

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DELIVERED LUMENS*												
Lumen Package	Distribution	CRI	3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
50L	CT	70	50,639	135	B4-U0-G3	52,572	140	B4-U0-G3	52,497	140	B4-U0-G3	375
	CT IH		38,648	103	B3-U0-G3	40,091	107	B3-U0-G3	41,655	111	B3-U0-G3	
	CT IL		28,040	75	B2-U0-G3	29,087	78	B2-U0-G3	30,221	81	B2-U0-G3	
	FT		50,082	134	B4-U0-G5	51,952	139	B4-U0-G5	53,978	144	B4-U0-G5	
	FT IH		35,383	94	B3-U0-G5	36,704	98	B3-U0-G5	38,136	102	B3-U0-G5	
	FT IL		28,367	76	B1-U0-G4	29,426	78	B1-U0-G4	30,573	82	B1-U0-G4	
60L	CT		57,260	128	B4-U0-G3	59,445	133	B4-U0-G4	59,361	133	B4-U0-G4	448
	CT IH		43,649	97	B3-U0-G3	45,279	101	B3-U0-G4	47,045	105	B3-U0-G4	
	CT IL		31,668	71	B2-U0-G3	32,851	73	B2-U0-G3	34,132	76	B2-U0-G3	
	FT		56,949	127	B5-U0-G5	59,083	132	B5-U0-G5	60,561	135	B5-U0-G5	
	FT IH		39,961	89	B3-U0-G5	41,454	93	B3-U0-G5	43,070	96	B3-U0-G5	
	FT IL		32,038	72	B1-U0-G5	33,234	74	B1-U0-G5	34,530	77	B2-U0-G5	
65L	CT		64,952	125	B4-U0-G4	67,431	130	B4-U0-G4	67,336	130	B4-U0-G4	518
	CT IH		49,576	96	B3-U0-G4	51,427	99	B3-U0-G4	53,433	103	B3-U0-G4	
	CT IL		35,968	69	B2-U0-G3	37,311	72	B2-U0-G4	38,766	75	B2-U0-G4	
	FT		64,239	124	B5-U0-G5	66,638	129	B5-U0-G5	69,237	134	B5-U0-G5	
	FT IH		45,387	88	B3-U0-G5	47,082	91	B3-U0-G5	48,918	94	B3-U0-G5	
	FT IL		36,387	70	B2-U0-G5	37,746	73	B2-U0-G5	39,218	76	B2-U0-G5	
78L	CT	74,745	115	B4-U0-G4	77,598	120	B5-U0-G4	77,488	120	B5-U0-G4	648	
	CT IH	57,284	88	B3-U0-G4	59,423	92	B3-U0-G4	61,741	95	B3-U0-G4		
	CT IL	41,561	64	B2-U0-G4	43,113	67	B2-U0-G4	44,794	69	B2-U0-G4		
	FT	73,925	114	B5-U0-G5	76,685	118	B5-U0-G5	79,676	123	B5-U0-G5		
	FT IH	52,444	81	B3-U0-G5	54,403	84	B3-U0-G5	56,525	87	B3-U0-G5		
	FT IL	42,045	65	B2-U0-G5	43,615	67	B2-U0-G5	45,316	70	B2-U0-G5		

\*LEDs are frequently updated therefore values are nominal

ELECTRICAL DATA* (AMPS)						
Lumen Package	120V	208V	240V	277V	347V	480V
50L	3.13	1.80	1.56	1.35	1.08	0.78
60L	3.73	2.15	1.87	1.62	1.29	0.93
65L	4.32	2.49	2.16	1.87	1.49	1.08
78L	5.40	3.12	2.70	2.34	1.87	1.35

\*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

RECOMMENDED LUMEN MAINTENANCE <sup>10</sup>					
Ambient Temp	Lumen Multiplier				
C	0 hrs. <sup>11</sup>	25K hrs. <sup>11</sup>	50K hrs. <sup>11</sup>	75K hrs. <sup>12</sup>	100K hrs. <sup>12</sup>
0 C - 40 C	100%	100%	97%	94%	92%

<sup>10</sup> Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing.

<sup>11</sup> In accordance with IESNA TM-21-II, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip.

<sup>12</sup> In accordance with IESNA TM-21-II, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip.



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## PHOTOMETRICS

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Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

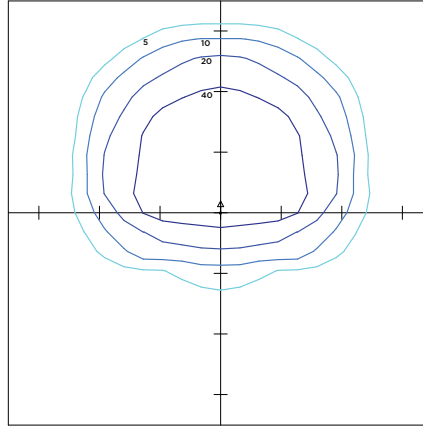
See the individual product page on <https://www.lsicorp.com/> for detailed photometric data.

### ZNL-60L-CT-40

Luminaire Data	
Type 3 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	67,432
Watts	518
Efficacy	130
IES Type	Type III - Very Short
BUG Rating	B5-U0-G3

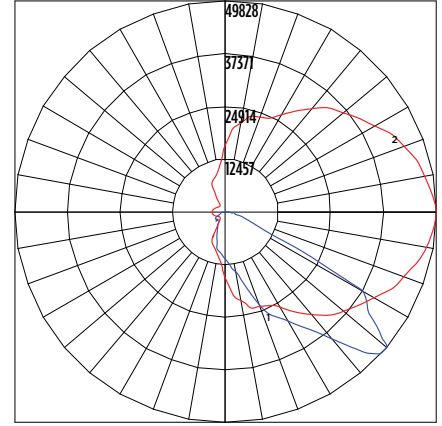
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
Low (0-30)°	13837	9%
Medium (30-60)°	44654	43%
High (60-80)°	8162	48%
Very High (80-90)°	779	1%
Uplight (90-180)°	0	0%
<b>Total Flux</b>	<b>67432</b>	<b>100%</b>

#### ISO Footcandle



15' Mounting Height / 10' Grid Spacing  
 40 FC 20 FC 10 FC 5 FC

#### Polar Curve



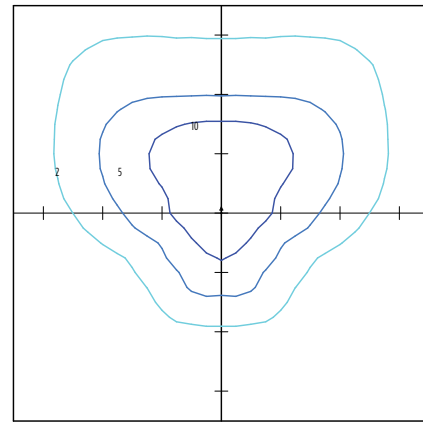
Vertical Plane Horizontal Cone

### ZNL-65L-FT-40

Luminaire Data	
Type 3 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	66,638
Watts	518
Efficacy	129
IES Type	Type IV - Short
BUG Rating	B5-U0-G5

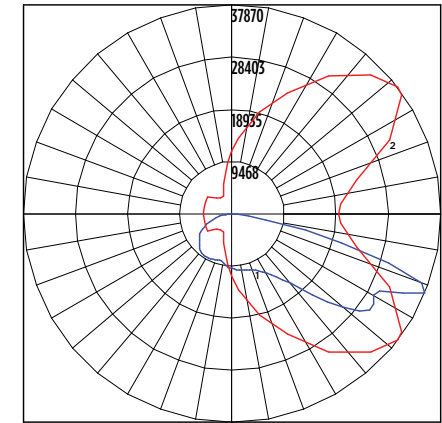
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
Low (0-30)°	8542	13%
Medium (30-60)°	33055	50%
High (60-80)°	23973	36%
Very High (80-90)°	1069	2%
Uplight (90-180)°	0	0%
<b>Total Flux</b>	<b>66638</b>	<b>100%</b>

#### ISO Footcandle



25' Mounting Height / 20' Grid Spacing  
 20 FC 10 FC 5 FC 2 FC

#### Polar Curve



Vertical Plane Horizontal Cone



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DALLAS24-168357

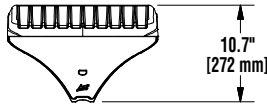
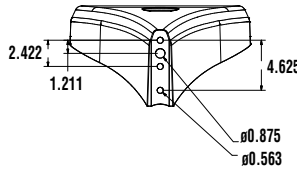
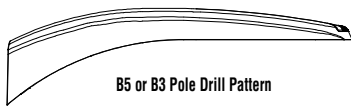
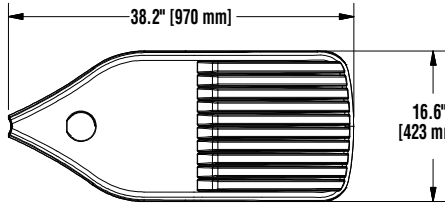
# ZONE Large Outdoor Sports Light

Type: \_\_\_\_\_

**Have questions?** Call us at (800) 436-7800

## PRODUCT DIMENSIONS

[Back to Quick Links](#)

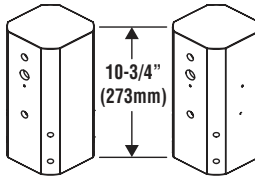


### LUMINAIRE EPA CHART - ZNL

Tilt Degree	0°	30°	45°	Tilt Degree	0°	30°	45°
	0.8	2.2	2.9		2.0	3.8	4.5
	1.6	2.2	2.9		2.0	5.0	6.0
	1.2	3.0	3.7		2.0	3.8	4.5

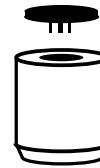
### BRACKETS

**BKA-NM-\*-CLR:** Tenon Mount Fitter



Single/D-180 (Drilled 2 Sides)      D90/T90/Q90 (Drilled 4 Sides)  
 For flat surface brackets

**BRKT-4ESF-\*-CLR:** Pole Top Hub



S - Single  
 D180 - Double  
 D70 - Double  
 D90 - Double  
 Q90 - Quad  
 Q90 - Quad

Fits over 4" OD pole or tenon



**Job Name:**

ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
ARGYLE TX  
Architect: CORGAN-DALLAS (INSTITUTIONAL)  
(DALLAS)

**Catalog Number:**

ZNL 78L CT HV 50 CR7P BRZ

**Type:**
**T** Item 4.

DALLAS24-168357

## ZONE Large Outdoor Sports Light

Type: \_\_\_\_\_

**Have questions?** Call us at (800) 436-7800

### CONTROLS

[Back to Quick Links](#)

#### Integral Bluetooth™ Motion and Photocell Sensor (IMSBTxL)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is IP66 rated for cold and wet locations (-40°F to 167°F). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

[Click here to learn more details about IMSBT](#)


LEVITON App



Apple



Android

#### AirLink Blue (ALBMRxLR, ALBCSx)

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

[Click here to learn more details about AirLink Blue](#)


AirLink Blue App



Apple

#### Sensor Sequence of Operations

Standard Programming	On Event	Off Event	On Light Level	Dim Light Level	Daylight Harvesting	Delay To Off	Sensitivity
OMSBTxL/IMSBTxL	Motion	No Motion	100%	N/A	On; Auto Calibration	20 minutes	High
OMS	Motion	No Motion	N/A	N/A	N/A	30 seconds	Auto

Operation	Description
<b>On Event</b>	Trigger that activates lights to turn on; either automatic via motion detected or manually activated via push of button.
<b>Off Event</b>	Trigger that activates lights to turn off; either automatic via no motion detected or manually activated via push of button.
<b>On Light Level</b>	The light level that the fixtures will turn on to when ON EVENT occurs.
<b>Dim Light Level</b>	The light level that the fixtures will dim down to when no motion is detected.
<b>Delay to Dim</b>	The amount of time after which no motion is detected that the fixtures will be triggered to dim down. This sequence is optional, and sensor can be programmed to only trigger the fixture to turn off by entering 100% in this field.
<b>Delay to Off</b>	The amount of time after which no motion is detected that the fixtures will be triggered to turn off. If delay to dim is part of the programmed functionality, this is the amount of time after which no motion is detected after the fixture have already dimmed down.
<b>Sensitivity</b>	The sensitivity can be set to high, medium, low, or auto where applicable. High will detect smaller, simple motions. Low will only detect larger more complex motions. Auto temperature calibration adjusts the PIR sensitivity as ambient temperature rises to increase detection of heat movement through the field of view.





Job Name: ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 - ARGYLE TX Architect: CORGAN-DALLAS (INSTITUTIONAL) (DALLAS)

Catalog Number: ZNL 78L CT HV 50 CR7P BRZ

Type:

Item 4.

Notes:

DALLAS24-168357

LUMINAIRE SCHEDULE: ARGYLE MIDDLE SCHOOL #1

Table with columns: Type, Description, Luminaire Equivalents, Delivered Lumens, Comments, Voids, Wt/Lb Max. Includes rows for various LED panel and strip lighting fixtures.

Table with columns: P/N, Description, Luminaire Equivalents, Delivered Lumens, Comments, Voids, Wt/Lb Max. Includes rows for recessed and surface lighting fixtures.

SPECIALTY LUMINAIRE SCHEDULE: ARGYLE MIDDLE SCHOOL #1

Table with columns: Type, Description, Luminaire Equivalents, Delivered Lumens, Comments, Voids, Wt/Lb Max. Includes rows for specialty lighting fixtures.

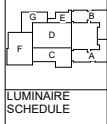


ISSUES and REVISIONS table with columns for issue/revision number, description, and date.



Date of Issue: 01.24.2024

Argyle Middle School #1 Argyle, TX 76226



LUMINAIRE SCHEDULE

EMA logo and contact information: EMA Engineering & Consulting, Inc. 23032 0000 DATE 01.24.2024 SHEET EL08-01

**Job Name:**

ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
ARGYLE TX  
Architect: CORGAN-DALLAS (INSTITUTIONAL)  
(DALLAS)

**Catalog Number:**

5RP B3 S07G24 S BRZ/ABKIT 5RP S07G STL  
PL 1X30 11BC/KIT BCVR 5SRBC BRZ

Notes:

**Type:**

T Item 4.

DALLAS24-168357



Catalog #: \_\_\_\_\_ Project: \_\_\_\_\_ Type: \_\_\_\_\_  
Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

# Steel Poles

## Round Straight



### QUICK LINKS

### FEATURES & SPECIFICATIONS

**Pole Shaft**

- Steel round poles are 4" or 5" in diameter.
- Pole shaft is electro-welded ASTM-A500 Grade C Steel Tubing with a minimum yield strength of 46,000 psi.
- On Tenon Mount steel poles, tenon is high-strength pipe. Tenon N option is 2-3/8" O.D. x 4-3/4" tall. Tenon 4N option is 4" O.D. x 4-7/8" tall.

**Hand-Hole**

- Standard hand-hole location is 12" above pole base.
- Poles 18' and above have a 3x6 reinforced hand hole.

**Base**

- Pole base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 psi.
- Two-piece square base cover is optional. Decorative base cover is also available.

**Anchor Bolts**

- Poles are furnished with anchor bolts featuring zinc-plated double nuts and washers. Galvanized anchor bolts are optional.
- Anchor Bolts conform to ASTM F 1554-07a Grade 55 with a minimum yield strength of 55,000 PSI.

**Ground Lug**

- Ground lug is standard.

**Duplex Receptacle**

- Weatherproof duplex receptacle is optional.

**Ground Fault Circuit Interrupter**

- Self-testing Ground fault circuit interrupter is optional.

**Finishes**

- Every pole is provided with the DuraGrip Protection System and a 5-year limited warranty:
- When the top-of-the line DuraGrip Plus Protection System is selected, in addition to the DuraGrip Protection System, a non-porous, automotive-grade corrosion coating is applied to the lower portion of the pole interior sealing and further protecting it from corrosion. This option extends the limited warranty to 7 years.

**Determining The Luminaire/Pole Combination For Your Application:**

- Select luminaire from luminaire ordering information.
- Select bracket configuration if required
- Determine EPA value from luminaire/ bracket EPA chart

- Select Pole Height

- Select MPH to match wind speed in the application area (See windspeed maps).
- Confirm pole EPA equal to or exceeding value of luminaire/bracket EPA
- Consult factory for special wind load requirements and banner brackets.

**Pole Vibration Damper**

- A pole vibration damper is recommended in open terrain areas of the country where low steady state winds are common.
- Non-tapered poles and lightly loaded poles are more susceptible to destructive vibration if a damper is not installed.

**Listings**

- UL Listed
- BAA/TAA Compliant





**Job Name:**  
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 (DALLAS)

**Catalog Number:**

5RP B3 S07G24 S BRZ/ABKIT 5RP S07G STL  
 PL 1X30 11BC/KIT BCVR 5SRBC BRZ

Notes:

**Type:**

**T** Item 4.

DALLAS24-168357

**Steel Poles Round Straight**

**Have questions?** Call us at (800) 436-7800

ARCHITECT TO VERIFY FINISH

Furnish as Corrected

**ORDERING GUIDE**

**TYPICAL ORDER EXAMPLE: 4RPU B3 S07G 24 S PLP DGP**

Pole Series	Mounting Method	Material	Height 4	Mounting Configuration	Pole Finish	Options
4RP - 4" Diameter Round Straight Pole (New Build)	<b>Bolt-On Mount</b> <sup>1</sup> - See pole selection guide for patterns and fixture matches	<b>S07G</b> - 07 Ga. Steel (SRP/5RPU Only)	8'	<b>S</b> - Single/Parallel	<b>BRZ</b> - Bronze	<b>GA</b> - Galvanized Anchor Bolts <b>SF</b> - Single Flood <sup>6</sup> <b>DF</b> - Double Flood <sup>3</sup> <b>DGP</b> - DuraGrip <sup>7</sup> Plus <b>LAB</b> - Less Anchor Bolts <b>CRXX</b> - Conduit Raceway <sup>4</sup>
<b>SRP</b> - 5" Diameter Round Straight Pole (New Build)		<b>S10G</b> - 10 Ga. Steel (4RP/4RPU Only)	10'	<b>D180</b> - Double	<b>BLK</b> - Black	
4RPU - 4" Diameter Round Straight Pole (Retrofit)	<b>B5</b> - 5" Traditional Drilling Pattern	<b>S11G</b> - 11 Ga. Steel (5RP/5RPU Only)	12'	<b>D90</b> - Double	<b>PT</b> - Black with Plus	
<b>SRPU</b> - 5" Diameter Round Straight Pole (Retrofit)	<b>B3</b> - 3" Reduced Drilling Pattern		14'	<b>DN90</b> - Double	<b>WHT</b> - White	
	<b>B2</b> - 2" Reduced Drilling Pattern		15'	<b>T90</b> - Triple	<b>SVG</b> - Satin Verde Green	
			16'	<b>TN120</b> - Triple	<b>GPT</b> - Graphite	
			17'	<b>Q90</b> - Quad	<b>MSV</b> - Metallic Silver	
			17' 6"	<b>QN90</b> - Quad	<b>BZA</b> - Alternate Bronze	
	<b>T</b> - Tenon Mount - See pole selection guide for tenon and fixture/bracket matches		18'	<b>N</b> - Tenon Mount (Standard Tenon size is 2-3/8" O.D.)	<b>GMG</b> - Gun Metal Gray	
			20'	<b>4N</b> - Tenon Mount (SRPT only. For 4" poles only, use 4RPI) <sup>5</sup>		
			22'	<b>4N-6</b> - Tenon Mount (SRPT only. For 4" poles use 4RPI)		
			22' 6"			
			<b>24'</b>			
			25'	<b>(Blank)</b> - Use with I for Mounting Method		
			26'			
			27'			
			28'			
			30'			
	<b>I</b> - No Mounting Holes <sup>3</sup> - Use with: BKA-IFM4 - Flush Mount Adapter <sup>7</sup> Greenlee Lifestyle CH Mounting Style Enterprise, Lexington, Constitution PT Single Mounting <sup>2</sup>					

**Need more information?**  
[Click here for our glossary](#)

**Have additional questions?**  
 Call us at (800) 436-7800

**ACCESSORY ORDERING INFORMATION**

Part Number	Description
158450CLR	4" SRBC Square Base Cover
158451CLR	5" SRBC Square Base Cover
450563CLR	5" SRBCU 5 Inch Universal Baseplate Square Cover
483859CLR	4" /5" GBC Decorative Base Cover
122557CLR	ER2 - Weatherproof Duplex Receptacle (Poles below 18')
122566CLR	ER2 - Weatherproof Duplex Receptacle for Reinforced Hand-hole (Poles 18' and above)
122558CLR	GFI - Ground Fault Circuit Interrupter (Poles below 18')
22567CLR	GFI - Ground Fault Circuit Interrupter for Reinforced Hand-hole (Poles 18' and above)
132336	MH5 - Mounting Hole Plugs for use with 5" traditional drill pattern (3 set of 3 plugs)
681126	MH3 - Mounting Hole Plugs for use with 3" reduced drill pattern (3 sets of 3 plugs)
725841	MH2 - Mounting Hole Plugs for use with 2" reduced drill pattern (3 sets of 3 plugs)
Consult Factory for EPA calculations	BB - Banner Brackets

**ANCHOR BOLT KIT ORDERING INFORMATION**

Part Number	Description
AB KIT 122582	4RP S10G Anchor Bolts (Steel Plated)
AB KIT 122607	4RP S10G Anchor Bolts (Galvanized)
AB KIT 135460	5RP S11G Anchor Bolts (Steel Plated)
AB KIT 135461	5RP S11G Anchor Bolts (Galvanized)
AB KIT 122583	5RP S07G Anchor Bolts (Steel Plated)
AB KIT 122608	5RP S07G Anchor Bolts (Galvanized)

1 - See Area Light Brackets - 3" Reduced Drill Pattern and Area Light Brackets - 5" Traditional Drill Pattern Spec Sheets.  
 2 - For Enterprise, Lexington, and Constitution PT mounting configuration styles, see Tenon Mount (4N) and Lifestyle Slipfit Pole Series.  
 3 - Standard Flat black pole cap provided. Domed Greenlee pole cap will ship with SA4 and SA5 Enterprise and Lexington fixtures, SA Lifestyle Fixtures, BK MPT BO, and UCL Brackets.  
 4 - Pole heights will have a +/- 1/2" tolerance. Max height for 4RP S10G is 24'. Max height of the 5RP S11G is 26'.

5 - For Enterprise and Lexington D180 or other mounting configuration styles using BK MPT BO accessories order with B3 or B5 drill pattern.  
 6 - See Flood Lighting Brackets section for choice of FBO Brackets.  
 7 - Only use with 4 inch pole.  
 8 - Use with BKA-IFM4.



**Job Name:**  
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 (DALLAS)

**Catalog Number:**

5RP B3 S07G24 S BRZ/ABKIT 5RP S07G STL  
 PL 1X30 11BC/KIT BCVR 5SRBC BRZ

Notes:

**Type:**

**T** Item 4.

DALLAS24-168357

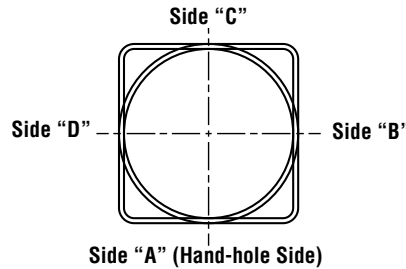
# Steel Poles Round Straight

Type: \_\_\_\_\_

**Have questions?** Call us at (800) 436-7800

## DRILLING LOCATIONS

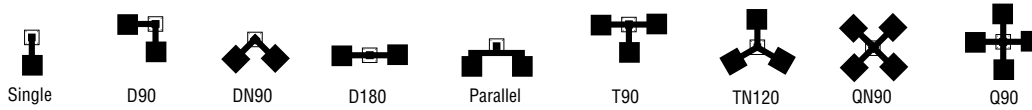
Sides	A	B	C	D
Hand-hole	X			
Single	X			
D180		X		X
D90	X			X
DN90 <sup>1</sup>				
T90	X	X		X
TN120 <sup>2</sup>				
Q90	X	X	X	X
QN90 <sup>3</sup>				
Single FBO	X			
Double FBO		X		X



- 1- Two locations will be 45° to the left and right of Side A.
- 2- Other two locations will be 120° to the left and right of Side A.
- 3- Two locations will be 45° to the left and right of Side A and two locations will be 135° to the left and right of Side A.

Consult factory for custom variations. Standard SF and DF pole preparations are located 3/4 of the height of the pole from the base, except on 20' poles. Maximum height for SF and DF pole preparations on 20' poles is 13' from the base.

## FIXTURE CONFIGURATIONS





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 ARGYLE TX  
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 (DALLAS)

**Catalog Number:**

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


# Steel Poles Round Straight

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


Have questions? Call us at (800) 436-7800

## BOLT CIRCLE

### STANDARD BASEPLATE

	4" (102mm) Round 10-1/8" (257mm) sq.  11" (279mm) Dia. Bolt Circle	5" (127mm) Round 10-1/8" (257mm) sq.  11" (279mm) Dia. Bolt Circle	5" (127mm) Round 10-1/8" (257mm) sq.  11" (279mm) Dia. Bolt Circle
Bolt Circle Designator	L	L	M
Bolt Circle	Slotted 11" (279mm)	Slotted 11" (279mm)	Slotted 11" (279mm)
Anchor Bolt Size	3/4" x 24" (19mm x 609mm)	3/4" x 24" (19mm x 609mm)	1"x30" (25mm x 762mm)
Anchor Bolt Projection	3-1/4" (83mm)	3-1/4" (83mm)	4" (102mm)
Base Plate Opening for Wireway Entry	3-5/8" (92mm)	4-3/4" (121mm)	4-5/8" (117mm)
Base Plate Dimensions	10-1/8" sq. x 3/4" thk. (257mm x 19mm)	10-1/8" sq. x 3/4" thk. (257mm x 19mm)	10-1/8" sq. x 1" thk. (257mm x 25mm)
Pole Gauge	10	11	7

### UNIVERSAL BASEPLATE

	4" (102mm) Round 10" (254mm) sq.  11" (279mm) Dia. Bolt Circle	5" (127mm) Round 11-1/4" (286mm) sq.  13" (330mm) Dia. Bolt Circle	5" (127mm) Round 11-3/4" (298mm) sq.  13" (330mm) Dia. Bolt Circle
Bolt Circle Designator	K	P	R
Bolt Circle	Slotted 7" - 11" (178mm-279mm)	Slotted 7-1/2" - 13" (191mm-330mm)	Slotted 8" - 13" (203mm-330mm)
Anchor Bolt Size	3/4" x 24" (19mm x 609mm)	3/4" x 24" (19mm x 609mm)	1"x30" (25mm x 762mm)
Anchor Bolt Projection	3-1/4" (83mm)	3-1/4" (83mm)	4" (102mm)
Base Plate Opening for Wireway Entry	3-5/8" (92mm)	4-3/4" (121mm)	4-5/8" (117mm)
Base Plate Dimensions	10" sq. x 3/4" thk. (254mm x 19mm)	11-1/4" sq. x 3/4" thk. (286mm x 19mm)	11-3/4" sq. x 1" thk. (298mm x 25mm)
Pole Gauge	10	11	7

Note: Base plate illustrations may change without notice. Do not use for setting anchor bolts. Consult factory for the appropriate anchor bolt template.  
 1 - Full Galvanized option is 1" x 30" straight headed anchor bolt. Contact factory for questions



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 ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
 ARGYLE TX  
 Architect: CORGAN-DALLAS (INSTITUTIONAL)  
 (DALLAS)

**Catalog Number:**

5RP B3 S07G24 S BRZ/ABKIT 5RP S07G STL  
 PL 1X30 11BC/KIT BCVR 5SRBC BRZ

Notes:

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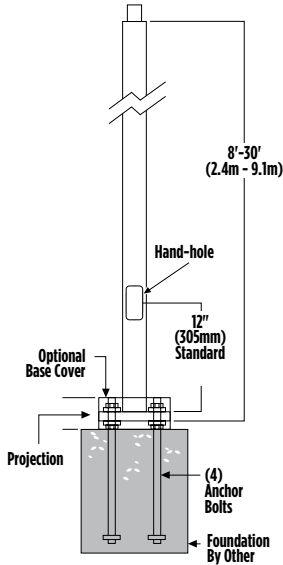
**Steel Poles Round Straight**

Type: \_\_\_\_\_

**Have questions?** Call us at (800) 436-7800

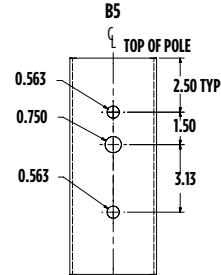
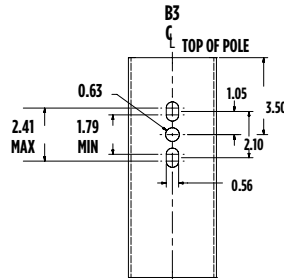
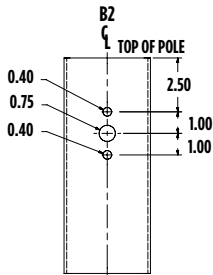
**PRODUCT DIMENSIONS**

RPT -  
 N = 2-3/8" (60mm) O.D. x 4-3/4" (121mm) Tenon  
 4N = 4" (102mm) O.D. x 4-7/8" (124mm) Tenon  
 4N6 = 4" (102mm) O.D. x 6-3/8" (162mm) Tenon



SHIPPING WEIGHTS	
4" (102mm) Dia. 10 Ga. is approximately	6.0 lbs./ft.
5" (127mm) Dia. 11 Ga. is approximately	7.0 lbs./ft.
5" (127mm) Dia. 07 Ga. is approximately	10.0 lbs./ft.
Anchor Bolts (3/4" x 30")(19mm x 762mm)	15 lbs.(7kg)/set
Anchor Bolts (1" x 30") (25mm x 762mm)	30 lbs.(14kg)/set

**Bolt-On Mount 2-Bolt Pattern**





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# Steel Poles Round Straight

Type: \_\_\_\_\_

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## WIND SPEED

**EPA Information**

All LSI Industries' poles are guaranteed to meet the EPA requirements listed. LSI Industries is not responsible if a pole order has a lower EPA rating than the indicated wind-loading zone where the pole will be located.

CAUTION: This guarantee does not apply if the pole/bracket/fixture combination is used to support any other items such as flags, pennants, or signs, which would add stress to the pole. LSI Industries cannot accept responsibility for harm or damage caused in these situations.

**Note:** Pole calculations include a 1.3 gust factor over steady wind velocity. Example: poles designed to withstand 80 MPH steady wind will withstand gusts to 104 MPH. EPAs are for locations 100 miles away from hurricane ocean lines. Consult LSI for other areas. Note: Hurricane ocean lines are the Atlantic and Gulf of Mexico coastal areas. For applications in Florida or Canada, consult factory.

### Use ONLY with "Wind Speed Map for ASCE 7-10"

POLE <sup>1</sup>	Mtg. Height Length (ft)	Wall Thick (ga)	BOLT CIRCLE			EPA									
			Designator	Dia. (in)	Anchor bolt Dia {in}	110 MPH	115 MPH	120 MPH	130 MPH	140 MPH	150 MPH	160 MPH	170 MPH	180 MPH	
4" x 10-ga x 14'	14	10	L	11	0.75	6.0	5.2	4.7	3.9	3.2	2.7	2.3	2.0	1.7	
4" x 10-ga x 16'	16	10	L	11	0.75	4.3	3.7	3.2	2.6	2.1	1.8	1.4	1.2	1.0	
4" x 10-ga x 18'	18	10	L	11	0.75	7.7	6.8	6.0	5.0	4.2	3.5	3.0	2.5	2.2	
4" x 10-ga x 20'	20	10	L	11	0.75	6.0	5.2	4.6	3.7	3.1	2.5	2.1	1.8	1.5	
4" x 10-ga x 22'	22	10	L	11	0.75	4.6	3.9	3.3	2.6	2.1	1.7	1.4	1.1	0.9	
4" x 10-ga x 24'	24	10	L	11	0.75	3.4	2.7	2.2	1.7	1.3	1.0	0.7	0.5	n/a	
5" x 11-ga x 16'	16	11	L	11	0.75	8.7	7.9	7.2	6.0	5.0	4.3	3.7	3.2	2.8	
5" x 11-ga x 18'	18	11	L	11	0.75	12.2	11.1	10.1	8.5	7.2	6.1	5.3	4.6	4.0	
5" x 11-ga x 20'	20	11	L	11	0.75	10.0	9.1	8.2	6.8	5.7	4.9	4.2	3.6	3.1	
5" x 11-ga x 22'	22	11	L	11	0.75	8.1	7.3	6.6	5.5	4.5	3.8	3.2	2.8	2.4	
5" x 11-ga x 24'	24	11	L	11	0.75	6.5	5.9	5.3	4.3	3.5	2.9	2.4	2.0	1.7	
5" x 11-ga x 26'	26	11	L	11	0.75	5.2	4.6	4.1	3.2	2.6	2.1	1.7	1.4	1.1	
5" x 7-ga x 18'	18	7	M	11	1.00	19.7	17.9	16.4	13.8	11.7	10.1	8.8	7.7	6.8	
5" x 7-ga x 20'	20	7	M	11	1.00	16.5	15.0	13.7	11.5	9.8	8.4	7.3	6.3	5.6	
5" x 7-ga x 22'	22	7	M	11	1.00	14.0	12.7	11.5	9.6	8.1	7.0	6.0	5.2	4.6	
5" x 7-ga x 24'	24	7	M	11	1.00	11.8	10.6	9.6	8.0	6.8	5.7	4.9	4.2	3.7	
5" x 7-ga x 26'	26	7	M	11	1.00	9.9	8.9	8.0	6.7	5.6	4.7	4.0	3.4	2.9	
5" x 7-ga x 28'	28	7	M	11	1.00	8.3	7.4	6.7	5.4	4.5	3.7	3.1	2.7	2.3	
5" x 7-ga x 30'	30	7	M	11	1.00	6.8	6.1	5.4	4.4	3.6	2.9	2.4	2.0	1.7	

All LSI Industries' poles are guaranteed to meet the EPA requirements listed. LSI Industries is not responsible if a pole order has a lower EPA rating than the indicated wind-loading zone where the pole will be located.

CAUTION: This guarantee does not apply if the pole/bracket/fixture combination is used to support any other items such as flags, pennants, or signs, which would add stress to the pole. LSI Industries cannot accept responsibility for harm or damage caused in these situations.

**Note:**

1- Poles shorter than these listed here in for each gauge have EPA rating equal to or greater than what is provided in this table. To Confirm EPA ratings on shorter poles, contact LSI Industries.



**Job Name:**

ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
ARGYLE TX  
Architect: CORGAN-DALLAS (INSTITUTIONAL)  
(DALLAS)

**Catalog Number:**

ZNL 78L CT HV 50 CR7P BRZ

Notes:

**Type:**

T Item 4.

DALLAS24-168357



Catalog #: \_\_\_\_\_ Project: \_\_\_\_\_ Type: \_\_\_\_\_

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

# Furnish as ZONE™ Large (ZNL) Outdoor Sports Light Corrected



IP66 IK08



LSI ZNL IS SPECIFIED AS A SPECIALTY FIXTURE ON FIXTURE SCHEDULE WITH NO SUBSTITUTION ALLOWED"

OVERVIEW	
Lumen Range	50,000 - 78,000
Wattage Range	375 - 648
Efficacy Range (LPW)	114 - 146
Weight lbs (kg)	60 (27.2)
Control Options	IMSBT, ALB, ALS, 7-Pin

# ZONE

**QUICK LINKS**
[Ordering Guide](#)
[Performance](#)
[Photometrics](#)
[Dimensions](#)
**FEATURES & SPECIFICATIONS****Construction**

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 68 lbs in carton

**Optical System**

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types CT and FT.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 95%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377.
- Minimum CRI of 70
- Integral louver (IL) and integral half louver (IH) options available for enhanced back-light control.

**Electrical**

- High-performance driver features overvoltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).

- L90 Calculated Life: >100k Hours (See Lumen Maintenance on Page 3)
- Total harmonic distortion: <20%
- Operating temperature: 50L and 60L: -40°C to +50°C (-40°F to +122°F). 65L and 78L: -40°C to +40°C (-40°F to +104°F)
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

**Controls**

- Optional integral passive infrared Blue-tooth™ programmable motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink wireless control system options allow for programming and group control while reducing energy and maintenance costs and optimizing light quality (see controls section for more details).

**Installation**

- Designed to mount to square or round poles.
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block (accepts up to 12 ga. wire).

- 5' Dimming and Power leads included when Fixed Mounting Studs are ordered.
- Utilizes both B3 and B5 drill patterns for easy fastening of LSI products. (See drawing in poles section).

**Warranty**

- LSI luminaires carry a 5-year limited warranty. Refer to <https://www.lsicorp.com/resources/terms-conditions-warranty/> for more information.

**Listings**

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- Dark Sky compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications applications are qualified.
- IK08 rated luminaire per IEC 66262 mechanical impact code.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](http://www.designlights.org/QPL) to confirm which versions are qualified.
- Patented Silicone Optics (US Patent NO. 10,816,165 B2)





**Job Name:**  
 ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
 ARGYLE TX  
 Architect: CORGAN-DALLAS (INSTITUTIONAL)  
 (DALLAS)

**Catalog Number:**  
 ZNL 78L CT HV 50 CR7P BRZ

Notes:

**Type:**  
 T Item 4.

DALLAS24-168357

# ZONE Large Outdoor Sports Light

Type: \_\_\_\_\_

**Have questions?** Call us at (800) 436-7800

## ORDERING GUIDE

[Back to Quick Links](#)

**TYPICAL ORDER EXAMPLE: ZNL 60L CT UNV 50 ALBCS1 BLK IH**

Prefix	Output	Distributions	Orientation	Voltage	Color Temperature
<b>ZNL - Zone Large</b>	50L - 50,000 lms 60L - 60,000 lms 65L - 65,000 lms <b>78L - 78,000 lms</b> Custom Lumen Packages <sup>1</sup>	<b>CT - Court Optic</b> FT - Forward Throw	<b>(Blank) - Standard (no rotation)</b> L - Optics rotated left 90° R - Optics rotated right 90°	<b>UNV - Universal Voltage (120-277V)</b> <b>HV - High Voltage (347-480V)</b>	<b>50 - 5,000 CCT</b> 40 - 4,000 CCT 30 - 3,000 CCT

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Controls	Finish	Options
<p><b>(Blank) - None</b></p> <p><b>Wireless Controls System</b>                      ALS - AirLink Synapse Control System                      ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor                      ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor                      ALSB - AirLink Synapse Integral Controller and Dynamic Behaviors Drivers                      ALBMR1LR - AirLink Blue Long Range Wireless Motion &amp; Photo Sensor Controller (8-15' mounting height)<sup>3</sup>                      ALBMR2LR - AirLink Blue Long Range Wireless Motion &amp; Photo Sensor Controller (16-40' mounting height)<sup>3</sup></p> <p><b>Stand-Alone Controls</b>                      EXT - 0-10v Dimming leads extended to housing exterior  <b>CR7P - 7 Pin Control Receptacle ANSI C136.4122</b>                      IMSBTL1 - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height<sup>3</sup>                      IMSBTL2 - Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height<sup>3</sup></p>	<p><b>BLK - Black</b>  <b>BRZ - Dark Bronze</b>                      GPT - Graphite                      MSV - Metallic Silver                      PLP - Platinum Plus                      GRN - Green                      WHT - White</p>	<p><b>(Blank) - None</b>                      IH - Integral Half Louver (Moderate Spill Light Cutoff)                      IL - Integral Louver (Sharp Spill Light Cutoff)                      FMS - Fixed Mounting Studs<sup>4</sup></p>



**Need more information?**  
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 Call us at (800) 436-7800



### Accessory Ordering Information<sup>5</sup>

CONTROLS ACCESSORIES <sup>5</sup>	
Description	Order Number
Twist Lock Photocell (120V) for use with CR7P <sup>7</sup>	122514
Twist Lock Photocell (208-277V) for use with CR7P <sup>7</sup>	122515
Twist Lock Photocell (347V) for use with CR7P <sup>7</sup>	122516
Twist Lock Photocell (480V) for use with CR7P <sup>7</sup>	1225180
AirLink 5 Pin Twist Lock Controller <sup>7</sup>	661409
AirLink 7 Pin Twist Lock Controller <sup>7</sup>	661410
AirLink Synapse Central Base Station	TBD
AirLink Synapse Remote Access 12 month subscription	TBD
AirLink Synapse Dynamic Behavior Software	TBD
Shorting Cap for use with CR7P <sup>7</sup>	149328

FUSING OPTIONS <sup>6</sup>	
Single Fusing (120V)	<a href="#">See Fusing Accessory Guide</a>
Single Fusing (277V)	
Double Fusing (208V, 240V)	
Double Fusing (480V)	
Double Fusing (347V)	

EXTERNAL SHIELDING OPTIONS	
3" External Shield	<a href="#">See Shielding Guide</a>
6" External Shield	

- Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
- Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
- Motion sensors are field configurable via an app that can be downloaded from your smartphone's native app store. See controls section for more details.
- For use with ZNL upswep arm only. Please see accessory table for ordering details.
- Accessories are shipped separately and field installed.
- Fusing must be located in hand hole of pole. See [Fusing Accessory Guide](#) for compatibility.
- "CLR" denotes finish. See Finish options.



Job Name: ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 - ARGYLE TX Architect: CORGAN-DALLAS (INSTITUTIONAL) (DALLAS)

Catalog Number: ZNL 78L CT HV 50 CR7P BRZ

Type: T

Item 4.

Notes:

DALLAS24-168357

LUMINAIRE SCHEDULE: ARGYLE MIDDLE SCHOOL #1

Table with columns: Type, Description, Luminaire Equivalents, Delivered Lumens, Comments, Voids, Wt/Lb, Wt/M2. Includes rows for various LED lighting fixtures like 1x4 Edge-Lit LED Flat Panel, 1x4 Round LED Downlight, etc.

Table with columns: P/N, Description, Mark Architectural, Delivered Lumens, Comments, Voids, Wt/Lb, Wt/M2. Includes rows for various LED lighting fixtures like 4" Black Linear Square Downlit LED, 4" Linear Square Downlit LED, etc.

SPECIALTY LUMINAIRE SCHEDULE: ARGYLE MIDDLE SCHOOL #1

Table with columns: Type, Description, Luminaire Equivalents, Delivered Lumens, Comments, Voids, Wt/Lb, Wt/M2. Includes rows for specialty lighting like 1x12 Linear LED Downlight, 1x12 Round LED Downlight, etc.

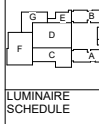


Table with columns: No., Description, Status. Includes rows for ISSUES and REVISIONS.



Date of Issue: 01.24.2024

Argyle Middle School #1 Argyle, TX 76226



LUMINAIRE SCHEDULE

EMA logo and contact information: EMA Engineering & Consulting, Inc. 23032 0000 DATE 01.24.2024 SHEET EL08-01

**Job Name:**

ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
ARGYLE TX  
Architect: CORGAN-DALLAS (INSTITUTIONAL)  
(DALLAS)

**Catalog Number:**

5RP B3 S07G24 D180 BRZ/ABKIT 5RP S07G  
STL PL 1X30 11BC/KIT BCVR 5SRBC BRZ

Notes:

**Type:**

T Item 4.

DALLAS24-168357



Catalog #: \_\_\_\_\_ Project: \_\_\_\_\_ Type: \_\_\_\_\_  
Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

# Steel Poles

## Round Straight



### QUICK LINKS

### FEATURES & SPECIFICATIONS

**Pole Shaft**

- Steel round poles are 4" or 5" in diameter.
- Pole shaft is electro-welded ASTM-A500 Grade C Steel Tubing with a minimum yield strength of 46,000 psi.
- On Tenon Mount steel poles, tenon is high-strength pipe. Tenon N option is 2-3/8" O.D. x 4-3/4" tall. Tenon 4N option is 4" O.D. x 4-7/8" tall.

**Hand-Hole**

- Standard hand-hole location is 12" above pole base.
- Poles 18' and above have a 3x6 reinforced hand hole.

**Base**

- Pole base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 psi.
- Two-piece square base cover is optional. Decorative base cover is also available.

**Anchor Bolts**

- Poles are furnished with anchor bolts featuring zinc-plated double nuts and washers. Galvanized anchor bolts are optional.
- Anchor Bolts conform to ASTM F 1554-07a Grade 55 with a minimum yield strength of 55,000 PSI.

**Ground Lug**

- Ground lug is standard.

**Duplex Receptacle**

- Weatherproof duplex receptacle is optional.

**Ground Fault Circuit Interrupter**

- Self-testing Ground fault circuit interrupter is optional.

**Finishes**

- Every pole is provided with the DuraGrip Protection System and a 5-year limited warranty:
- When the top-of-the line DuraGrip Plus Protection System is selected, in addition to the DuraGrip Protection System, a non-porous, automotive-grade corrosion coating is applied to the lower portion of the pole interior sealing and further protecting it from corrosion. This option extends the limited warranty to 7 years.

**Determining The Luminaire/Pole Combination For Your Application:**

- Select luminaire from luminaire ordering information.
- Select bracket configuration if required
- Determine EPA value from luminaire/ bracket EPA chart

- Select Pole Height

- Select MPH to match wind speed in the application area (See windspeed maps).
- Confirm pole EPA equal to or exceeding value of luminaire/bracket EPA
- Consult factory for special wind load requirements and banner brackets.

**Pole Vibration Damper**

- A pole vibration damper is recommended in open terrain areas of the country where low steady state winds are common.
- Non-tapered poles and lightly loaded poles are more susceptible to destructive vibration if a damper is not installed.

**Listings**

- UL Listed
- BAA/TAA Compliant





**Job Name:**  
 ARGYLE ISD - ARGYLE MIDDLE SCHOOL #1 -  
 ARGYLE TX  
 Architect: CORGAN-DALLAS (INSTITUTIONAL)  
 (DALLAS)

**Catalog Number:**

5RP B3 S07G24 D180 BRZ/ABKIT 5RP S07G  
 STL PL 1X30 11BC/KIT BCVR 5SRBC BRZ

Notes:

**Type:**

T Item 4.

DALLAS24-160357

**Steel Poles Round Straight**

**Have questions?** Call us at (800) 436-7800

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Corrected

**ORDERING GUIDE**

**TYPICAL ORDER EXAMPLE: 4RPU B3 S07G 24 S PLP DGP**

Pole Series	Mounting Method	Material	Height 4	Mounting Configuration	Pole Finish	Options
4RP - 4" Diameter Round Straight Pole (New Build)	<b>Bolt-On Mount</b> <sup>1</sup> - See pole selection guide for patterns and fixture matches	<b>S07G</b> - 07 Ga. Steel (5RP/5RPU Only)	8'	<b>S</b> - Single/Parallel	<b>BRZ</b> - Bronze	<b>GA</b> - Galvanized Anchor Bolts
<b>5RP - 5" Diameter Round Straight Pole (New Build)</b>		<b>S10G</b> - 10 Ga. Steel (4RP/4RPU Only)	10'	<b>D180</b> - Double	<b>BLK</b> - Black	<b>SF</b> - Single Flood <sup>6</sup>
4RPU - 4" Diameter Round Straight Pole (Retrofit)	<b>B5</b> - 5" Traditional Drilling Pattern	<b>S11G</b> - 11 Ga. Steel (5RP/5RPU Only)	12'	<b>D90</b> - Double	<b>BLK</b> - Black Plus	<b>DF</b> - Double Flood <sup>3</sup>
5RPU - 5" Diameter Round Straight Pole (Retrofit)			<b>B3</b> - 3" Reduced Drilling Pattern	14'	<b>DN90</b> - Double	<b>WHT</b> - White
	<b>T</b> - Tenon Mount - See pole selection guide for tenon and fixture/bracket matches		15'	<b>T90</b> - Triple	<b>SVG</b> - Satin Verde Green	<b>LAB</b> - Less Anchor Bolts
			16'	<b>TN120</b> - Triple	<b>GPT</b> - Graphite	<b>CRXX</b> - Conduit Raceway <sup>4</sup>
			17'	<b>Q90</b> - Quad	<b>MSV</b> - Metallic Silver	
			17' 6"	<b>QN90</b> - Quad	<b>BZA</b> - Alternate Bronze	
			18'	<b>N</b> - Tenon Mount (Standard Tenon size is 2-3/8" O.D.)	<b>GMG</b> - Gun Metal Gray	
			20'	<b>4N</b> - Tenon Mount (SRPT only. For 4" poles only, use 4RPI) <sup>5</sup>		
			22'	<b>4N-6</b> - Tenon Mount (SRPT only. For 4" poles use 4RPI)		
			22' 6"			
			24'			
			25'		<b>(Blank)</b> - Use with I for Mounting Method	
		26'				
		27'				
		28'				
		30'				
	<b>I</b> - No Mounting Holes <sup>1</sup> - Use with: BKA-IFM4 - Flush Mount Adapter <sup>2</sup> Greenlee Lifestyle CH Mounting Style Enterprise, Lexington, Constitution PT Single Mounting <sup>2</sup>					



**Need more information?**

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**Have additional questions?**

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**ACCESSORY ORDERING INFORMATION**

Part Number	Description
158450CLR	4" SRBC Square Base Cover
158451CLR	5" SRBC Square Base Cover
450563CLR	5" SRBCU 5 Inch Universal Baseplate Square Cover
483859CLR	4" /5" GBC Decorative Base Cover
122557CLR	ER2 - Weatherproof Duplex Receptacle (Poles below 18')
122566CLR	ER2 - Weatherproof Duplex Receptacle for Reinforced Hand-hole (Poles 18' and above)
122558CLR	GFI - Ground Fault Circuit Interrupter (Poles below 18')
22567CLR	GFI - Ground Fault Circuit Interrupter for Reinforced Hand-hole (Poles 18' and above)
132336	MH5 - Mounting Hole Plugs for use with 5" traditional drill pattern (3 set of 3 plugs)
681126	MH3 - Mounting Hole Plugs for use with 3" reduced drill pattern (3 sets of 3 plugs)
725841	MH2 - Mounting Hole Plugs for use with 2" reduced drill pattern (3 sets of 3 plugs)
Consult Factory for EPA calculations	BB - Banner Brackets

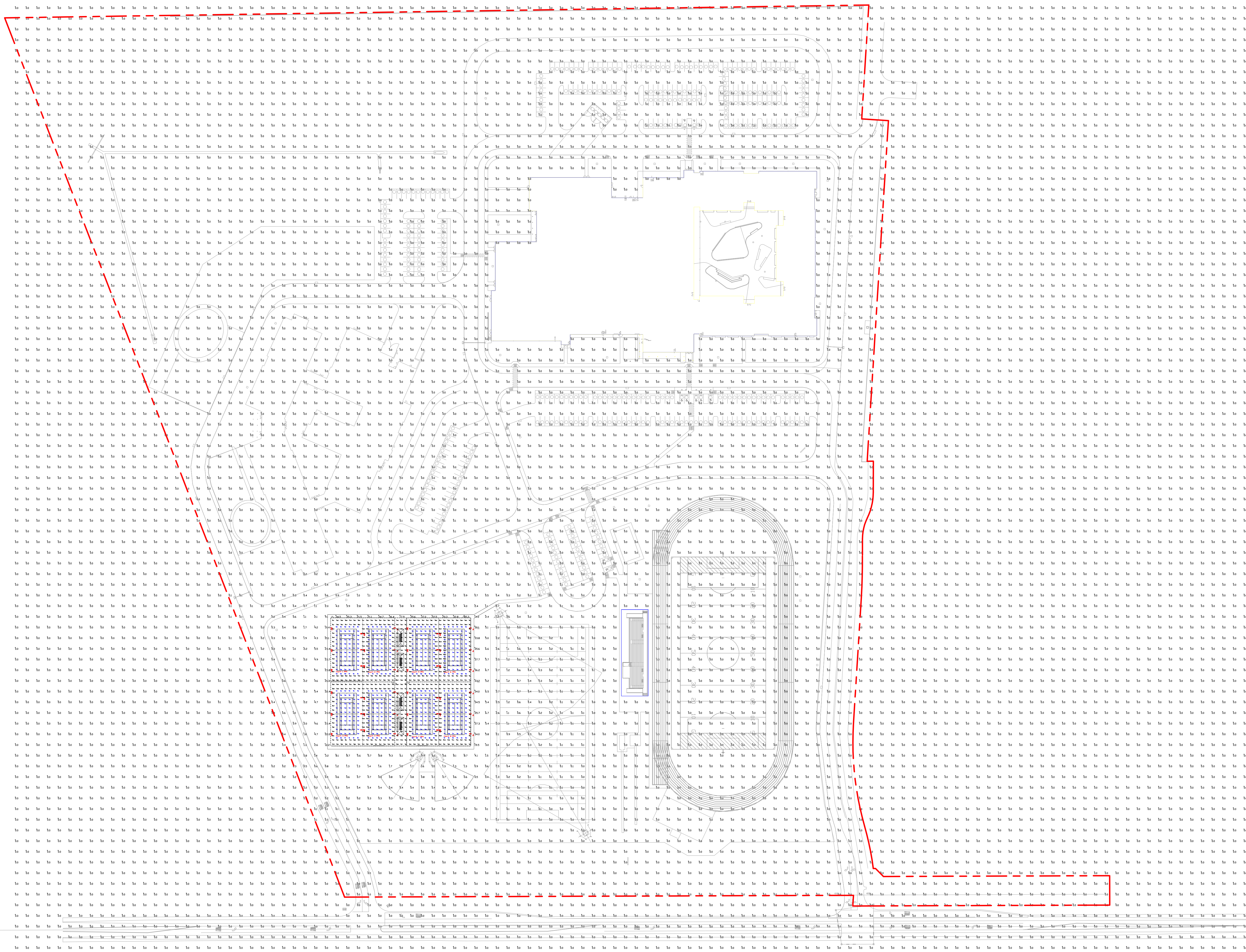
**ANCHOR BOLT KIT ORDERING INFORMATION**

Part Number	Description
AB KIT 122582	4RP S10G Anchor Bolts (Steel Plated)
AB KIT 122607	4RP S10G Anchor Bolts (Galvanized)
AB KIT 135460	5RP S11G Anchor Bolts (Steel Plated)
AB KIT 135461	5RP S11G Anchor Bolts (Galvanized)
AB KIT 122583	5RP S07G Anchor Bolts (Steel Plated)
AB KIT 122608	5RP S07G Anchor Bolts (Galvanized)

1 - See Area Light Brackets - 3" Reduced Drill Pattern and Area Light Brackets - 5" Traditional Drill Pattern Spec Sheets.  
 2 - For Enterprise, Lexington, and Constitution PT mounting configuration styles, see Tenon Mount (4N) and Lifestyle Slipfit Pole Series.  
 3 - Standard Flat black pole cap provided. Domed Greenlee pole cap will ship with SA4 and SA5 Enterprise and Lexington fixtures, SA Lifestyle Fixtures, BK MPT BO, and UCL Brackets.  
 4 - Pole heights will have a +/- 1/2" tolerance. Max height for 4RP S10G is 24'. Max height of the 5RP S11G is 26'.

5 - For Enterprise and Lexington D180 or other mounting configuration styles using BK MPT BO accessories order with B3 or B5 drill pattern.  
 6 - See Flood Lighting Brackets section for choice of FBO Brackets.  
 7 - Only use with 4 inch pole.  
 8 - Use with BKA-IFM4.





Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
Court 1 PPA	Illuminance	Fc	127.29	160	89	1.43	1.80	3
Court 2 PPA	Illuminance	Fc	127.13	160	88	1.44	1.82	3
Court 3 PPA	Illuminance	Fc	127.22	160	87	1.46	1.84	3
Court 4 PPA	Illuminance	Fc	126.93	160	86	1.48	1.86	3
Court 5 PPA	Illuminance	Fc	129.26	161	89	1.45	1.81	3
Court 6 PPA	Illuminance	Fc	125.40	160	87	1.44	1.84	3
Court 7 PPA	Illuminance	Fc	129.03	161	88	1.47	1.83	3
Court 8 PPA	Illuminance	Fc	125.17	159	86	1.46	1.85	3
COURTS EXTENDED	Illuminance	Fc	89.51	185.5	19.7	4.54	9.42	3
SURROUNDING AREA	Illuminance	Fc	0.16	37.7	0.0	N.A.	N.A.	0

Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Description	Mounting Height	LLF	Arr. Watts	Arr. Lum. Lumens	BUG Rating
	48	A	SINGLE	ZNL-78L-CT-50-SINGLE	24'	1.000	648	77488	BS-U0-G4
	24	B	BACK-BACK	ZNL-78L-CT-50-D180	24'	1.000	1296	154976	BS-U0-G4

Total Project Watts  
Total Watts = 62208

PHOTOMETRIC EVALUATION  
NOT FOR CONSTRUCTION

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with the Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

The IES no longer uses the Cutoff Classification System for LED Fixtures. The IES classifies LED fixtures with the BUG rating which refers to the Backlight-Uplight-Glare system. An Uplight of "U0" most closely matches the old Full Cutoff rating.

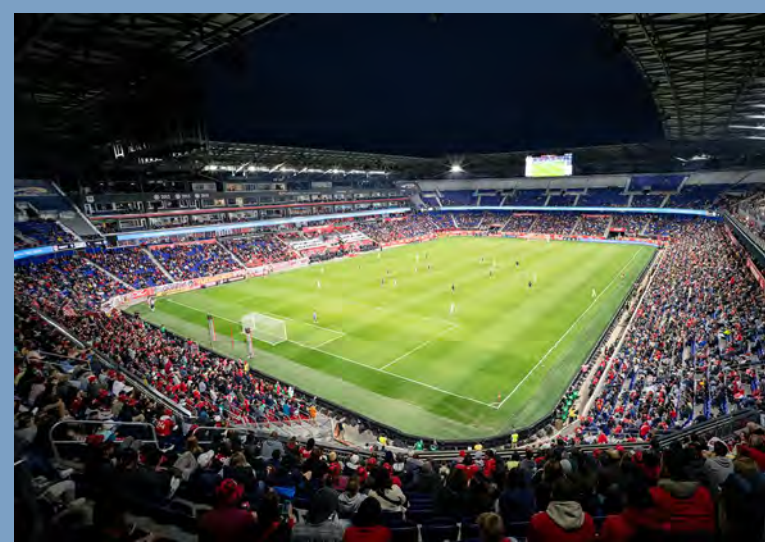
Dimensions of drawings that have been scaled or converted from PDF files or scanned /submitted images are approximate.

ARCHIVE MIDDLE SCHOOL TENNIS COURTS AREA LIGHTING LEVELS

DATE: 4/24/25 REV: 9/4/25 SHEET 1 OF 1

SCALE: 1"=80' ARCH E

# EXHIBIT C



Red Bull Arena, Harrison, New Jersey, USA



UBS Arena, Elmont, New York, USA



Tottenham Hotspur FC Training Ground, Tottenham, London, UK



Iowa Women of Achievement Bridge, Des Moines, Iowa, USA

## Argyle ISD Middle School

Argyle, TX



Sales Representative: CJohnson · Designed By: Jake McCrea · Design No.: 231585 · May 20, 2025

LIGHTING SYSTEM

Structure/Fixture Summary						
Structure ID	Structure Height	Fixt. Attachment Ht.	Fixture Qty	Fixture Type	Load	Circuit
F7-F10	90'	90'	5	TLC-LED-1500	7.05 kW	B
		90'	6	TLC-LED-1500	8.46 kW	A
		70'	1	TLC-LED-550	0.54 kW	C
		30'	2	TLC-BT-575	1.15 kW	A
<b>4</b>			<b>56</b>		<b>68.80 kW</b>	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	38.44 kW	32
B	Track	28.20 kW	20
C	Security	2.16 kW	4

Fixture Type Summary								
Type	Circuit	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	A	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	A	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	24
TLC-LED-1500	B	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	20
TLC-LED-550	C	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	4

Single Fixture Amperage Draw Chart								
Driver Specifications (.90 min power factor)		Line Amperage Per Fixture (max draw)						
Single Phase Voltage		208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1500		8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-BT-575		3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-550		3.2	3.0	2.8	2.4	1.9	1.8	1.4

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination Ave					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
East Bleacher	Horizontal	8.81	2	13	8.58	5.84	C	4
Football	Horizontal Illuminance	37.44	32	44	1.39	1.19	A	32
Property Spill	Horizontal	0.01	0	0	-	-	A,B,C,D,E	56
Property Spill	Max Candela (by Fixture)	438.96	0	4077	-	-	A,B,C,D,E	56
Track	Horizontal Illuminance	45.46	30	61	2.04	1.52	A,B	52
West Bleacher	Horizontal	8.30	1	13	13.10	8.54	C	4

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

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions.

**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								
Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	90'	TLC-LED-1500	11	6	5
				70'	TLC-LED-550	1	0	1
				30'	TLC-BT-575	2	2	0
4	Totals					56	32	24

Above Field Level is height of fixtures above area shown

# Argyle ISD Middle School

Argyle, TX

Item 4.

Grid Summary	
Name:	Football
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

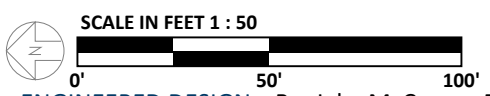
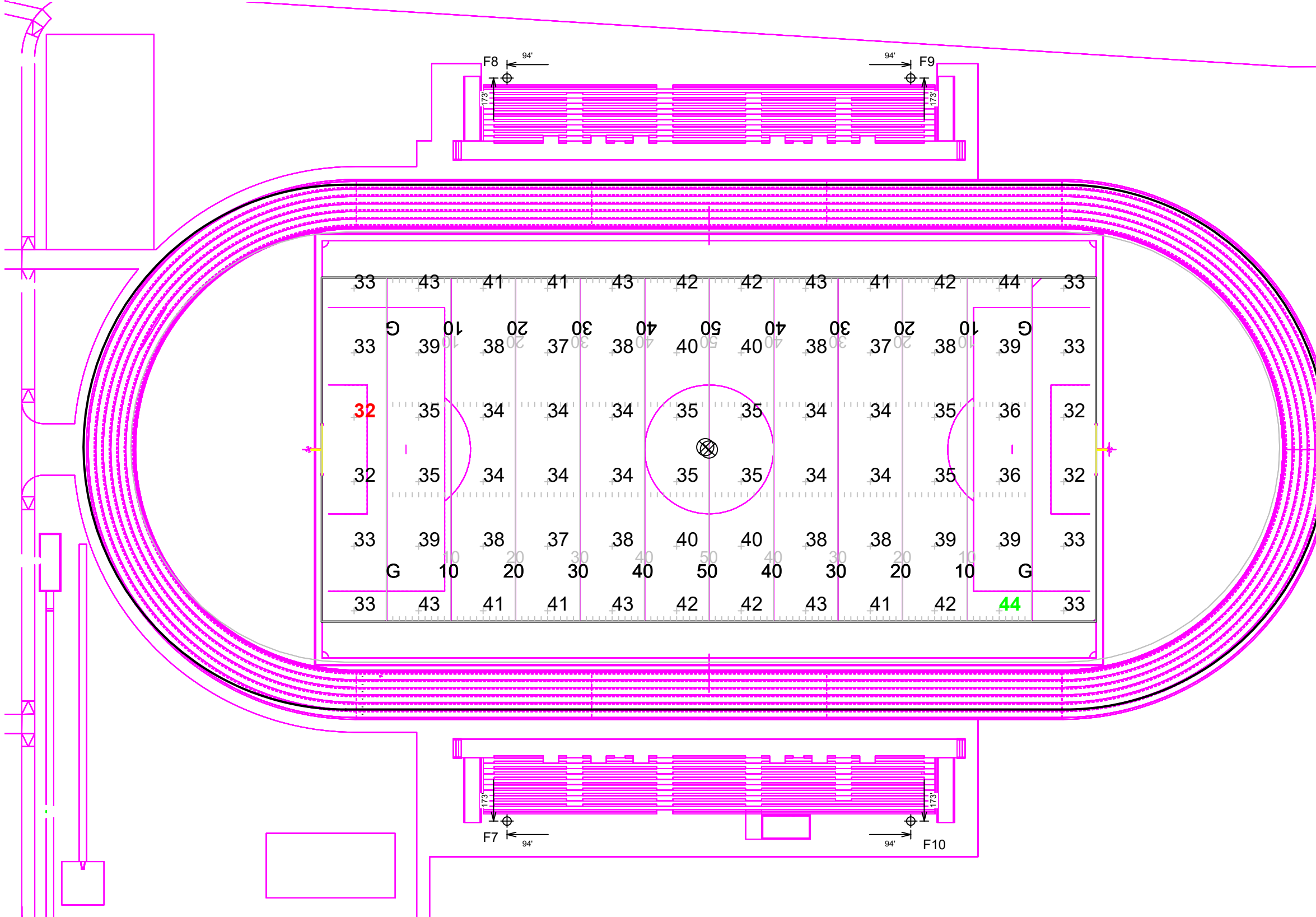
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Scan Average:	37.44
Maximum:	44
Guaranteed Minimum:	30
Minimum:	32
Avg/Min:	1.19
Guaranteed Max/Min:	2.5
Max/Min:	1.39
UG (adjacent pts):	1.32
CU:	0.50
No. of Points:	72
<b>FIXTURE INFORMATION</b>	
Applied Circuits:	A
No. of Fixtures:	32
Total Load:	38.44 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.

**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) ⊗



Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	90'	TLC-LED-1500	11	11	0
				70'	TLC-LED-550	1	0	1
				30'	TLC-BT-575	2	2	0
4	Totals					56	52	4

Above Field Level is height of fixtures above area shown

# Argyle ISD Middle School

Argyle, TX

Item 4.

Grid Summary	
Name:	Track
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

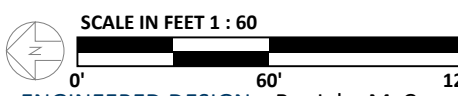
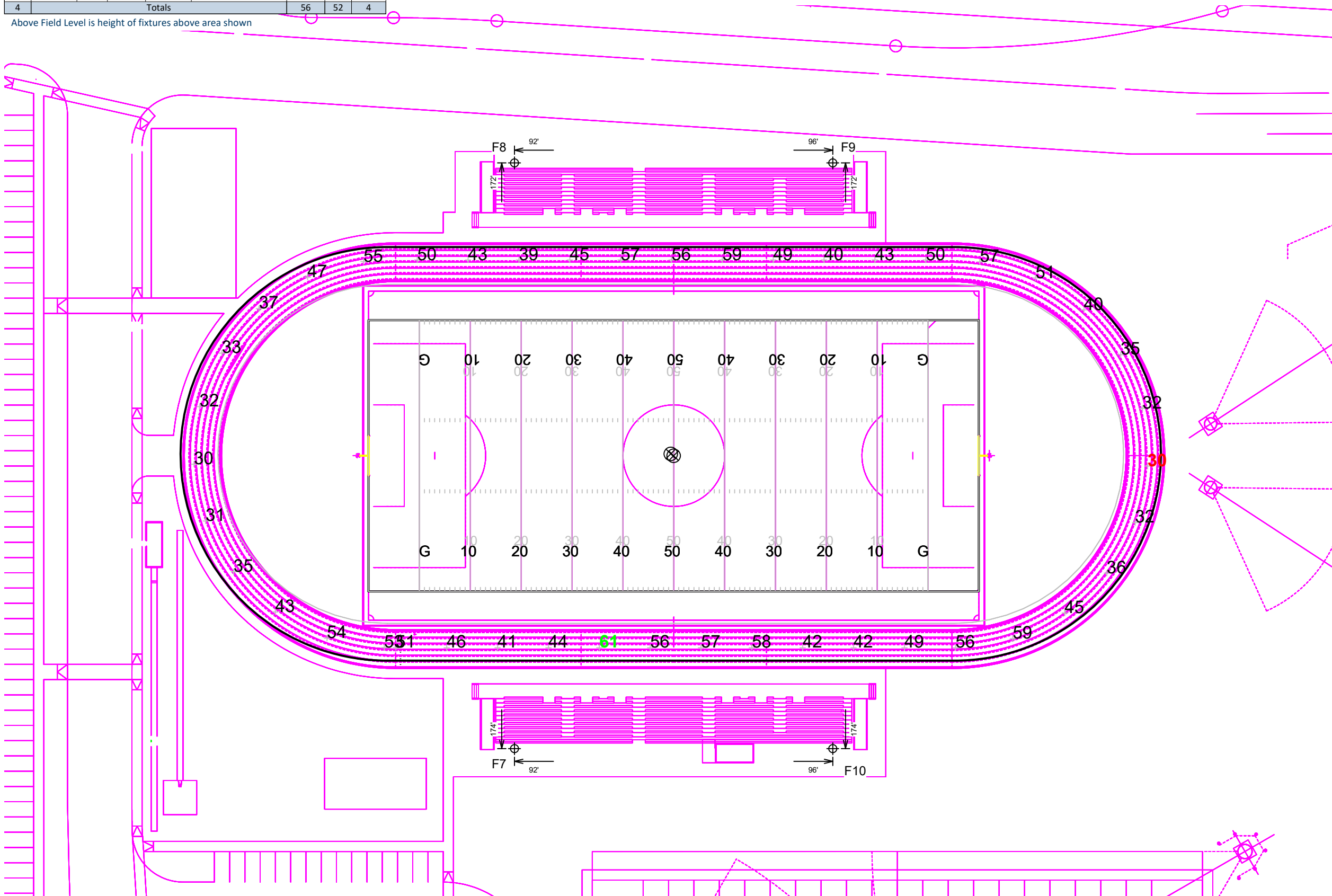
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Scan Average:	45.46
Maximum:	61
Guaranteed Minimum:	30
Minimum:	30
Avg/Min:	1.52
Guaranteed Max/Min:	2.5
Max/Min:	2.04
UG (adjacent pts):	0.00
CU:	0.21
No. of Points:	44
FIXTURE INFORMATION	
Applied Circuits:	A,B
No. of Fixtures:	52
Total Load:	66.64 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.

**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.

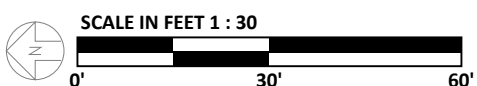
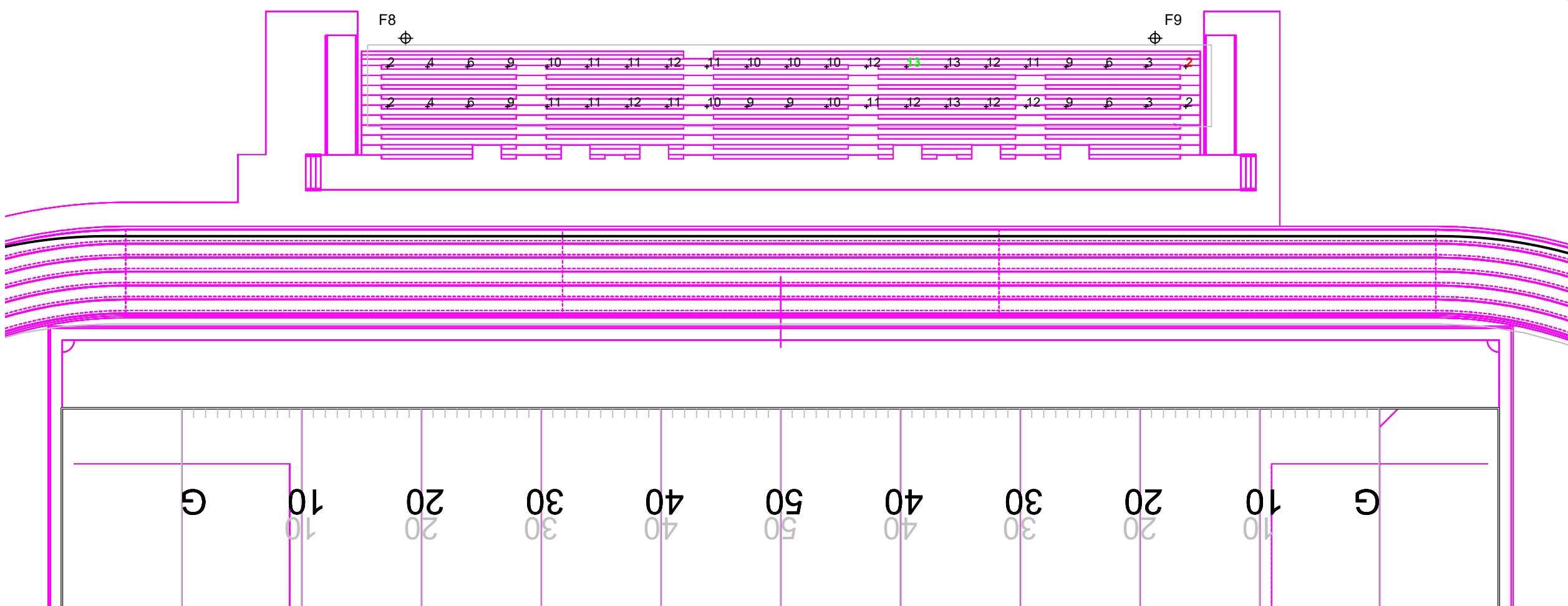
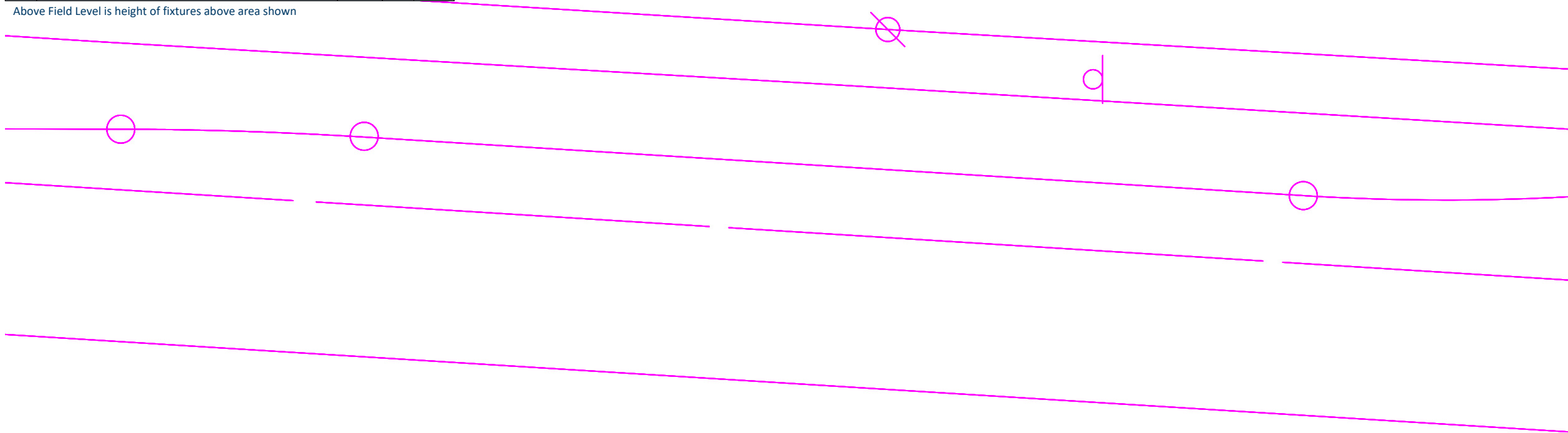


Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	90'	TLC-LED-1500	11	0	11
				70'	TLC-LED-550	1	1	0
				30'	TLC-BT-575	2	0	2
4	Totals					56	4	52

Above Field Level is height of fixtures above area shown



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

# Argyle ISD Middle School

Argyle, TX

Item 4.

Grid Summary	
Name:	East Bleacher
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	<b>8.81</b>
Maximum:	13
Minimum:	2
Avg/Min:	5.84
Max/Min:	<b>8.58</b>
UG (adjacent pts):	2.31
CU:	0.14
No. of Points:	42
<b>FIXTURE INFORMATION</b>	
Applied Circuits:	C
No. of Fixtures:	4
Total Load:	2.16 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.

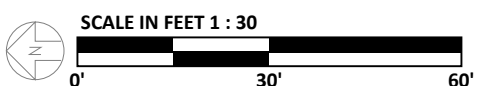
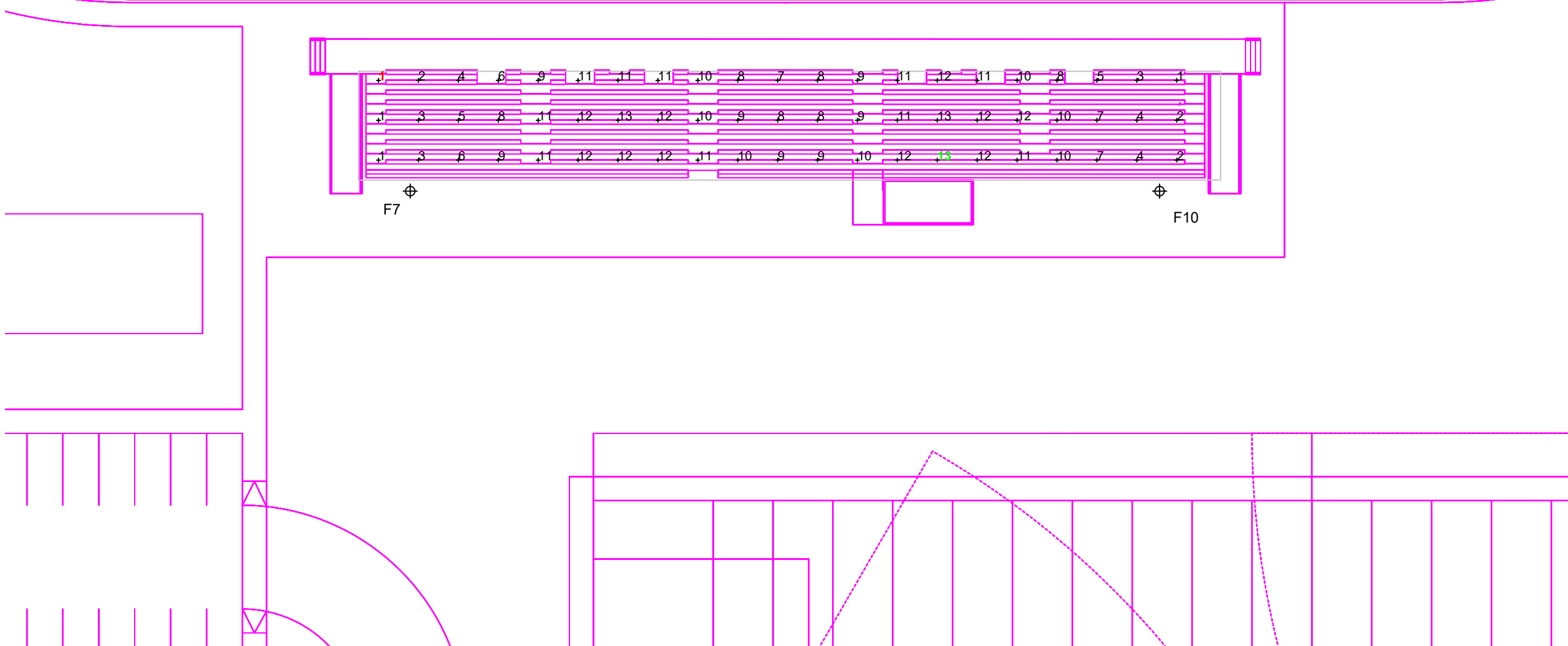
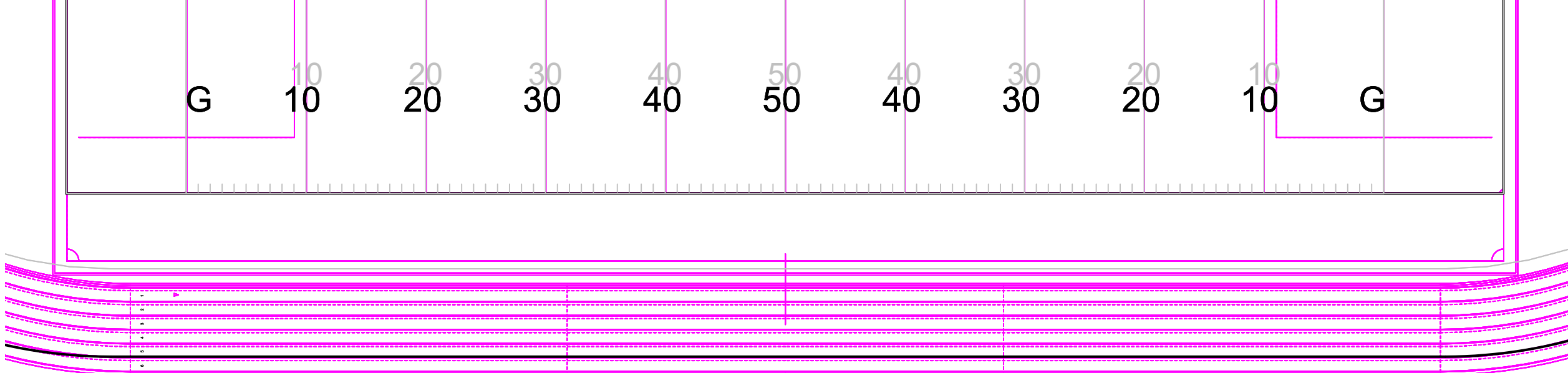
**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**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								
Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	90'	TLC-LED-1500	11	0	11
				70'	TLC-LED-550	1	1	0
				30'	TLC-BT-575	2	0	2
4	Totals					56	4	52

Above Field Level is height of fixtures above area shown



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

# Argyle ISD Middle School

Argyle, TX

Item 4.

Grid Summary	
Name:	West Bleacher
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	8.30
Maximum:	13
Minimum:	1
Avg/Min:	8.54
Max/Min:	13.10
UG (adjacent pts):	2.38
CU:	0.19
No. of Points:	63
<b>FIXTURE INFORMATION</b>	
Applied Circuits:	C
No. of Fixtures:	4
Total Load:	2.16 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.

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

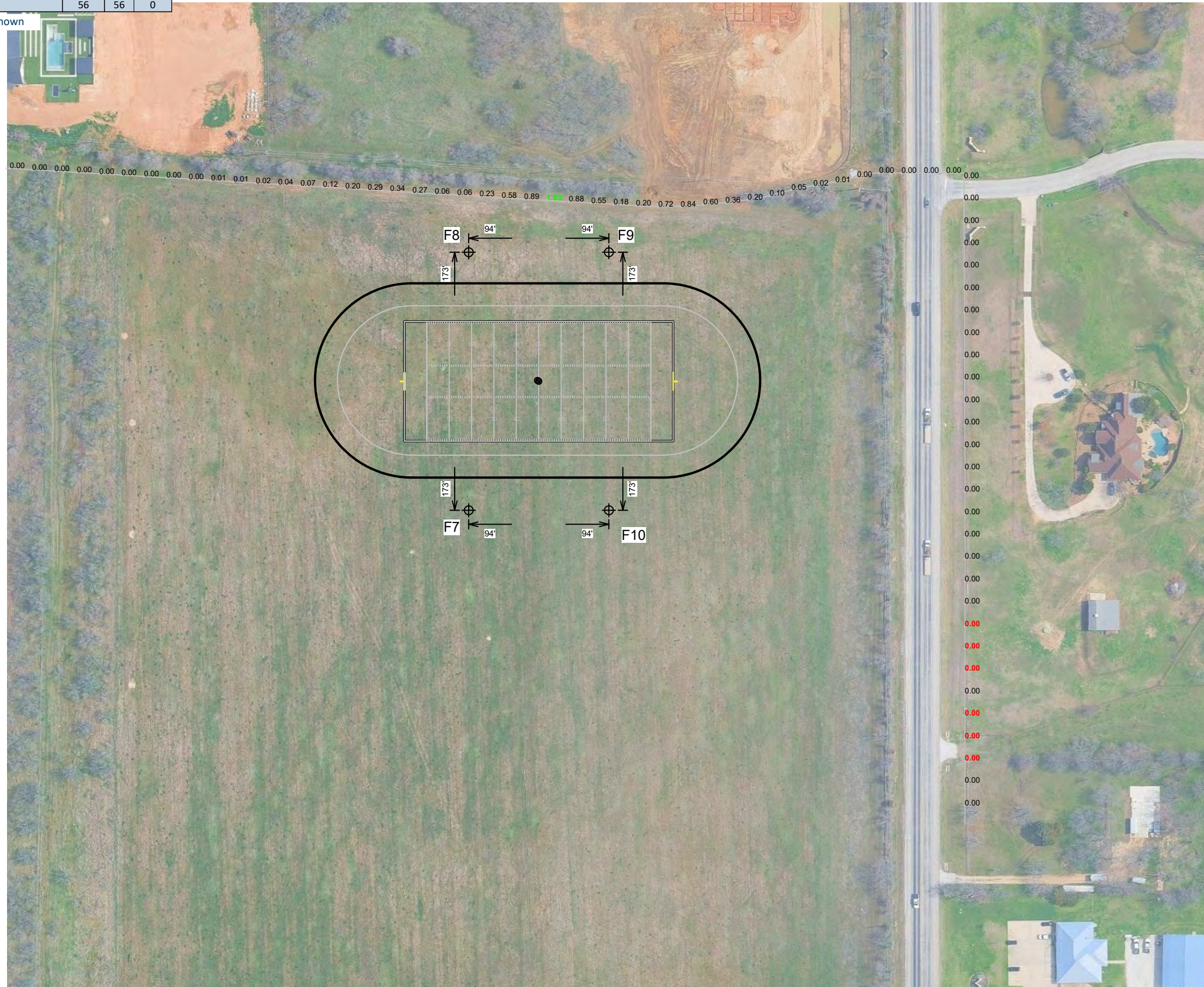
**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



**Equipment List For Areas Shown**

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	90'	TLC-LED-1500	11	11	0
				70'	TLC-LED-550	1	1	0
				30'	TLC-BT-575	2	2	0
4	Totals					56	56	0

Above Field Level is height of fixtures above area shown



**Argyle ISD Middle School**

Argyle, TX

Item 4.

**Grid Summary**

Name: Property Line Spill  
 Size: 360' x 160'  
 Spacing: 30.0' x 10.0'  
 Height: 3.0' above grade

**Illumination Summary**

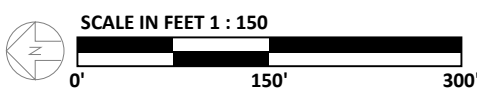
	Entire Grid
Scan Average:	0.12
Maximum:	1
Minimum:	0
Avg/Min:	-
Max/Min:	-
UG (adjacent pts):	0.00
CU:	0.00
No. of Points:	72
<b>FIXTURE INFORMATION</b>	
Applied Circuits:	A,B,C
No. of Fixtures:	56
Total Load:	68.80 kW

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

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions.

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

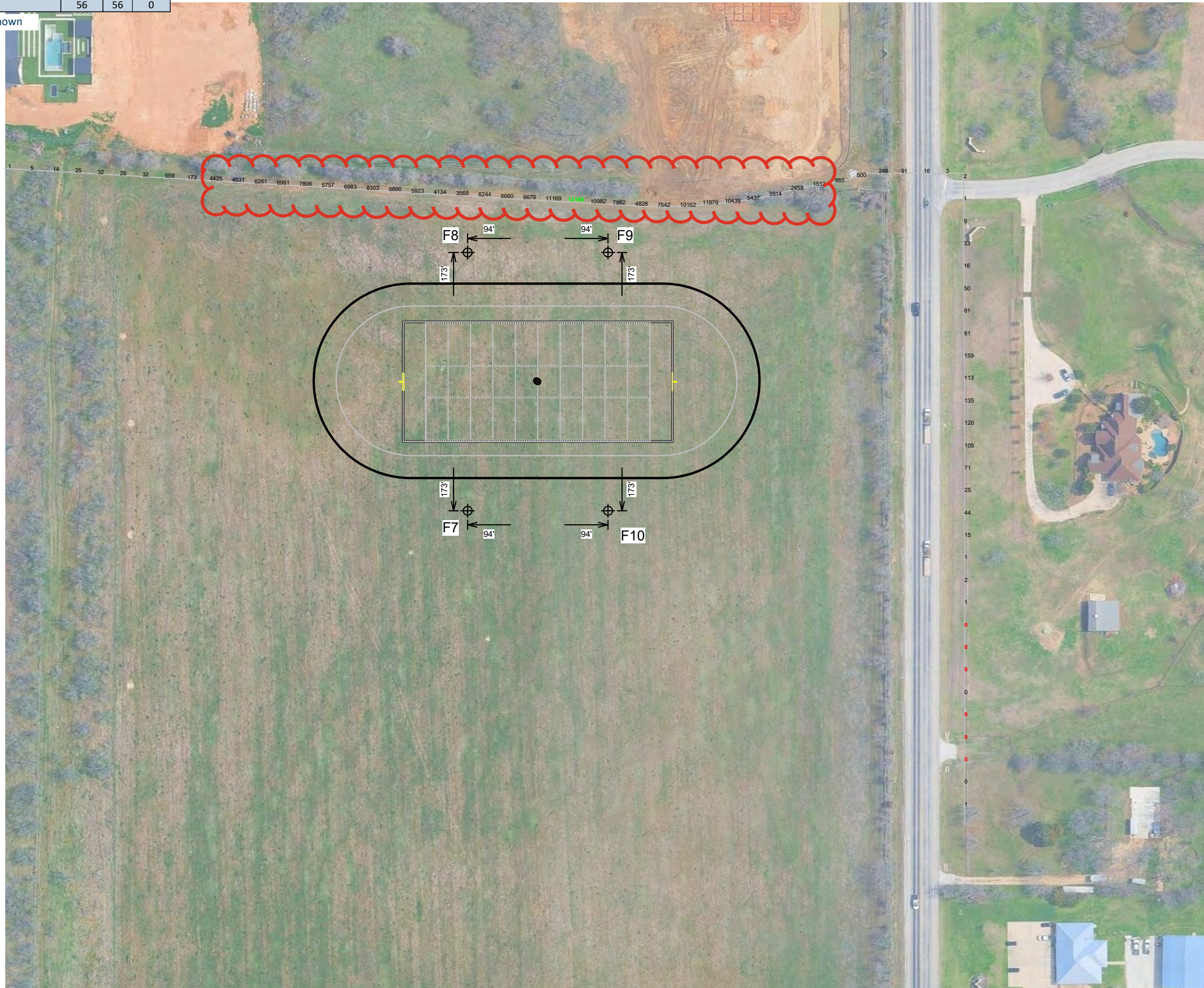
**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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

Equipment List For Areas Shown								
Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F7-F10	90'	-	90'	TLC-LED-1500	11	11	0
				70'	TLC-LED-550	1	1	0
				30'	TLC-BT-575	2	2	0
4	Totals					56	56	0

Above Field Level is height of fixtures above area shown



# Argyle ISD Middle School

Argyle, TX

Item 4.

Grid Summary	
Name:	Property Line Spill
Size:	360' x 160'
Spacing:	30.0' x 10.0'
Height:	3.0' above grade

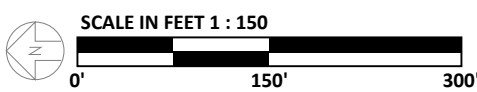
Illumination Summary	
MAINTAINED MAX CANDELA (PER FIXTURE)	
Scan Average:	2781.83
Maximum:	12186
Minimum:	0
Avg/Min:	-
Max/Min:	-
UG (adjacent pts):	0.00
CU:	0.00
No. of Points:	72
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	56
Total Load:	68.80 kW

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

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions.

**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) ⊗



Equipment Layout

**INCLUDES:**  
 · Football  
 · Track

**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.

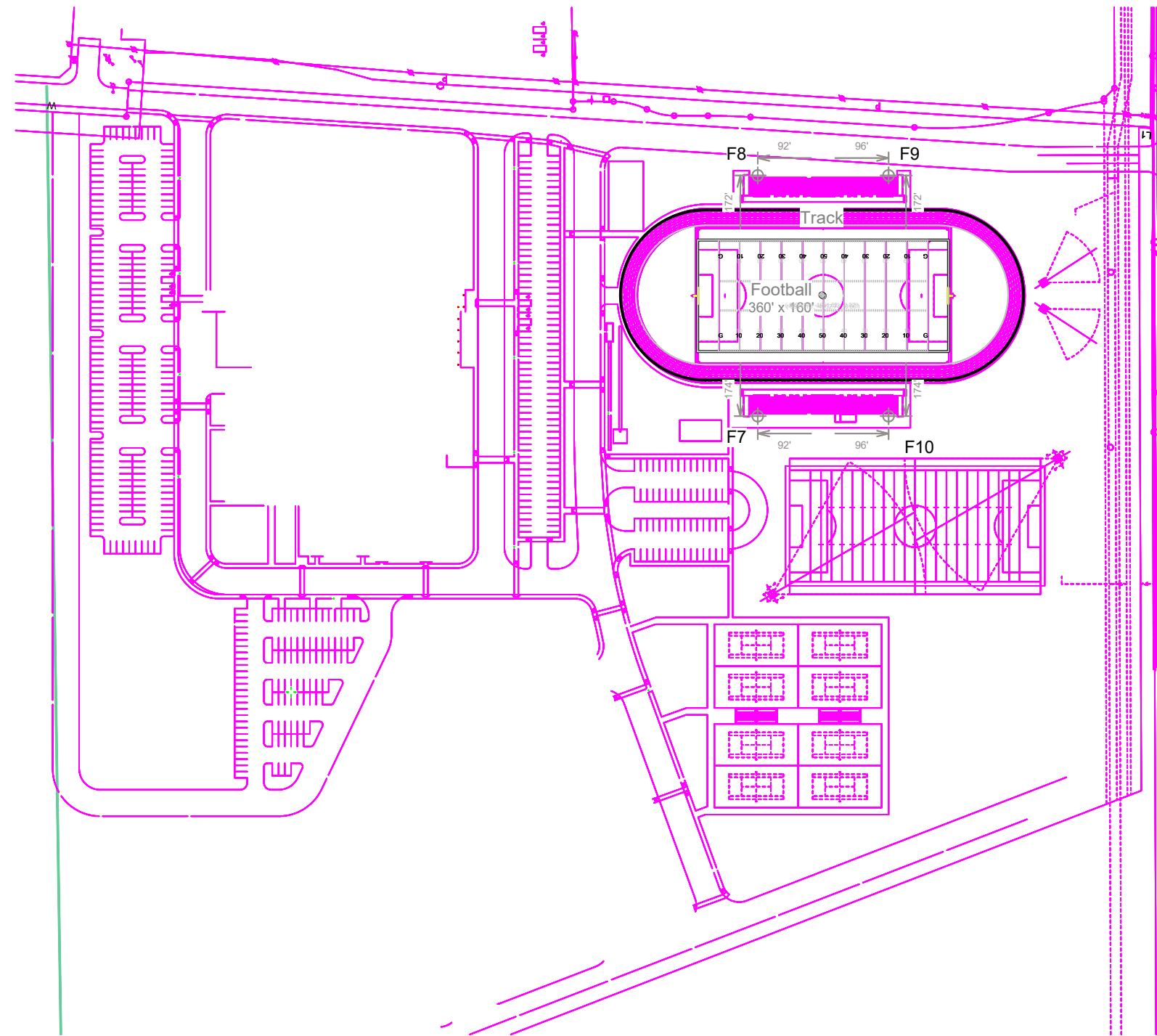
Equipment List For Areas Shown

QTY	Structure			Fixtures		
	STRUCTURE ID	SIZE	GLOBAL ELEVATION	ABOVE GLOBAL LEVEL	FIXTURE TYPE	QTY/POLE
4	F7-F10	90'	-	90'	TLC-LED-1500	11
				70'	TLC-LED-550	1
				30'	TLC-BT-575	2
4	Totals					56

Above Global Level is height of fixtures above design (0,0,0)

Single Fixture Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Fixture (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4



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

