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**FINAL INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION FOR THE  
PROPOSED HIGHLANDS HIGH SCHOOL SPORTS  
COMPLEX PROJECT**

**Prepared for:**

Twin Rivers Unified School District  
3222 Winona Way,  
North Highlands, CA 95660

**Prepared by:**

Grassetti Environmental Consulting  
7008 Bristol Drive  
Berkeley, CA 94705

September 17, 2021

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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ADWF	average dry weather flow
APE	Area of Potential Effect
BMP	Best Management Practice
CARB	California Air Resources Board
DPR	California Department of Parks and Recreation
FEMA	Federal Emergency Management Agency
CO	carbon monoxide
CO <sub>2</sub> E	carbon dioxide equivalent
GHG	greenhouse gas
gpd	gallons of wastewater per day
LOS	level of service
mgd	million gallons per day
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
OHP	State Office of Historic Preservation
O <sub>3</sub>	ozone
PM <sub>10</sub>	particulate matter less than 10 microns
PM <sub>2.5</sub>	particulate matter less than 2.5 microns
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SO <sub>x</sub>	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TMDL	Total Maximum Daily Load
UCMP	University of California Museum of Paleontology
VOC	volatile organic compound

## ENVIRONMENTAL DETERMINATION

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:** The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

	Aesthetics		Greenhouse Gas Emissions		Public Services
	Agricultural and Forestry Resources		Hazards and Hazardous Materials		Recreation
	Air Quality	X	Hydrology/Water Quality		Transportation/ Traffic
X	Biological Resources		Land Use/Planning		Tribal Cultural Resources
X	Cultural Resources		Mineral Resources		Utilities/Service Systems
	Energy	X	Noise		Wildfire Hazards
X	Geology/Soils		Population/Housing	X	Mandatory Findings of Significance

**DETERMINATION:** On the basis of this initial evaluation:

I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	<b>X</b>
I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	
I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.	



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**Perry Herrera, Director of Facilities  
Construction & Engineering, TRUSD**

9/18/21

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**Date**

## I. INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the Twin Rivers Unified School District (TRUSD or District), 3222 Winona Way Suite 201, North Highlands, CA 95660, pursuant to the California Environmental Quality Act (CEQA) statutes<sup>1</sup> and Guidelines<sup>2</sup>. It provides documentation to support the conclusion that the proposed Highlands High School Sports Complex Project (“the project”), with mitigation identified herein, would not cause a potentially significant impact to the physical environment. The proposed site is located on the Highlands High School campus, in the community of North Highlands, in unincorporated Sacramento County.

This IS/MND describes the location of the project site, the project sponsor’s objectives, and the details of the proposed project. The Environmental Checklist Form included as Appendix G of the CEQA Guidelines serves as the basis for the environmental evaluation contained in the IS/MND. The Checklist Form examines the specific potential project-level physical environmental impacts that may result from the construction and operation of the proposed new and expanded facilities onsite. Mitigation measures have been identified to reduce any potentially significant impacts that would otherwise occur with development and operation of the new facilities to a less-than-significant level.

The District will serve as the “lead agency” (the public agency that has the principal responsibility for carrying out and/or approving a project) for the proposed project. The governing board of the District is responsible for ensuring that the environmental review and documentation meet the requirements of CEQA. The Draft IS/MND is subject to review and comment by responsible agencies and the public during a statutory public review period (30 days). Any necessary revisions would be incorporated in the Final IS/MND.

The Draft IS/MND was circulated for a 30-day public review period ending on September 17, 2021. No comments were received on the Draft IS/MND during that period. Should the District approve the project, it would be required to file a “Notice of Determination” for posting by the County Clerk and the State Clearinghouse. The filing of the notice and its posting starts a 30- day statute of limitations on court challenges to the CEQA review of the Project.

### Document Organization

This document is organized into the following sections:

**SECTION I – INTRODUCTION:** Provides background information about the project.

**SECTION II – PROJECT DESCRIPTION:** Includes project background and detailed description of the project.

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<sup>1</sup> Public Resources Code Sections 21000 et seq.

<sup>2</sup> Title 14, Section 15000 et seq. of the California Code of Regulations

**SECTION III – INITIAL STUDY CHECKLIST AND DISCUSSION:** Reviews the proposed project and states whether the project would have potentially significant environmental effects.

**SECTION IV – MANDATORY FINDINGS OF SIGNIFICANCE:** States whether environmental effects associated with development of the proposed project are significant, and what, if any, added environmental documentation may be required.

**SECTION V – REFERENCES:** Identifies source materials that have been consulted in the preparation of the IS.

**SECTION IV – REPORT PREPARERS:** Identifies the firms and individuals who prepared the IS.

**APPENDICES:** Includes technical reports and Mitigation Monitoring and Reporting Program



## II. PROJECT DESCRIPTION

<b>Project Name:</b>	Highlands High School Sports Complex Project
<b>Project Location:</b>	6601 Guthrie St. North Highlands, CA 95660
<b>Project Applicant and Lead Agency Contact:</b>	Perry Herrera, Director of Facilities Construction & Engineering Twin Rivers Unified School District 3222 Winona Way, Ste. 201 (916) 566-1600 ext. 36205 <a href="mailto:Perry.Herrera@twinriversusd.org">Perry.Herrera@twinriversusd.org</a>
<b>General Plan Designation:</b>	Sacramento County, LDR- Low Density Residential
<b>Zoning:</b>	Sacramento County, R-2, Residential
<b>Project Approvals:</b>	TRUSD approval. Review of facilities by Division of the State Architect for structural safety, fire and life safety, and ADA accessibility.
<b>Date Initial Study Completed:</b>	September 17, 2021

## **PROJECT DESCRIPTION**

### **Project Location**

Highlands High School is located at 6601 Guthrie Street in the unincorporated community of North Highlands, in the northeastern area of the Sacramento County. (See Figure 1). Regionally, the campus is accessed via from US Highway 80, via Elkhorn Blvd. and Don Julio Blvd. The school is located north of Roseville Road, east of Walerga Road, southwest of South Magnolia Avenue, and south of Don Julio Blvd. (see Figure 1). The project site, which encompasses an unimproved earthen track and natural grass soccer practice field, is at the northwestern edges of the school campus.

Highlands High School has an enrollment of 743 students and was originally built in 1958. Existing athletic facilities on the campus include six tennis courts, a swim center, baseball and softball diamonds and practice fields, and a football field with bleachers. A separate TRUSD school campus, the Creative Connections Arts Academy High School (CCAA), is located just to the south of the proposed Sports Complex. The CCAA campus is located on the same overall TRUSD property that houses Highlands High School. W.A. Allison Elementary School lies to the northwest of the project site, across the intersection of Don Julio Blvd. and Walerga Road.

### **Surrounding Land Uses**

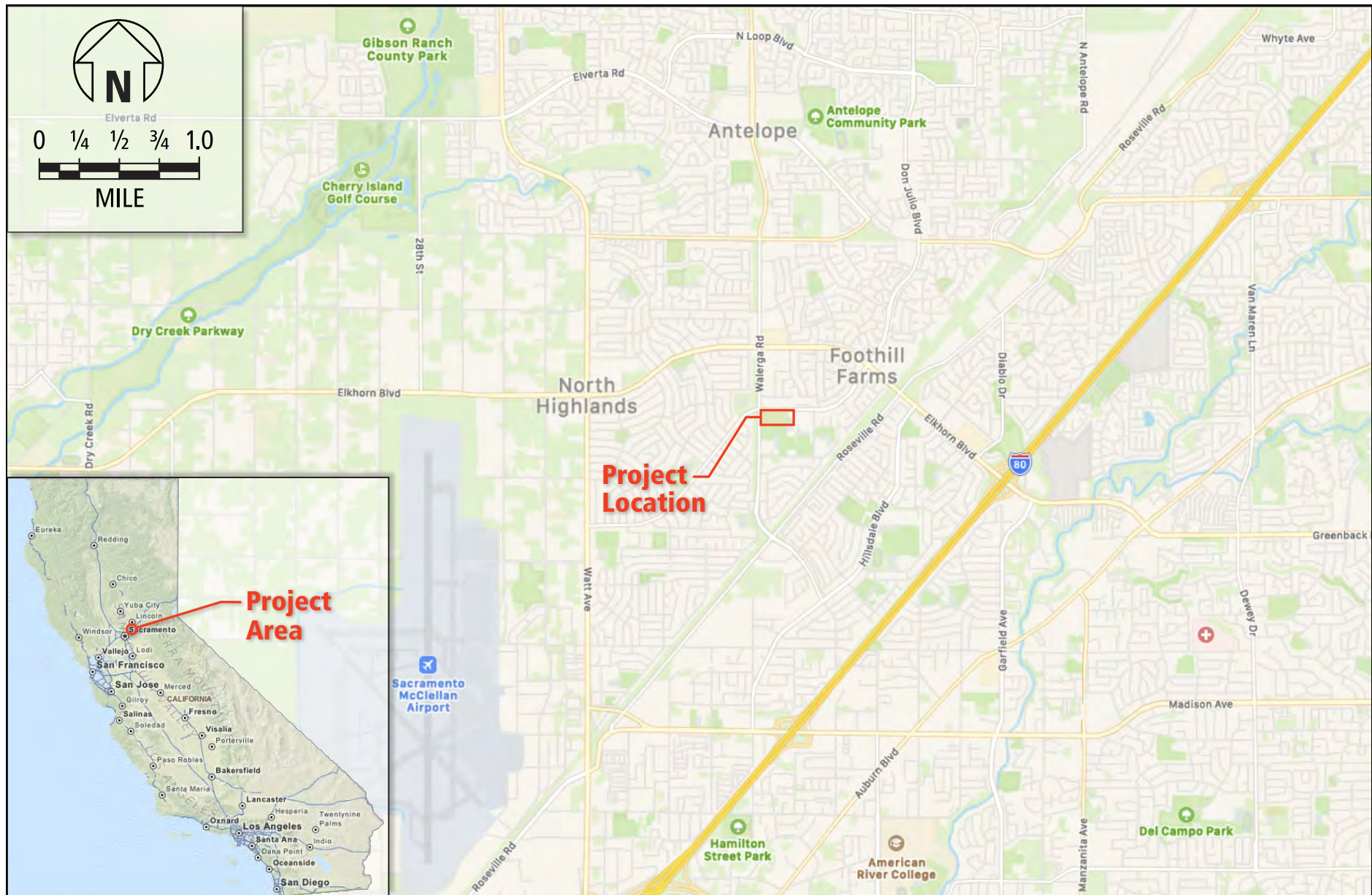
The project site is bounded on the north by Don Julio Blvd., across which are a church/church school and single-family residences. Walerga Road borders the site on the west, with an undeveloped easement and multi-family residential uses further to the west; the area directly south of the project site contains baseball practice fields, with the CCAA campus further to the south. The developed part of the Highlands High School campus lies immediately to the east of the project site.

### **Existing Site Conditions and Facilities**

As shown on Figure 2, the project site currently houses a minimally improved earthen track and grass soccer field, as well as grassy open space areas with a several trees. The project site comprises approximately 8.5 acres of the overall 60-acre campus.

### **Proposed Sports Complex**

The proposed sports complex upgrades are described below and shown on Figure 3. The existing natural grass field and earthen track would be replaced with synthetic turf and synthetic track surface. The turf would include four components: fiber, infill, backing, and underlayment. The fiber would consist of polyethylene slit film, would be grass-like in appearance. The infill, which would be used to provide stability, would be made of sand, cryogenic rubber and natural cork. The backing would be comprised of polyethylene.



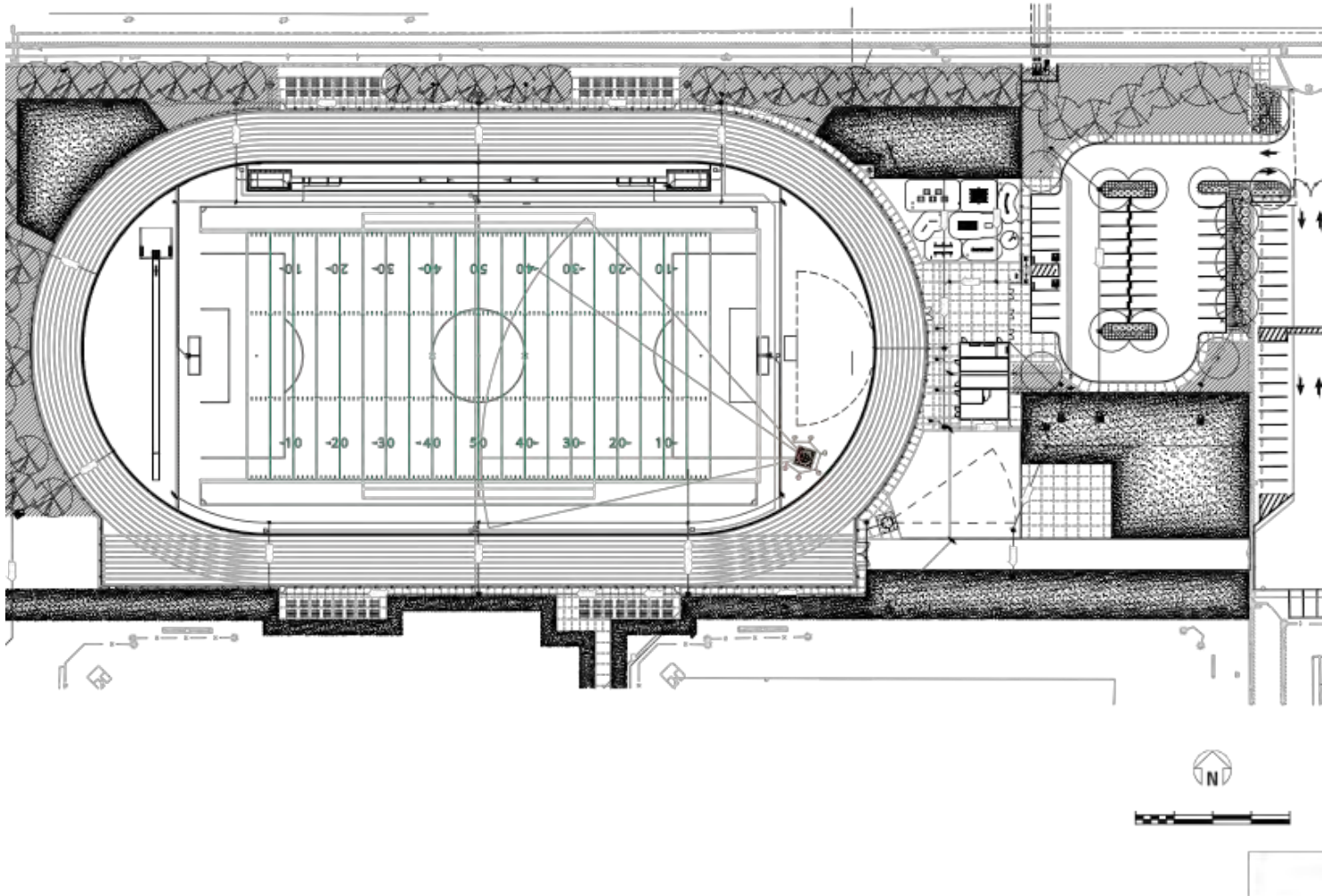
**Figure 1**  
Project Location

Source: Grasseti Environmental and TomTom Maps





Figure 2  
Existing Project Site



**Figure 3**

**Project Site Plan**

Source: Grassetti Environmental and PBK Architects, Inc.

The underlayment would consist of polyethylene mat. The turf would be expected to last approximately eight to 12 years and could then be recycled and replaced with a new surface.

**Public Address System.** The project includes a new public address system that would be used to announce events during competitions. The proposed system uses standard sound system components and is designed to provide sound coverage for the seating and competition areas.

**Track and Field Lighting.** Five LED light poles would be installed as part of the project. This includes four 80-foot-tall poles, with two on either side of the track and field; two with 13 LED lamps, and two with 14 LED lamps. One additional 50-foot pole with two LED fixtures would be provided in the shot-put area.

All lamps would be shielded and directed to focus the lighting on the field and shot-put areas, and to minimize spillage beyond the desired illuminated areas. The proposed pole-mounted LED lighting fixtures would be hooded to eliminate sky glow and are pre-aimed to keep on the light within the competition areas and away from the neighboring areas. Please see Section III.I for a discussion of the light and glare impacts, and Appendix A for additional lighting details.

**Accessory Facilities.** Accessory facilities would include, an approximately 50 by 32 - foot (1,620 square-foot) one-story modular building containing a concession stand, and restrooms, eight eight-foot-high portable bleacher structures with seating for approximately 496 spectators, shot-put area, and a small parcourse area. The project also includes a scoreboard, new walkways, and landscaping, as well as over 1,467 linear feet of fencing up to six feet in height.

Water and sewage service to the building would be provided via connections to existing mains on Don Julio Blvd.

The project also would include a new parking lot adjacent and to the east of the field, with 37 parking spaces, including 35 standard spaces, and two accessible spaces.

**Days and Hours of Operation.** The existing grass field has been used for soccer and has a track surrounding it. The new sports complex would be used by both Highlands High School and Creative Connections Arts Academy High School (CCAA). The District proposes to allow the community to use the new facility as well. The new facility would be used as follows:

- The Physical Education departments of both schools would use the facilities for field sport activities and fitness activities (300-350 students for Highlands and 75-125 for CCAA).
- Both schools would use the facility for boys' and girls' soccer practices and games (60 players per school, 120 total). The numbers of practices and games per year would not change. The number of players and spectators and hours of usage would also remain the same.
- Both schools would use the track and turf areas for boys' and girls' cross-country training (44-58 students total).
- Both schools would use the facility to train for and participate in hosting girl's and boy's track and field practices and meets (35-50 students total).

- Highlands High School would use the facility for in-season football practices, training/conditioning activities, and off-season development activities. (7on7 contests/tournaments, skill combines, etc.) (45-55 players total).
- Baseball and softball teams would use the turf areas when weather, or poor field condition, does not allow use of primary baseball and softball areas for training/condition and sport specific activities, and individual and team offense and defense skill development (24-36 players total).
- The project includes community use of up to 100-200 participants, seven days a week between the hours of 8:00 AM and 10:00 PM. It is expected that there would be 30-50 community events per year with 100-200 participants.
- Up to ten full capacity events per year.

The existing field has no spectator facilities. The portable bleachers on the home and visitor site would accommodate approximately 496 spectators. The bleachers would be used by spectators for school athletic events: track and field, soccer matches and tournaments, and students rallies.

Community use for the bleachers would be similar to the school usage but could include sport clinics/camps for various other sports; softball, baseball, ultimate frisbee and youth football with 100 to 200 spectators.

**School Capacity Increases.** There would be no change in student enrollment or staffing due to the proposed project.

**Tree Protection, Planting and Removal.** As shown in Figure 2, the project includes the addition of 66 new trees along the site's Walerga Road and Don Julio Blvd. frontages and within and along the edge of the new parking lot. Four existing trees would be removed, and 13 new trees would be planted along the Walerga Road frontage. Eight small existing trees would be removed, and 29 new trees would be planted along Don Julio frontage. All trees proposed to be removed as part of this project are 6-inches in diameter or less.

**Grading and Earthwork.** The preliminary project grading scheme would result in 3,000 cubic yards of cut and 3,000 cubic yards of fill (i.e. balanced on the site). Minimal topographic changes to the level site would occur as a result of the project's cut and fill.

**Drainage and Runoff.** The approximately 8.5-acre project area is currently undeveloped and unpaved. With the project there would be an increase in impervious surface area of 138,000 square feet (3.17 acres). New storm drains would be installed to connect field subdrains to two bio-retention basins along the site's Walerga Road frontage. Water would then flow from these basins to the existing stormwater collection system in Walerga Road. Peak flows would not be expected to exceed existing site peak runoff conditions because any increase would be detained by the on-site stormwater system.

## **Construction Schedule**

The project has a tentative construction start of September 2021, with completion anticipated by mid-March 2022.

## **Construction Equipment, Workers, and Hours**

***Equipment Use.*** Equipment used during construction would vary by phase, but would include excavators, backhoes, dump trucks, graders, compactors, water trucks, and similar equipment.

***Construction Workers.*** Up to 12 construction workers would be onsite on an average day.

***Construction Hours.*** Typical construction hours would be 7:00 am to 4:30 PM, weekdays. Some work may also be done on Saturdays between 7:00 am and 4:30 PM.

***Construction Staging Areas.*** Construction staging areas would be located on the project site.



### III. INITIAL STUDY CHECKLIST

The initial study checklist recommended by the CEQA Guidelines is used to describe the potential impacts of the proposed Project on the physical environment.

#### I. Aesthetics

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	

#### Discussion

- a) There are no scenic vistas in the project vicinity, which is generally level land developed mostly with are suburban residential, institutional, and commercial land uses. The project would replace an existing track and grass soccer field with an improved field and track, bleachers, concession stands, and parking. These uses would be visually similar to existing uses at the school's football field and would not degrade or substantially alter the visual character of the site. The addition of 66 new trees would enhance the appearance of the project area. Therefore, the project would have **no impact** on scenic vistas or scenic resources.
- b) There are no rock outcroppings, historic buildings, or scenic highways on the project site and no scenic highways with views of the project site. The project site is approximately 1.25 miles from I-80, which is a County-designated Scenic Corridor (Sacramento County

General Plan, 2017 Circulation Element, Figure 5). The project improvements would not be visible from this highway due to the distance from it and the intervening trees and buildings. Therefore, there would be **no impact**.

- c) The proposed project lighting for the athletic facilities would create a new source of nighttime light and glare. Currently, use of the field is limited to daylight hours, and there is no lighting.

With the project, the site would be lit for games and practices no later than 10 PM. The proposed sports lighting is designed to control light to maximize illumination on the field and minimize off-site light and glare. The proposed lighting would be less impactful and more focused than older systems. An illumination spillover study assessed light spillover at the front property lines of buildings across the streets from the field along both Don Julio Blvd. and Walerga Road (Musco Sports Lighting, 2021) (See Figure 4 below and Appendix A.).

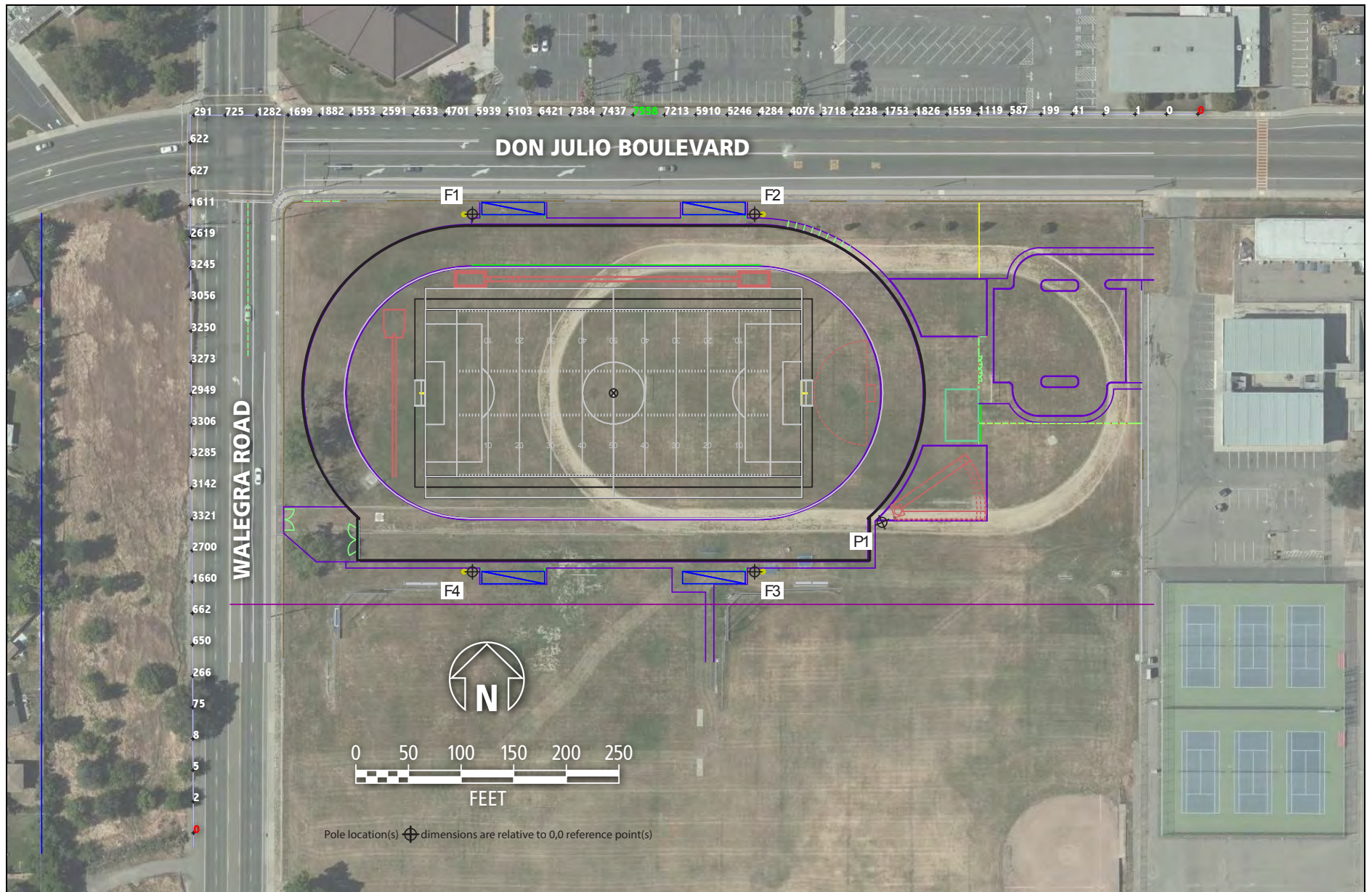
The lighting study also assessed off-site glare, in terms of the maximum illuminance candela, or amount of glare an observer would see when facing the brightest light source from any direction. High glare is considered to be 150,000 or more candela. Significant glare is defined as 10,000-75,000 candelas, which is equivalent to the low and high beam headlights on a car. Minimal to no glare is 500 or fewer candela, or equivalent to a 100-watt incandescent light bulb.

Figures 4 and 5 show that the residents along Walerga Road may notice new nighttime light from their back yards as a result of project lighting. However, they are set back over 300 feet from the light standards, and the lights would be aimed down and away from these houses, so light would be imperceptible (0 foot-candles) and glare would be low (less than 2000 candela). The study determined that the maximum illuminance in footcandles (fc) from proposed lights at the residential property lines would be less than is typical of roadway lighting. Therefore, light and glare impacts on these residences would be **less than significant**.

The church complex across Don Julio Blvd. from the facility also would experience some light and glare (up to around 7,500 candela) from the project, however that facility is not considered a sensitive receptor to the light and glare, and the light and glare levels at the church facilities, which are about 100 feet from the nearest lights, would be below 1 foot-candle the 7,500 candelas, respectively, which is below potentially significant levels and considered **less than significant**.







**Figure 5**  
Glare at Property Lines (candelas)

Source: Musco Lighting

## II. Agricultural and Forestry Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

### Discussion

- a-e) The project site is covered by existing track and soccer field. There are no agricultural or forested lands on or in the vicinity of the high school campus. Therefore, the project would not result in the conversion of farmland or forestland to non-agricultural uses would have **no impact** on agricultural and forestry resources.

### III. Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

#### Background

The project site is in a predominantly residential suburban area of northeastern Sacramento County, which is part of the Sacramento Valley Air Basin (including all the Sacramento Valley counties from Sacramento County at the south end to Shasta County in the north). The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants when meteorological conditions are right, particularly in the autumn and early winter when surface wind speeds are low and vertical mixing is inhibited by temperature inversions (i.e., colder air near the ground, capped by warmer air aloft, which limits the vertical dispersion of air pollutants). The major air pollutants of concern for their widespread adverse health effects include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter (specifically two types of the latter: particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>)).

Except for ozone, PM<sub>10</sub> and PM<sub>2.5</sub>, Sacramento County is in attainment for all state and federal ambient air quality standards. Sacramento County is designated a “severe” nonattainment area for the federal eight-hour ozone standard, a “serious” nonattainment area for the state one-hour ozone standard, and nonattainment for the state PM<sub>10</sub> and PM<sub>2.5</sub> standards.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) and the California Air Resources Board (CARB) maintain a number of air quality monitoring stations, which continually measure the ambient concentrations of major air pollutants in Sacramento County. The closest monitoring stations to the Project site are in North Highlands (i.e., on Blackfoot Way, about 2 miles

northwest of the site) and in Folsom (i.e., on Natoma Street, about ten miles east of the site). Violations of both the ozone and particulate standards have been recorded at these monitoring stations over the most recent three years of collected data, as shown in Table AQ-1.

**TABLE AQ-1: LOCAL AIR QUALITY MONITORING DATA SUMMARY**

Pollutant	Air Quality Standard	Maximum Concentrations and Number of Days Standards Exceeded		
		2017	2018	2019
<b>Ozone</b>				
Maximum 8-hour concentration (ppb)		91	83	82
# Days 8-hour national/state standard exceeded	70 ppb	8	10	2
<b>Nitrogen Dioxide</b>				
Maximum 1-hour concentration (ppb)		26	29	15
# Days 1-hour national standard exceeded	100 ppb	0	0	0
<b>Suspended Fine Particulates (PM<sub>2.5</sub>)</b>				
Maximum 24-hour concentration (µg/m <sup>3</sup> )		33.2	104.5	25.4
# Days national 24-hour standard exceeded	35 µg/m <sup>3</sup>	0	9	0
<b>Notes:</b>				
As measured at the SMAQMD monitoring stations in North Highlands –Blackfoot Way station and Folsom – Natoma Street station.				
µg/m <sup>3</sup> = micrograms per cubic meter ppb = parts per billion.				
na = insufficient data to determine the value				
Source: CARB iADAM Air Quality Data Statistics <a href="https://www.arb.ca.gov/adam/">https://www.arb.ca.gov/adam/</a>				

There are many other chemical compounds that are commonly emitted into the air and are regulated as toxic air contaminants (TACs). In California, most the estimated carcinogenic/chronic health risk can be attributed to relatively few TACs, the most important being particulate matter from diesel-fueled engines (DPM, which is also a form of PM<sub>2.5</sub>). The CARB has identified DPM as being responsible for about 70 percent of the cumulative cancer risk from all airborne TAC exposures statewide.

This air quality analysis addressing the Initial Study air quality checklist items above was performed using the methodologies recommended in the SMAQMD's *Guide to Air Quality Assessment in Sacramento County (CEQA Guide)*<sup>3</sup> The air pollutants evaluated in this Initial Study are: reactive organic compounds (ROG) and nitrogen oxides (NO<sub>x</sub>) (both being precursors to ozone formation), inhalable particulates (PM<sub>10</sub>), and fine particulates (PM<sub>2.5</sub>).

<sup>3</sup> <http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools>

According to the *CEQA Guide*, any project would have a significant potential for causing/contributing to a local air quality standard violation or making a cumulatively considerable contribution to a regional air quality problem if its criteria pollutant emissions would exceed any the following thresholds during construction or operation as presented in Table AQ-2.

**TABLE AQ-2: SIGNIFICANCE THRESHOLDS FOR AIR POLLUTANT EMISSIONS**

Pollutant	Construction Daily/Annual Emissions (lbs./tons)	Operational Daily/Annual Emissions (lbs./tons)
Reactive Organic Gases (ROG)	----/----	65/----
Oxides of Nitrogen (NO <sub>x</sub> )	85/----	65/----
Inhalable Particulate Matter (PM <sub>10</sub> )	80/14.6	80/14.6
Fine Inhalable Particulate Matter (PM <sub>2.5</sub> )	82/15.0	82/15.0

**Discussion**

- a) The regional air districts of the Sacramento Ozone Planning Region (i.e., all of Sacramento and Yolo counties and portions of Placer, El Dorado, Solano, and Sutter counties) developed the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* in 2013 to address how the region would attain the federal 8-hour ozone standard. The Sacramento PM<sub>2.5</sub> Planning Region (i.e., all of Sacramento County, the eastern portion of Yolo County, the western portions of El Dorado and Placer counties, and the northeast portion of Solano County) had been classified as nonattainment for the federal 24-hour PM<sub>2.5</sub> standard. The regional districts prepared the *PM<sub>2.5</sub> Maintenance Plan and Redesignation Request* in 2013 to address how the region had attained and would maintain the federal 24-hour PM<sub>2.5</sub> standard.

The regional air quality plans are based on regional air pollutant emission inventories and the effects of expected regional changes in population, transportation, housing, employment, etc. on future emissions. The Proposed Project would replace the existing athletic fields of Highlands High School. The improved fields and their supporting facilities would occupy the same area in the same location on the school campus. The school’s student population would remain at 743 students post Project. Thus, the school and its athletic fields would continue to serve the same local communities and the Project would not substantially affect regional employment, transportation, housing or population that underlie the regional air quality plans. The Project would not introduce any new stationary sources of air pollutants to the site. Also, compliance with SMAQMD CEQA significance thresholds is a test of consistency with plan air quality control strategies and noninterference with the attainment of plan goals. As the pollutant inventories below demonstrate, the Proposed Project would have **less than significant** air quality impacts because it does not exceed any SMAQMD CEQA threshold.

- b) Under the Proposed Project, Highlands High School’s existing natural grass athletic field and earthen track (total field area 8.5 acres) would be replaced with synthetic turf, with the



school maintaining its current enrollment of 743 students post Project. Construction of the athletic facility improvements would begin in Fall 2021 and would be completed in about 6 months. Air pollutants would be present in the construction equipment exhaust and in the fugitive dust stirred up by construction equipment/material movement. The SMAQMD *CEQA Guide* recommends quantification of construction-related exhaust and fugitive emissions, and comparison of those emissions to the CEQA significance thresholds. Thus, the CalEEMod (California Emissions Estimator Model, Version 2020.4.0) was used to quantify construction-related emissions of criteria pollutants. Table AQ-3a displays the estimated daily Proposed Project construction pollutant emissions from earth-moving equipment, supply delivery trucks, and worker vehicle commute vehicles, and their comparisons at each construction phase to the CEQA significance thresholds. All construction-related engine exhaust emissions would be well below the thresholds during each construction phase.

**TABLE AQ-3a: PROJECT CONSTRUCTION CRITERIA POLLUTANT EMISSIONS  
(Daily maximum)**

Construction Phase/Duration	ROG (lbs./day)	NOx (lbs./day)	PM <sub>10</sub> (Exhaust) (lbs./day)	PM <sub>2.5</sub> (Exhaust) (lbs./day)
Demolition/10 days	0.4	4.2	0.2	0.2
Clear & Grub/5 days	1.2	11.5	0.7	0.4
Rough Grade/20 days	3.3	31.2	1.6	1.3
Fine Grade/10 days	1.7	15.7	0.9	0.7
Rock Placement/15 days	1.8	16.9	0.9	0.7
Paving/5 days	0.8	8.8	0.4	0.4
Turf Placement/30 days	0.9	7.3	0.5	0.2
Fencing/20 days	0.4	2.8	0.1	0.1
Landscaping/18 days	0.5	4.8	0.2	0.2
Concrete Placement/20 days	0.4	4.9	0.3	0.2
<b>Significance Thresholds</b>	----	<b>85</b>	<b>80</b>	<b>82</b>
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

**TABLE AQ-3b: PROJECT CONSTRUCTION CRITERIA POLLUTANT EMISSIONS**

Construction Phase	ROG (tons/year)	NOx (tons/year)	PM <sub>10</sub> (Exhaust) (tons/year)	PM <sub>2.5</sub> (Exhaust) (tons/year)
<b>Total</b>	0.09	0.82	0.04	0.03
<b>Significance Thresholds</b>	----	<b>85</b>	<b>14.6</b>	<b>15.0</b>
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Table AQ-4a displays the estimated daily Proposed Project fugitive particulate pollutant emissions during the two highest-emitting construction phases, and their comparisons to

the CEQA significance thresholds. All construction-related fugitive emissions would be well below the thresholds during these most emission-intensive construction phases. This would also be true of the combined engine exhaust and fugitive particulate emissions during the same two phases.

Table AQ-4b displays the estimated total proposed project fugitive particulate pollutant emissions from all construction phases, and their comparisons to the annual CEQA significance thresholds. Total construction-related fugitive emissions would be well below the thresholds during Project construction. This would also be true of the combined total engine exhaust and fugitive particulate emissions during project construction.

**TABLE AQ-4a: PROJECT CONSTRUCTION FUGITIVE POLLUTANT EMISSIONS (daily maximum)**

Construction Phase	ROG (lbs./day)	NOx (lbs./day)	PM10 (Fugitive) (lbs./day)	PM2.5 (Fugitive) (lbs./day)
Clear & Grub	----	----	0.90	0.10
Rough Grade	----	----	6.47	3.36
<b>Significance Thresholds</b>	----	----	<b>80</b>	<b>82</b>
<b>Significant Impact?</b>	----	----	<b>No</b>	<b>No</b>

**TABLE AQ-4b: PROJECT CONSTRUCTION FUGITIVE POLLUTANT EMISSIONS**

Construction Phase	ROG (tons/year)	NOx (tons/year)	PM10 (Exhaust) (tons/year)	PM2.5 (Exhaust) (tons/year)
<b>Total All Phases</b>	----	----	0.07	0.04
<b>Significance Thresholds</b>	----	----	<b>14.6</b>	<b>15.0</b>
<b>Significant Impact?</b>	----	----	<b>No</b>	<b>No</b>

The improved athletic field would have bleachers for spectators of the soccer games and football team practice, but all league football games would continue to be played at the existing football stadium on the south side of the campus. Based on the Project Transportation Impact Assessment, the provision for additional spectators at soccer games/football practice would generate about 71 additional daily motor vehicle trips. Table AQ-4c provides the estimated Proposed Project net new operational emissions from these additional motor vehicle trips and compares daily and total annual emissions to the CEQA significance thresholds. Project operational emissions would be well below the thresholds. Thus, the Proposed Project would not make cumulatively considerable contributions to the Sacramento planning region's problems with ozone or particulate matter. Cumulative emission impacts would be less than significant.

**TABLE AQ-4c: PROJECT OPERATIONAL CRITERIA POLLUTANT EMISSIONS  
(daily average/annual total)**

Operational Source	ROG (lbs./ tons)	NOx (lbs./ tons)	PM <sub>10</sub> (lbs./tons)	PM <sub>2.5</sub> (lbs./tons)
Additional Motor Vehicle Trips Associated with Athletic Fields	0.13/0.02	0.57/0.08	0.50/0.07	0.14/0.02
Significance Thresholds	---/----	85/----	80/14.6	82/15.0
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

**Project Construction-Related Impacts**

- c) The SMAQMD *CEQA Guide* requires several construction Emission Control Processes (ECPs) to control fugitive dust and the PM<sub>10</sub>/PM<sub>2.5</sub> it would contain. Thus, the following measures must be implemented by the Proposed Project construction contractor to assure that local sensitive receptors would not be exposed to substantial ambient concentrations of PM<sub>10</sub>/PM<sub>2.5</sub>:

**SMAQMD Basic Construction Emission Control Processes:** The following practices are considered feasible for controlling fugitive dust from a construction site. Control of fugitive dust is required by SMAQMD Rule 403 and enforced by SMAQMD staff.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment, which the CARB enforces.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

The CARB's *In-Use Off-Road Diesel Vehicle Regulation* applies to off-road diesel engines greater than 25 horsepower (hp) used in construction equipment. As required by this regulation:

- All Project construction equipment shall be reported to CARB using the Diesel Off-Road Online Reporting System (DOORS) and each piece of equipment shall be labeled as to its emission potential as listed in DOORS.

Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

### ***Project Operational Impacts***

Cancer risk is the lifetime probability of developing cancer from exposure to carcinogenic substances. Following health risk assessment (HRA) guidelines established by the State of California's Office of Environmental Health and Hazards Assessment (OEHHA), incremental cancer risks are estimated by applying established toxicity factors to modeled TAC concentrations. For cancer, an incremental increase in risk greater than 10 in one million at any sensitive off-site receptor is considered to be significant. Adverse health impacts unrelated to cancer are measured using a hazard index (HI), which is defined as the ratio of a project's incremental TAC exposure concentration to a published reference exposure level (REL) as determined by OEHHA. If the HI is greater than 1.0, then the impact is considered to be significant.

Ambient DPM in construction equipment/truck exhaust could substantially affect sensitive receptors near the locus of construction activity if such emissions were strong enough and lasted long enough. However, the CEQA significance thresholds for TACs are based on assumptions of exposure duration of a year or longer (i.e., a year for chronic non-cancer health impacts, 70 years for cancer risk). Given that the most intensive DPM-emitting Project phase (i.e., Rough Grading) would be completed in about 20 work days, the TAC exposure period for the local school and residential sensitive receptors would be very short in comparison to the exposure times needed to threaten adverse health impacts. Thus, Proposed Project-related TAC health risks would be substantially below the CEQA health-risk significance thresholds and TAC impacts for the Proposed Project construction emissions would be **less than significant**.

- d) The SMAQMD's Rule 402 (Nuisance) prohibits any person or source from emitting air contaminants that cause detriment, nuisance, or annoyance to a considerable number of persons or the public. Odiferous compounds can be generated from a variety of source types including construction activities that include a substantial number of diesel-fueled equipment and heavy-duty trucks.

The construction fleet required to install the Proposed Project's athletic fields would be relatively small (i.e., for Rough Grading, the Project's most intensive phase, a grader, a front-loader, a dozer, and a water truck would be required). This equipment would be operating for a relatively brief time (i.e., 20 workdays) and the locus of equipment activity would move over the 8.5-acre worksite over that time. Thus, any perceptible odor impacts from construction equipment exhaust to the school population and to the closest local residents would be transitory. Therefore, odor impacts associated with Proposed Project construction would be **less than significant**.

## IV. Biological Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

### Background

The project site is currently comprised of a grass covered athletic fields and earthen track, in a developed suburban area.

Based on habitat requirements and regional distribution, no State or federally Threatened or Endangered species are expected to occur on the project site. No sensitive habitats or plant communities for these occur on the project site. However, there are several mature trees

surrounding the fields, which may provide nesting habitat for special status songbirds and raptors, although the largest trees that would be removed have trunks measuring six inches in diameter or less. No potential jurisdictional wetlands or Waters of the United States occur on the project site<sup>4</sup>. Trees surrounding the school fields may provide nesting and/or roosting habitat for a number of special-status bird species.

## Discussion

- a) The project has the potential to affect migratory and nesting protected bird species by tree removal and noise impacts on active nests. This potentially significant impact would be reduced to a **less-than-significant** level by implementation of Mitigation Measure BIO-1, below.
- b) The project would not affect any riparian habitat or sensitive natural communities, as none of those are present on the site. **No impact** would occur.
- c) The project would not affect any wetlands habitats, as none of those are present on the site. **No impact** would occur.
- d) The project has no potential to impede any migration corridors. The proposed project is not expected to “interfere substantially with the movement of any native resident or migratory fish or wildlife species” because there is minimal habitat on the site and the proposed project would not substantially change the uses of the project site and area. With respect to native wildlife nursery sites, see Migratory and Nesting Bird Species discussion, above. **No impact** would occur.
- e) The project would remove eleven mature trees from the site and replace them with 66 15-gallon landscape trees. Sacramento County’s Tree Preservation and Protection Ordinance is aimed at protecting native oaks and other heritage trees. The ordinance requires a permit for removal of applicable trees and replacement of any tree removed. However, the County does not have jurisdiction over the trees on the Highlands High School campus since it is under the jurisdiction of the TRUSD. Therefore, the District would not be required to obtain a tree removal permit from the County for their removal. In addition, the project landscaping plan includes planting new trees along the northern and western edges of the site. Therefore, **no impact** would occur.
- f) The project site is not covered by any federal, state, or local conservation plan. Therefore, the project would have **no impact** with respect to habitat conservation plan compliance.

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<sup>4</sup> <https://www.fws.gov/wetlands/data/mapper.html>

## Mitigation Measures

***Measure BIO-1: Prevent Loss of Active Bird Nests.*** A pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of construction activities, if activities are to occur within nesting/breeding season of native bird species (February-August). If active nests are identified within 300 feet of construction and would be exposed to prolonged construction-related noise above normal levels, a buffer shall be implemented around nests during the breeding season, or until a biologist determines the young have fledged. The size of the buffer and the type of construction activity would depend on multiple factors including relative change in noise and disturbance during construction activity, amount of vegetative screening between activity and nest, and sensitivity of species.



## V. Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		X		

### Background

The project site was graded to provide a level playing field and track when the school was constructed over 60 years ago and has been in use as a field since that time.

### Discussion

- a) The project site is an existing graded high school sports field and track on an existing high school campus. Consequently, the project site contains no historical resources as defined in CEQA Guidelines Section 15064.5. Minimal additional grading would occur for construction of the proposed field upgrades. The project would not have the potential to affect off-site historic resources. Therefore, the project would have **no impact** on historical resources.
- b) The project would involve grading the portion of the site proposed for the track and field by a few feet to install the artificial turf and track systems. Although the likelihood of project's grading, trenching, and digging for utility lines and lighting fixture foundations to encounter and disturb archaeological resources is low, it is possible that prehistoric materials and sites could be encountered. Implementation of Mitigation Measures CULT-1 and CULT-2 would reduce this **potentially significant impact** to a **less-than-significant level**.
- c) Although no prehistoric or historic-era human remains are known to exist on the project site, it is possible that presently undocumented human interments may be uncovered during grading. Implementation of Mitigation Measures CULT-2 and CULT-2 would reduce this **potentially significant impact** to a **less-than-significant level**.

## Mitigation Measures

**Mitigation Measure CULT-1: Archaeological Deposits.** If archaeological remains are encountered during project activities, project ground disturbances at the find and immediate vicinity shall be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]). The archaeologist shall examine the finds and recommend mitigation measures which may include documentation in place, avoidance, testing, and/or data recovery. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.

In addition, as a precaution, the project shall include cultural resource sensitivity training for crews involved in grading activities, as well as construction monitoring by a qualified professional archaeologist during all ground disturbing activities.

**Mitigation Measure CULT-2: Human Remains.** California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the District or the District's designated representative shall be notified. The District shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the District for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The District or their appointed representative and the professional archaeologist would consult with a Most Likely Descendent determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

## VI. Energy

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

### Discussion

- a) The project would not result in wasteful, inefficient, or unnecessary consumption of energy, given project installation of outdoor lighting and public systems compliant with State of California energy conservation regulations, and its reduction of water use associated with the replacement of natural turf athletic fields by artificial turf. Therefore, this impact would be **less than significant**.
- b) The California State Building Standards Commission adopted updates to the California Green Building Standards Code (CALGreen). CALGreen contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, and site irrigation conservation. CALGreen is intended to (1) reduce GHG emissions; (2) promote environmentally responsible, cost-effective, healthier places to live and work; and (3) reduce energy and water consumption. The project would-be built in accord with CALGreen standards and reduce water use by the installation of artificial turf athletic fields. Therefore, this impact would be **less than significant**.

## VII. Geology and Soils

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?		X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?			X	

## Background

Wallace Kuhl and Associates (WKA) prepared a Geotechnical Engineering Report for the project (WKA 2021)<sup>5</sup>. That study included a literature review and thirteen exploratory soil borings. Relevant portions of that investigation report are summarized below.

**Soil and Geologic Conditions.** The site is mapped as underlain by the Turlock Lake Formation soils, as identified by the California Geological Survey. This formation consists of alluvial deposits, comprised mostly of silt, sand, and gravel. Eleven soil borings conducted across the site indicate that parts of the site are underlain by 3-4.5 feet of fills consisting of clayey and silty sands and silty clay. The fill is underlain by layers of clays and clayey sands to maximum depths explored (31.5 feet below grade). (WKA 2021)

Groundwater was not encountered in any of the on-site borings. Regional information from well logs indicates that groundwater in the project area is about 30 feet below Mean Sea Level, or about 157 feet below the ground surface. (WKA 2021)

**Seismic Conditions.** There are no faults mapped as crossing the site, and the site is not in a fault rupture hazard zone as identified by the California Geological Survey. (WKA 2021)

## Discussion

- a)
  - i. Based on available published geologic information, the project site is not located within a Fault Rupture Hazard Zone. The potential for fault rupture on the site is therefore considered to be low and **no impact** would occur.
  - ii. The site would not be subject to strong ground shaking in the event of a major earthquake on any of the regional fault zones. The small building and bleachers proposed for the site, as well as light poles are not likely to be damaged by this shaking. The building is intended for restroom, storage, and concession use only and would be constructed to current seismic codes so would not pose a safety risk in an earthquake. The poles and bleachers would be designed to resist this seismic shaking. This impact would be **less than significant**.
  - iii. The project would not include installation of any large structures that could be significantly affected by differential settlement. As described in Item c, below, settlement of dry sands could affect the bleacher footings, but would be mitigated to a less-than-significant impact by the measures identified in the project Geotechnical Engineering Report (see Mitigation GEO-1). WKA determined the liquefaction potential at the site to be “very low”. (WKA 2021) Therefore this impact would be **less than significant**.

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<sup>5</sup> Wallace Kuhl and Associates, Geotechnical Engineering Report, Highlands High School Sports Complex, April 2, 2021.

- iv. The site and adjacent lands are nearly level, so there would be **no impact** associated with landslide hazards.
  
- b) The site is nearly level so erosion hazards would not be substantial. However, if grading were to occur during the rainy season, erosion could result from the site. Mitigation Measure HYD-1, in the Hydrology and Water Quality section would reduce this potential impact to **less than significant**.
  
- c) Loose sands could result in settlement that could affect the bleacher footings. This can be minimized by over-excavating footings for the bleachers. This **potentially significant** impact would be reduced to a **less-than-significant** level by implementation of Mitigation Measure GEO-1, below.
  
- d) Expansive soils shrink and swell with changes in moisture content and can exert significant expansion pressures on building foundations, interior floor slabs, and exterior flatwork. Site soils were tested and determined to have a high expansion potential. (WKA 2021) The WKA report includes specific recommendations to reduce this impact to less-than significant. The impact would be **potentially significant** but **less-than-significant** with implementation of implementation of Mitigation Measure GEO-1, below.
  
- e) The proposed project would be served by the public sewer system and would not include any septic systems. Therefore, **no impact** would occur with respect to adequacy of site soils for septic systems.
  
- f) The project excavation work would occur primarily within previously graded areas, and would not involve deep excavations, therefore potential impacts to paleontological resources are unlikely and would be considered **less than significant**.

### **Mitigation Measures**

**Mitigation Measure GEO-1.** The project's site clearing, site preparation, subgrade preparation and stabilization, fill, drainage, and any foundation systems shall be designed and constructed per the specifications set forth in the WKA Geotechnical Engineering Report (WKA 2021).

## VIII. Greenhouse Gas Emissions

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

### Background

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO<sub>2</sub> are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in units of "carbon dioxide-equivalents" (CO<sub>2</sub>e).<sup>6</sup>

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity (California Climate Change Portal, accessed September 2015.)

California Air Resources Board (CARB) estimated that in 2011 California produced 448 million gross metric tons of CO<sub>2</sub>e, or about 535 million U.S. tons CARB found that transportation is the

<sup>6</sup> Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

source of 37.6 percent of the state's GHG emissions, followed by industrial sources at 20.8 percent and electricity generation (both in-state and out-of-state) at 19.3 percent. Commercial and residential fuel use (primarily for heating) accounted for 10.1 percent of GHG emissions.

### ***Regulatory Setting***

*Assembly Bill 32* required the CARB to lower GHG emissions to 1990 levels by 2020 - a 25 percent reduction statewide, with mandatory caps for significant emissions sources. AB 32 directed CARB to develop discrete early actions to reduce GHG while also preparing a scoping plan (i.e., the Climate Change Scoping Plan) in order to identify how best to reach the 2020 goal.

Motivated by AB 32, the CARB estimated statewide GHG emissions in 2020 under business-as-usual (BAU) conditions (i.e., a scenario where no GHG reduction measures are taken) and identified a 28.5 percent reduction in GHG from year 2020 BAU levels as necessary to achieve the targets of AB 32. CARB has since updated the BAU forecast to reflect conditions in light of the 2008 economic downturn and measures not previously considered in the Scoping Plan baseline inventory. The revised forecast shows that a 21.6 percent GHG reduction from 2020 BAU would be necessary.

Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard (LCFS), the California Appliance Energy Efficiency regulations, the California Renewable Energy Portfolio standard, changes in the motor vehicle corporate average fuel economy (CAFE) standards, and other early action measures that would ensure the state is on target to achieve the GHG emissions reduction goals of AB 32.

In an effort to make further progress in attaining the longer-range GHG emissions reductions required by AB 32, an additional goal (i.e., reducing GHG emissions to 40% below 1990 levels by 2030) is to be attained by implementing several key climate change strategy "pillars:" (1) reducing present petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent the share of California's electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived GHGs; (5) managing farm and rangelands, forests and wetlands to more efficiently store carbon; and (6) periodically updating the State's climate adaptation strategy.

The SMAQMD CEQA Guide specifies 1100 metric tons of CO<sub>2</sub>e per year as significance thresholds for both construction and operational GHG emissions from land use projects, which is also considered the definition of a cumulatively considerable contribution to the global GHG burden and, therefore, of a significant cumulative impact. The SMAQMD also requires that for projects meeting the 1100 metric ton limit on operational GHG emissions that 1) they be designed/constructed without natural gas infrastructure; and 2) they shall meet the State's current CalGreen energy efficiency standards. The CEQA Guide methodology and thresholds of significance have been used in this Initial Study's analysis of potential GHG impacts associated with the Project.



- a) The CalEEMod (California Emissions Estimator Model, Version 2016.3.2) model was used to quantify GHG emissions associated with Proposed Project construction activities. The Proposed Project's estimated construction GHG emissions are 126.8 metric tons of CO<sub>2</sub>e, which is well below the SMAQMD's 1,100 metric tons of CO<sub>2</sub>e/year construction emissions threshold. The Proposed Project's net new GHG operational emissions (from the 71 additional daily motor vehicle trips expected from soccer game and football practice spectators) would be 70.5 metric tons per year at most, also below the SMAQMD threshold. The Proposed Project would have a **less than significant impact**.
  
- b) By providing an upgraded sports complex as a replacement for existing natural grass playing field and installing high-efficiency LED lighting for future outdoor events, the Proposed Project would not conflict with the goals of AB 32 or any other State climate change prevention or adaptation strategies. Thus, the Proposed Project would not conflict with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions and, thus, would have a **less than significant impact**.

## IX. Hazards and Hazardous Materials

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

### Discussion

- a) Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials

during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, the construction contractor would be required to implement a Stormwater Pollution Prevention Plan during construction activities to prevent contaminated runoff from leaving the project site. Therefore, no significant impacts would occur during construction activities.

In addition, the proposed project would not be a large-quantity user of hazardous materials. Small quantities of hazardous materials would likely routinely be used on site, primarily fertilizers, herbicides, and pesticides, although the use of these substances would decrease with the project due to natural grass being replaced by synthetic turf. These substances would be stored in secure areas and would comply with all applicable storage, handling, usage, and disposal requirements. The potential risks posed by the use and storage of these hazardous materials are limited primarily to the immediate vicinity of the materials. Any transport of these materials would be required to comply with various federal and state laws regarding hazardous materials transportation.

In summary, the proposed project would not create a significant hazard to the public or the environment from routine transport, use, or disposal of hazardous materials and impacts would be **less than significant**.

- b, d) The site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962 (Cortese List)<sup>7</sup>. Prior to school construction in 1958, the site was undeveloped. From the time the school was built to the present, land use in the project area north of Roseville Road has remained in residential and institutional use. Therefore, potential impacts from site contamination would be **less than significant**.
- c) As described under response to question IX a, above, the project would reduce the use of pesticides and other hazardous materials on campus, and storage and use would comply with applicable regulations. Therefore, the project would have a **less-than-significant** potential to significantly affect children or adults at the school.
- e) The project site is approximately two miles northeast of Sacramento McClellan Airport. The project would not change the land use or install structures that are higher than the existing buildings or facilities, including light poles on campus. Therefore, it would not present a hazard to air safety, and **no impact** would occur.
- f) Construction and operation of the project are not expected to interfere with Sacramento County's emergency response. Construction would be limited to the existing high school field, and traffic would not be substantially affected by the project. Therefore, it would not adversely affect emergency response or access. **No impact** would occur.

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<sup>7</sup> [https://www.envirostor.dtsc.ca.gov/public/map/?global\\_id=80001043](https://www.envirostor.dtsc.ca.gov/public/map/?global_id=80001043)

- g) The project is in a developed urban area. It is surrounded by urban uses and there are no wildfire-hazard areas in the vicinity of the site. Therefore, the project would have **no impact** with respect to wildfire hazards.

## X. Hydrology and Water Quality

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?		X		
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: <ul style="list-style-type: none"> <li>i) result in substantial erosion or siltation on- or off-site;</li> <li>ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site;</li> <li>iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or</li> <li>iv) impede or redirect flood flows?</li> </ul>		X		
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

### Discussion

a, c, e) Under Section 402 of the Clean Water Act, the U.S. EPA has established regulations through the National Pollution Discharge Elimination System (NPDES) stormwater program to control stormwater discharges, including those associated with construction activities. The NPDES stormwater permitting program regulates stormwater quality from construction sites. The State Construction General Permit (CGP) requires the development and implementation of

a Stormwater Pollution Prevention Plan (SWPPP) and the use of appropriate best management practices (BMPs) for erosion control and spill prevention during construction. Dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the CGP for Discharges of Stormwater Associated with Construction Activity (CGP Order 2009-0009-DWQ).

Sacramento County manages stormwater runoff in North Highlands and is responsible for administering Countywide Stormwater Quality Program. The County is a co-permittee under the Waste Discharge Requirements for County of Sacramento and cities of Citrus Heights, Elk Grove, Folsom, Galt, and Sacramento, Storm Water Discharges from Municipal Separate Storm Sewer Systems Sacramento County (Order No. R5-2002-0206), dated December 6, 2002, which also serves as a National Pollutant Discharge Elimination System Permit under the Federal Clean Water Act (NPDES No. CAS082597). As a co-permittee, the County is required to possess the necessary legal authority, and to implement appropriate procedures, to regulate the entry of pollutants and non-stormwater discharges into and from the County storm drain system.

The project site is relatively flat and covered with the existing grass athletic field and the earthen track. Development of the proposed project would require disturbance and some grading to install the artificial turf system and utilities, as described in the Project Description. No substantial topographic changes would be required to construct the new fields.

During construction activities, there would be a potential for surface water to carry sediment from on-site erosion and small quantities of pollutants into the County's local stormwater system, which discharges to tributaries to the American River. Soil erosion may occur along project boundaries during construction in areas where temporary soil storage may be required. Small quantities of pollutants may enter the storm drainage system, potentially degrading water quality.

Construction of the proposed project also would require the use of gasoline and diesel-powered heavy equipment. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances would be used during construction. An accidental release of any of these substances could degrade the water quality of the surface water runoff and add additional sources of pollution into the drainage system.

The proposed project would be required to comply with the State CGP. The District would be required to develop and implement a SWPPP that identifies appropriate construction BMPs in order to minimize potential sedimentation or contamination of storm water runoff generated from the project site. The SWPPP would identify the risk level for erosion and sedimentation and how much monitoring of potential pollutants is required. Implementation of a SWPPP as required would ensure that the construction of the proposed project would not violate any

water quality standards or waste discharge requirements and reduce potential impacts to a less-than-significant level, as described in Mitigation Measure HYD-1.

The SWPPP must identify a practical sequence for BMP implementation and maintenance, site restoration, contingency measures, responsible parties, and agency contacts. The SWPPP would include but not be limited to the following elements:

- Temporary erosion control measures would be employed for disturbed areas.
- No disturbed surfaces would be left without erosion control measures in place during the winter and spring months. Cover disturbed areas with soil stabilizers, mulch, fiber rolls, or temporary vegetation.
- Sediment would be retained on site by a system of sediment basins, traps, or other appropriate measures. Drop inlets shall be lined with filter fabric/geotextile.
- The construction contractor would prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate or reduce discharge of materials to storm drains. This may include locating construction-related equipment and processes that contain or generate pollutants in a secure area, away from storm drains and gutters, and wetlands; parking, fueling, and cleaning all vehicles and equipment in the secure area; designating concrete washout areas; and preventing or containing potential leakage or spilling from sanitary facilities.
- BMP performance and effectiveness would be determined either by visual means where applicable (e.g., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (such as inadvertent petroleum release) is required by the RWQCB to determine adequacy of the measure.
- In the event of significant construction delays or delays in final landscape installation, native grasses or other appropriate vegetative cover would be established on the construction site as soon as possible after disturbance, as an interim erosion-control measure throughout the wet season.

As required under State Water Resources Control Board Order No. R5-2002-0206, the County requires regulated projects, such as this one, to prepare a Stormwater Quality Improvement Plan (SQIP). The SQIP must include post-construction stormwater treatment measures such as bio-retention facilities and source controlled BMPs. The SWCP must also address ongoing maintenance of those facilities. The project proposed Low Impact design (LID) measures to minimize stormwater contamination.

There are about 8.5 acres (370,260) square feet of total surface area within the project site. Currently, none of the site is covered with impervious surfaces. The project would result in an increase of close to 370,260 square feet of impervious area, assuming that the entire complex would be classified as impervious surface. New storm drains would be installed to connect field subdrains to the existing stormwater collection system. Peak flows would not be expected to exceed existing site conditions because any increase in peak runoff would be detained by the stormwater detention system. The District would coordinate any new connections with the

Sacramento County Public Works Department. Therefore, impacts to runoff would be **less than significant**.

The quality of the runoff would improve since pesticide and fertilizer use would decrease since such substances would no longer be needed for the natural grass that would be replaced with synthetic turf. Implementation of the Construction General Permit requirements described above, as well as Mitigation Measures HYD-1 and HYD-2, below, would reduce the other water quality impacts described above to a **less-than-significant level**.

- b) The Sacramento Suburban Water District (SSWD) is responsible for the operation and maintenance of North Highlands' water supply and distribution systems. SSWD provides water to its customers from 70 operational groundwater production wells. In addition, the District has contractual rights to 26,064 acre-feet from the City of Sacramento water entitlement; and a contract to purchase up to 29,000 acre-feet of surface water per year from Placer County Water Agency.

The project would improve an existing athletic field and track, and replace a large area of natural turf, which requires irrigation, with synthetic turf, for which irrigation would no longer be needed. While irrigation will be required for the new trees that would be planted as part of the project, it is not anticipated that there would be a net increase in water use. Therefore, the proposed project would not contribute to depletion of water supplies and **no impact** would occur to surface or groundwater.

Because of the reduced overall demand from the project, and because it would incorporate water conservation equipment, landscaping, and practices, it would not conflict with any groundwater management plan, and **no impact** would result.

- d) The Federal Emergency Management Agency (FEMA) has mapped the site as an "Area of Minimal Flood Hazards"<sup>8</sup>. Therefore, flooding impacts to the new facilities would be **less than significant**.

The project site is not mapped as being within a dam failure area<sup>9</sup>. Therefore, the project would not be subject to flood hazards from that source. **No impact** would occur.

Seiches and tsunamis are seismically induced large waves of water. Because of the distance of the site from any large water body, the absence of steep slopes above the site, and the elevation of the site well above sea level, there is no potential for a tsunami seiche, or mudflow to affect North Highlands, including the project site. Therefore, the proposed project would have no impact to future occupants of the project from these hazards, and **no impact** would occur.

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<sup>8</sup> Federal Emergency Management Agency (FEMA) FIRM Flood Hazard Maps, number 06067C0086H, effective on 08/16/2012.

<sup>9</sup> [https://fmds.water.ca.gov/webgis/?appid=dam\\_prototype\\_v2](https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2)



## Mitigation Measures

***Mitigation Measure HYD-1:*** Prior to the issuance of grading permits for the proposed Project, the project engineers shall prepare a Stormwater Pollution Prevention Plan, which shall identify pollution prevention measures and practices to prevent polluted runoff from leaving the project site.

***Mitigation Measure HYD-2:*** The District shall maintain in perpetuity the post- construction BMPs listed in the Low Impact Design plans developed for the project. The District shall make changes or modifications to the LID measures to ensure peak performance. The District shall be responsible for costs incurred in operating, maintaining, repairing, and replacing any stormwater quality improvements and features. The District shall conduct inspection and maintenance activities and complete annual reports.

## XI. Land Use and Planning

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				<b>X</b>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				<b>X</b>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				<b>X</b>

### Discussion

- a) The athletic facility improvements are proposed for existing facilities on an existing high school campus. Because the project would not change the existing land use but would instead upgrade the existing athletic facilities onsite, the project would not create conflicts between uses or divide an established community, there would be **no impact**.
- b) The project would not change the existing land use on site and would therefore have **no impact** on plan conformance.
- c) The project site is not located within the boundaries of a habitat conservation plan or a natural community conservation plan; therefore, the project would not conflict with any habitat plans and there would be **no impact**.

## XII. Mineral Resources

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

### Discussion

- a, b) The project site a developed school campus in an urban area and is not identified in the Sacramento County General Plan as a site containing mineral resources that would be of local, regional, or statewide importance. Therefore, the project would not have any impacts on mineral resources. The project site is also outside of any areas designated by the State Mining and Geology Board as containing regionally significant construction-grade aggregate resources (used in concrete). The project site does not contain any known mineral deposits or active mineral extraction operations. Therefore, the project would have **no impact** on mineral resources.

### XIII. Noise

Would the Project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a Project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?				X

#### Background

A detailed noise analysis was conducted for the project by RGD Acoustical Consulting (August 6, 2021). The discussion below is summarized from that analysis. The full RGD study is included in Appendix B of this document.

#### Noise Descriptors

Noise can be defined as unwanted sound. It is commonly measured with an instrument called a sound level meter. The sound level meter captures the sound with a microphone and converts it into a number called a sound level. Sound levels are expressed in units of decibels.

To correlate the microphone signal to a level that corresponds to the way humans perceive noise, the A-weighting filter is used. A-weighting de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The use of A-weighting is required by most local General Plans as well as federal and state noise regulations (e.g. Caltrans, EPA, OSHA and HUD). The abbreviation dBA is sometimes used when the A-weighted sound level is reported.

Because of the time-varying nature of environmental sound, there are many descriptors that are used to quantify the sound level. Although one individual descriptor alone does not fully describe a particular noise environment, taken together, they can more accurately represent the noise environment. The maximum instantaneous noise level ( $L_{max}$ ) is often used to identify the loudness of a single event such as a car pass-by or airplane flyover.

To express the average noise level the  $L_{eq}$  (equivalent noise level) is used. The  $L_{eq}$  can be measured over any length of time but is typically reported for periods of 15 minutes to 1 hour. The background noise level (or residual noise level) is the sound level during the quietest moments. It is usually generated by steady sources such as distant freeway traffic. It can be quantified with a descriptor called the  $L_{90}$  which is the sound level exceeded 90 percent of the time.

There are other statistical descriptors that are used, often times as part of a local noise ordinance. These descriptors are used since local ordinances will have limits based on the number of minutes per hour that an intrusive sound may exceed a specified limit. For example, if a specified noise level cannot be exceeded more than 30 minutes in an hour that is referred to as the  $L_{50}$ . The  $L_{50}$  is used in this is also referred to as the median noise level.

To quantify the noise level over a 24-hour period, the Day/Night Average Sound Level (DNL or  $L_{dn}$ ) or Community Noise Equivalent Level (CNEL) is used. These descriptors are averages like the  $L_{eq}$  except they include a 10 dB penalty during nighttime hours (and a 5 dB penalty during evening hours in the CNEL) to account for peoples increased sensitivity during these hours. The CNEL and DNL are typically within one decibel of each other. In environmental noise, a change in noise level of 3 dB is considered a just noticeable difference. A 5 dB change is clearly noticeable, but not dramatic. A 10 dB change is perceived as a halving or doubling in loudness.

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity, or acceleration. The peak particle velocity (PPV) is the descriptor used in monitoring of construction vibration since it is related to the stresses that are experienced by buildings.

## Existing Noise Environment

To quantify ambient noise levels, two continuous, long-term (2-day) noise measurement and three short-term (15-minute) noise measurements were made in the project vicinity. The long-term monitors began on Wednesday, April, 21 2021 and ended on Friday, April 23, 2021. The noise measurement locations are shown in Figure 6.

**TABLE N-1: SHORT-TERM NOISE MEASUREMENT RESULTS – APRIL 21, 2021**

Location		Time	A-weighted Sound Level, dBA					$L_{max}$
			$L_{eq}$	$L_2$	$L_8$	$L_{50}$	CNEL*	
ST-1	Fox Valley Circle	6:22 PM – 6:38 PM	65 (59 w/o loud car)	67	62	53	63	Cars: 62 – 68 typical, 91 Distant brief landscaping: 53 – 56
ST-2	Blackjack Way	6:44 PM – 6:59 PM	59 54 (w/o loud car)	66	56	45	58	Cars: 53, 65, 66, 84 Jet: 54 Helicopter: 70
ST-3	West of project site, across Walerga Road	7:07 PM – 7:23 PM	63	71	66	60	66	Cars: 60 – 72, 79 Heavy Truck slow cruise: 62

\*CNEL based on comparison with simultaneous measurement at the long-term location. For ST-1 and ST-2, noise from a loud car passby was excluded in the calculation of the CNEL.

*Coronavirus Pandemic Adjustments.* As a result of limited in-person learning and the COVID pandemic, the measured ambient noise levels are likely lower compared to before the COVID pandemic. According to the project's traffic engineer<sup>10</sup>, traffic volumes are expected to be higher once the school is fully open. However, not enough detailed current and prior traffic volume data is available to fully quantify the degree to which the ambient noise levels measured during the ambient noise survey underrepresent the pre-pandemic traffic noise levels. Since the impact analysis uses the measured ambient noise levels without adjustment, it tends to result in a conservative assessment of increase in noise due to the project.

## **CEQA Thresholds of Significance**

CEQA does not provide quantitative noise level limits to use as thresholds of significance for a project. Instead, it points to use of local ordinances, adopted standards of agencies as well as the potential for a project to significantly increase existing noise levels above those that were present without the project. A full discussion of the regulatory setting – the Sacramento County General Plan Noise Element and Sacramento County Municipal Code -- is provided in sections 3.1 and 3.2 of Appendix B. Within this framework, the following thresholds are adopted for this project.

*Threshold 1: A significant noise impact would occur if the noise from the new PA system would exceed 70 dBA at the neighboring noise sensitive outdoor use areas.*

*Discussion:* The County General Plan's non-transportation noise standards (GP Table 2) has a maximum outdoor noise standard of  $L_{max}$  75 dBA at receiving residential land uses, schools, and churches. The  $L_{max}$  standard is reduced by 5 dB for sounds consisting primarily of speech or music.

*Threshold 2: A significant impact would occur if the CNEL on a game day:*

- increases by more than 5 dBA and the future CNEL is less than 60 dBA, or
- increases by more than 3 dBA and the future CNEL is 60 dBA or greater and less than 65 dBA, or
- increases by more than 1.5 dBA and the future CNEL is 65 dBA or greater

*Discussion:* For the purposes of assessing impact due to increased noise from the project, this report uses thresholds based on a FAA Draft Policy discussion screening and impact thresholds for increases in aircraft noise. This is also consistent with the Sacramento County General Plan's thresholds of noise increase for transportation projects (Policy NO-9). In order to evaluate the potential impact that would occur as a result of peoples' sensitivity to evening noise, this report considers the increase in the daily CNEL. The CNEL includes a 5 dBA "penalty" which is added

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<sup>10</sup> Ho, Pang. PHA Transportation Consultants. "Re: Grant and Highlands Noise." Email to Anthony Wong.

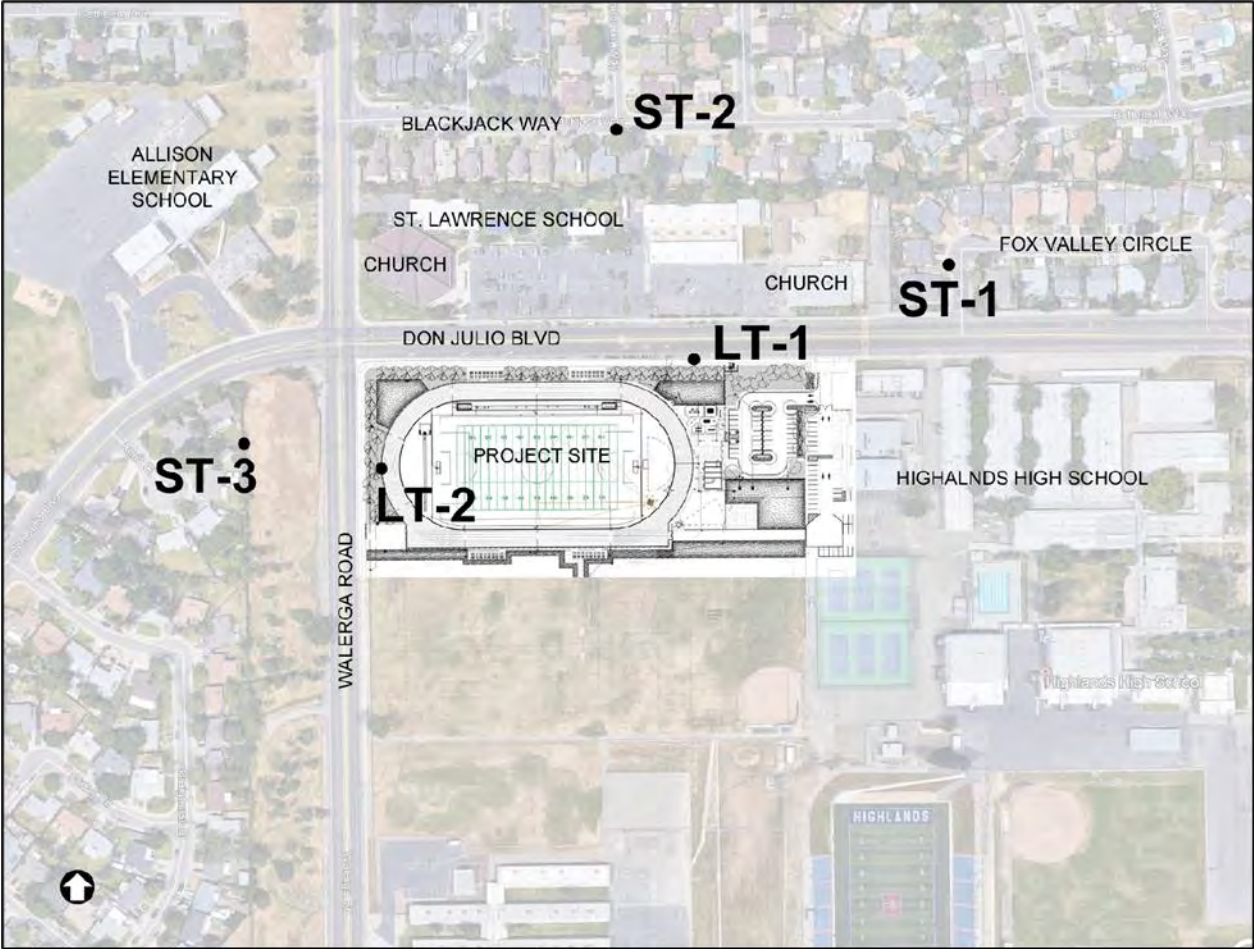


Figure 6. Noise Measurement Locations

Source: RDG Acoustics, 2021

to noise during evening hours (7 pm – 10 pm) to account for peoples' increased sensitivity during the evening. The existing and future daily CNEL was then added to the ambient CNEL to determine a total CNEL for both existing and future conditions. Analysis of a day with a sports game/community event is used since they are generally louder than practices.

Threshold 3: A significant impact would occur if the annual average CNEL:

- increases by more than 5 dBA and the future CNEL is less than 60 dBA, or
- increases by more than 3 dBA and the future CNEL is 60 dBA or greater and less than 65 dBA, or
- increases by more than 1.5 dBA and the future CNEL is 65 dBA or greater

*Discussion:* While the CNEL increase on a game day is helpful to understand potential impact on a daily basis, it does not necessarily provide a measure of the impact over time since there will be events happening on the field throughout the year.

In order to evaluate the potential impact of noise from all field related activities during the course of a year, this report considers the increase in the annual average CNEL that would result from all games, practices, events attributed to the project.

To determine the increase in the annual average CNEL from the field sources, a method similar to the daily CNEL was used. In this case, an annual average CNEL from each noise source was calculated for existing and future conditions based on Table 2 in Appendix B. The existing and future annual average CNEL for each source was then added to the ambient CNEL to determine a total CNEL for existing and future conditions.

Threshold 4: A significant impact would occur if the project results in the generation of construction noise outside the allowable hours per County Municipal Code and exceeds the exterior noise standards per County Municipal Code.

*Discussion:* Per Municipal Code Section 6.68.090.e, construction noise is exempted from the exterior noise standards of Section 6.68.070 provided that construction activities do not take place between the hours of 8 PM and 6 a.m. on weekdays, between Friday 8 PM to Saturday 7 a.m., between Saturday 8 PM to Sunday 7 a.m, and after 8 PM on Sundays.

Threshold 5: A significant impact would occur if the project results in the generation of excessive groundborne vibration or groundborne noise.

*Discussion:* The operation of the project (i.e. activities on the field) is not expected to include groundborne vibration sources. However, construction activities will generate groundborne vibration. Neither CEQA, City, nor the State specifies acceptable vibration levels from construction activities. For the purposes of this assessment, the guideline criteria for building damage



recommended by Caltrans<sup>11</sup> is used. The construction vibration damage criteria range from a Peak Particle Velocity (PPV) of 0.5 inches/sec for new residential and modern commercial structures.

*Threshold 6: A significant impact would occur if the project would expose people residing or working in the project area to excessive aircraft noise levels.*

*Discussion:* According to Sacramento County General Plan's Land Use Compatibility for Aircraft Noise (General Plan Table 4), schools exposed to an aircraft CNEL of 65 dBA or less are considered "Yes" or compatible.

## **Discussion**

Noise impacts are identified for the public address sound system, use of the field during events with maximum attendance and construction. The impacts analysis considers the Sacramento County General Plan policies and Municipal Code requirements, as well as the potential for the project to significantly increase noise levels. Mitigation is proposed for each identified significant impact. For construction, there is a list of specific construction noise reduction measures to be implemented. For all field activities using the PA system, there is a maximum PA noise level limit that must be met at the neighboring noise sensitive uses. For events with maximum attendance, there is also a limit on hours of use.

### a) **Construction Noise Impacts.**

Construction of the project would include the renovation of existing field, grading/foundation work, and the addition of light poles and other structures. Equipment used during construction would vary by phase, but would include excavators, backhoes, dump trucks, graders, compactors, water trucks and similar equipment. According to the Project Description, construction hours would be 7:00 AM to 4:30 PM on weekdays only. Some work may be done on Saturdays between 7:00 AM to 4:30 PM.

Construction noise would be noticeable at times and may temporarily interfere with normal outdoor activities such as speech communications. When construction activities occur farther from the neighboring uses, construction noise levels will be reduced due to the greater distance. For example, when construction activities occur at the center of the new soccer field, the typical noise source would be attenuated to 64 dBA at the nearest school building across Don Julio Boulevard, 61 dBA at the nearest home along Fox Valley Circle, and 63 dBA at the nearest home to the west across Walerga Road.

Since the project's construction hours are 7:00 a.m. to 4:30 p.m. on Mondays to Fridays and occasionally Saturdays, the County's Municipal Code (Section 6.68.090.e) provides an exemption to construction noise from the municipal code's exterior noise standards.

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<sup>11</sup> Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

Noise impacts from construction activities would be reduced to **less than significant** with Mitigation Measure NO-1, below.

### ***Operational Noise Impacts***

Project generated operational noise impacts include noise from the proposed PA system and field activities, including event-generated traffic and crowd noise. These are discussed below.

*Noise from PA Sound System L<sub>max</sub> 70 dBA at Sensitive Receivers.* The project PA system would use standard sound system components and be designed to provide sound coverage for the seating and competition areas. For the purposes of this analysis, it is assumed that there will be two loudspeakers installed on each of the four light poles by the bleacher areas. To provide adequate sound coverage it is assumed that the sound system would be designed and used to provide a design sound level of 85 dBA in the bleachers and 75 dBA on the field.

Based on the SoundPlan results for the PA system as described in Section 5.1, in Appendix B, noise from the PA sound system has the potential to exceed the threshold of L<sub>max</sub> 70 dBA at the noise sensitive outdoor use areas at neighboring land uses (R1, R2, R3 and R4). This includes 15 homes, the church and two schools across Don Julio Blvd. It also includes the undeveloped residentially zoned parcel west of Walerga Road. This is a **potentially significant impact**. However, it is feasible to design a PA system that can be limited to an L<sub>max</sub> of 70 dBA at the neighboring noise sensitive uses. Therefore, this is a **less than significant impact** with Mitigation Measure NO-2 below.

*Noise from Activities on the Fields.* Noise would be generated by field activities including soccer games/practices, school P.E. classes, cross-country training, track and field meets/practices, and football practices. There could be up to ten full capacity events per year with up to 496 spectators and community use. The project would not result in a change in student enrollment or in other athletic facilities on campus.

In order to evaluate the impact of the project on the neighbors surrounding the school, the data acquired from other similar projects were used to determine future noise levels emanating from the proposed project. The characteristics and assumptions used for calculating project related noise levels for each activity are discussed below.

**Soccer.** Soccer games currently occur at the stadium and soccer practices occur at the existing field. Soccer games are currently scheduled from 4:00 PM to 10:00 PM and practices are scheduled from 3:30 PM to 9:30 PM.

With the project, soccer games and practices would be relocated to the new field, but the times of day of the soccer games and practices would not change. The number of games and practices would remain the same with 20 soccer games per year and 100 soccer practices per year.

To determine the noise associated with soccer games, noise measurements were taken during a soccer game at Grant High School on April 23, 2021. During the soccer game, only the players and coaches were allowed to be in the stadium due to COVID related restrictions. At the top of the bleachers, approximately 150 feet from the center of the field, the typical maximum instantaneous noise levels ( $L_{max}$ ) were  $L_{max}$  58 to 70 dBA from player voices, 67 to 72 dBA from the coaches, and  $L_{max}$  67 dBA from whistles near the center field. To account for noise from the expected 100 spectators, noise measurements from a football game at San Marin High School in 2016 with approximately 350 spectators was used with adjustment for the difference in number of spectators. Specifically, the crowd noise was adjusted using a standard rate of 3 dBA for each doubling of crowd size.

To determine the noise associated with soccer practices, noise measurements from a soccer practice at Mills High School in 2019 was used. The soccer practice occurred on a field layout similar to the project. During the soccer practice, there were approximately 50 people on the field. Voices of students generated typical maximum instantaneous noise levels of  $L_{max}$  56 to 63 dBA at the bleachers approximately 130 feet from the center of the field.

**Physical Education Classes.** The Physical Education department of Highlands High School and Creative Connections Arts Academy High School (CCAA) would use the new field for their classes during school hours. To quantify noise from P.E. classes, we used noise measurements from the soccer practice as discussed above with an adjustment for a class size of 30 using a rate of 3 dB per doubling of people.

**Track and Field.** Currently, there is “no usable facility” for track and field meets/practices at the school. With the project, the new track/field would be used for track and field meets as well as practices. There would be 35 to 50 student athletes and a crowd size of up to 50 for track meets.

Track and field meets would use the PA system and are scheduled from 2 PM to 8 PM., five times per year. Track and field practices would not use the PA system and are scheduled from 2 PM to 4 PM., 60 times per year.

Soccer game noise levels were used to model track and field meets and soccer practice noise levels to model track and field practices. An adjustment of 3 dB per doubling was included to account for the difference in number of spectators.

**Cross-country Training.** Cross-country currently occurs at the existing field and will continue to occur at the field, with the project. The hours and number of practices per year are assumed to be the same as those for track and field practices. The project is not expected to change the hours and number of practices.

**Football Practices.** Football practices currently occur at the stadium and, with the project, will be relocated to the new practice field. Each practice has between 45 to 55 students

and is assumed to occur for no more than four hours during the daytime hours. The number of practices is assumed to be 100 times per year, same as soccer practice, and is expected to remain the same with the project in the future. To determine the noise level from football practices, we used the noise measurements from the soccer practice as discussed above.

**Full Capacity Events.** According to the project description, there could be up to 10 large school events (sports tournaments, student rallies, etc.) per year at the new field. These events will use the new PA system and the crowd size could reach the bleacher capacity of 496. The full capacity event is assumed to occur for 6 hours in a day.

**Community Use.** The project facilities would include 30 to 50 community use events between the daytime hours of 8 AM to 10 PM. Community use is expected to be similar to the school usage but could include sport clinics/camps for various other sports: softball, baseball, ultimate frisbee and youth football with 100 to 200 spectators. For the purpose of this report, community use includes competition games with spectators and practices with minimal spectators, similar to the high school soccer games/practices.

Noise from PA Use Exceeds Hourly Lmax (70 dBA) Noise Standard. Noise from the Public Address (PA) system has the potential to exceed an Lmax of 70 dBA at noise-sensitive neighboring land uses at locations R-1, R-2, R-3, and R-4. These uses include 15 residences, a church, and two schools across Don Julio Blvd. from the project site. This is a **potentially significant impact**. Mitigation Measure NOI-2 would reduce this impact to a **less-than-significant** level.

Noise from Field Activities Combined with Project-Generated Traffic and PA Use Exceeds Daily CNEL Noise Standard Thresholds. Tables 5 through 7 in Appendix B detail the change in daily average CNEL for a soccer game day, community use game day, and a full capacity event day due to the project. The calculations also include contribution from future traffic to and from the school site.

The increase in daily average CNEL from a soccer game day would be less than 1 dBA at all locations except location R-4 where the increase is 1.1 dBA and the total CNEL is less than 65 dBA (See Table 5 in Appendix B.). The increase in daily average CNEL from a community use game day would be less than 1 dBA at all locations except location R-4 where the increase would be 1.7 dBA and the total CNEL would remain less than 65 dBA.

Incorporation of Mitigation Measure NO-3 below would reduce the increases to a **less than significant level**.

Noise from a Full-Capacity Event would exceed the Daily CNEL Noise Standard. The daily average CNEL from a full capacity event day with 496 people occurring between the hours of 4 PM to 10 PM would increase by up to 2.9 dBA. For locations R-1 to R-4, and ST-3, where the noise levels with the project is a CNEL of 65 dBA or greater, the threshold of

significance is an increase in the CNEL of 1.5 dBA. For locations ST-1 and ST-2 where the noise levels with the project is between CNEL 60 to 65 dBA, the threshold of significance is an increase in the CNEL of 3 dBA.

The calculated increase in noise levels with the project would exceed the threshold of significance at locations R-1 and R-4 where the church, 18 homes and two schools are located. Therefore, the increase in noise due to full capacity events is considered **potentially significant**.

Incorporation of Mitigation Measure NO-2 would reduce the noise increases but would not be sufficient to reduce the increase in CNEL below the threshold of significance. However, by limiting event hours in the evening and/or the total event hours (Mitigation Measure NOISE-3), the increase in Daily CNEL would be reduced to a **less than significant** level.

*Noise from Field and PA Use would Increase Average Annual CNEL.* The annual average CNEL would increase as a result of the project. However, the calculated levels indicate that the annual average CNEL would increase by 0.4 dBA or less at all receiver locations, which is considered **less than significant**.

- b) The nearest neighboring buildings are the church buildings across Don Julio Boulevard located more than 100 feet from the nearest edge of the project site. Table 10 in Appendix B shows the calculated vibration levels based on the nearest distance from the project site. Construction vibration levels are expected to be PPV 0.02 inches/sec or less at the nearest church building across Don Julio Boulevard. A vibration level of 0.02 inches/sec would be considered barely perceptible but not great enough to be distinctly perceptible. Additionally, construction vibration would be less than the adopted threshold of significance of the potential building damage criteria of 0.5 inches/sec for new residential and modern commercial buildings. Since vibration from construction would not exceed the threshold for potential building damage, this is considered **less than significant**.
- c) The project site is located approximately two miles northeast of the nearest runway from Sacramento McClellan Airport. According to the McClellan Airport Noise Contours from the Sacramento County Airport Land Use Commission's website, the project site is located outside the CNEL 60 dBA aircraft noise contour. Based on the Sacramento County General Plan's Land Use Compatibility for Aircraft Noise (General Plan Table 4), schools are compatible with this level of aircraft noise exposure. Therefore, there would be **no impact**.

## Mitigation Measures

**Mitigation Measure NO-1.** In order to minimize disruption and potential annoyance during construction, the following is recommended:

- All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment.
- Maintain all construction equipment to minimize noise emissions.
- Stationary equipment shall be located on the site so as to maintain the greatest possible distance to the sensitive receptors.
- Unnecessary idling of internal combustion engines should be strictly prohibited.
- The construction contractor shall provide the name and telephone number an on-site construction liaison. In the event that construction noise is intrusive to the community, the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.

**Mitigation Measure NO-2.** Design the PA system so that it does not exceed a  $L_{max}$  of 70 dBA at the neighboring noise sensitive land uses (R1, R2, R3 and R4). This would require the installation of a distributing sound system with highly directional and carefully aimed loudspeakers around the bleachers and field. The distance between the loudspeakers and the coverage area should be minimized to reduce spill to the community. In addition, the PA system output volume should be regulated by an audio processor with the ability to limit the audio output levels (e.g. compressor/limiter).

**Mitigation Measure NO-3.** Limit full-capacity events to no more than a total of seven hours in duration, ending before 9:00 PM.

## XIV. Population and Housing

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

### Discussion

- a) The proposed athletic field upgrade project would not directly or indirectly increase population growth because no new housing or permanent jobs are proposed as part of the project. The project site and surrounding areas are developed with urban land uses and no extensions of roads or other infrastructure would be required that would indirectly induce growth. Therefore, the project would not induce new development on nearby lands, and **no impact** would occur.
- b) The project site contains an existing high school athletic track and field with no housing. The proposed project would not displace existing housing or people, so there would be **no impact**.

## XV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?				X
d) Parks?				X
e) Other public facilities?				X

### Discussion

- a) The Sacramento Metropolitan Fire District (SMFD) provides fire protection and emergency medical services for the project site. SMFD has two fire stations near the project site, Station 41 at 6900 Thomas Drive, about a mile northwest of the site; and Station 42, at 5608 North Haven Dr., about 1.5 miles southwest of the site. Implementation of the project would not materially alter uses of the site, and therefore would not result in a substantive increase in demand for fire protection services. The project would not require the provision of or need for new or physically altered facilities to continue to serve the project site. The project's impact related to the provision of fire services would be **less than significant**.
- b) The Twin Rivers Unified School District has its own police department, The Department works 24/7 with a focus on students, staff, schools, and safety/security, and serves more than 26,000 students, faculty, and staff at more than 50 schools in the Northern Sacramento area. Authorized staffing includes 21 sworn officers, 5 dispatchers, 1 professional staff. Sworn personnel of the Department are peace officers pursuant to Penal Code 830.32 and Education Code 38000. The Department has been certified by the Commission on Peace Officer Standards and Training since 2008. North Highlands police services are provided by the Sacramento County Sheriff's Department. As discussed for fire, above, the project would be an enhancement of existing site recreational uses, and therefore not substantially increase the need for police services. No new police facilities would be required. Therefore, this impact would be **less than significant**.
- c) The proposed facilities would not increase the population or otherwise increase demands for school services. It would not alter the capacity of students at Highlands High School. Therefore, the project would have **no impact** on schools.



- d) As described above, the proposed project would not result in an increase in residents and therefore, would not increase demand for any parks facilities. For this reason, the project would be expected to have **no impact** on recreational facilities
  
- e) No other public facilities would be required by the proposed project. Therefore, there would be **no impact** on other facilities.

## XVI. Recreation

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?				<b>X</b>
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				<b>X</b>

### Discussion

- a) As described in response to question d) under Public Services, above, the project would have **no adverse impact** on parks and other recreational facilities and, in fact, would improve those facilities at the site. Therefore, the project would not cause physical deterioration of any recreational facility to occur or be accelerated.
- b) The project includes upgrades to the school athletic facilities, which are evaluated by topic in this document. The project would not require the construction or expansion of other recreational facilities. Because the project does not include features that would result in additional adverse impacts to recreational facilities beyond that addressed herein, **no impacts** would occur that are not already addressed elsewhere in this IS.

## XVII. Transportation/Traffic

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadways, pedestrian and bicycle facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) (vehicle Miles traveled)?			X	
c) Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

### Discussion

- a) PHA Transportation Consultants (PHA) conducted a focused traffic assessment report for the project which is included in **Appendix C** (PHA, May 27, 2021). The main access to the campus is at Guthrie Street, which provides student pedestrian and vehicle access and parking. There are two secondary school access points on Don Julio Boulevard. The east driveway is near the intersection with Guthrie Street has a student drop-off area and a walkway to the classroom buildings. The west driveway adjacent to the project site has a small parking area. The parking area is fenced off from the rest of the campus and classroom buildings. The sign posted at the gate indicates the parking area is for the TRUSD IT Department. Students would be unable to walk through this driveway and parking area to the classroom building area.

There is no vehicular connection between the campus area and the project site. The existing soccer field is fenced on all sides with no vehicle access. Pedestrian access to the field is via a small gate next to the IT employee parking area at the corner of Don Julio Boulevard and the parking lot driveway. Students using the subject field must walk from the classroom build area to the sidewalk on Don Julio Boulevard to enter the field. There is no off-street parking for the soccer field. Parking for the field is currently accommodated in the parking lane along eastbound Don Julio Boulevard.

According to Sacramento Bike Master Plan, Don Julio Boulevard between Walerga Road and Guthrie Street along the school frontage is a designated Class III bike route currently but is planned to be upgraded to a Class II bike lane, however, there is no schedule for this upgrade. A Class III bike way is a "bike route," which is identified by signing. On-street

Class III bikeways are shared with motorists, may provide a designated route through areas not served by Class I or II facilities, or connect discontinuous segments of a bikeway.

Class II bikeways are bike lanes established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic travelling in the same direction.

The proposed field upgrade would not conflict with the existing Sacramento Transportation Plan because the project is to upgrade an existing field on campus and no changes to street configuration or site access are proposed.

As indicated above, the project would upgrade the existing grass field to a regulation size artificial turf soccer field with a nine-lane running track. The new field would have eight sets of bleachers, four on the north side for the visitors and four on the south side for the home team. According to proposed site plan, the field would be designed and striped for both soccer and football games. However, the field would be mainly used for soccer games and for occasional football team practice but would not be used for official football games. All league football games would be played at the main football stadium on the south side of the campus, which is accessed from Guthrie Street.

The proposed upgrade would include 37 parking spaces (two of which would be accessible), a shot-put area near the entrance, a building with restrooms, and a concession stand. Vehicles would access the soccer field via the existing west secondary school access driveway at Don Julio Boulevard. The sports complex would be reserved exclusively for school use during school hours; public use and community use would be allowed when the facility is not being used by the school. Community use of the facility for events would be arranged by obtaining permits through the School District. Like most public schools, area residents are likely be able to use the field and the tracks after school hours for exercise, jogging, and other non-organized small- group recreation activities.

### ***Project Traffic Generation Estimates***

Based on the trip generation rate published in the ITE Trip Generation Manual, 9<sup>th</sup> Edition, a soccer field is likely to generate 71 daily vehicle trips, including one am peak-hour trip and 18 PM peak-hour trips. For school soccer field such as this, students would walk to the field from within the school campus during the day. When inter school games are held, most trips would occur during the day in the afternoon, evening, or on weekends, and would have little conflict with normal commute hour traffic operation.

According to school estimates, there would be about 20 soccer games plus 100 practice sessions yearly. Games generally run about six hours, including field setups, player warm-ups, and half-time activities. Practice sessions generally run about five hours. Practices generally occur after school at 3:30 PM with about 40 players. Games generally occur between 4 and 6 PM with about 40 players on each side. An estimated 50 to 100

spectators would attend each game. There could be up to ten events per year where the approximately 500-person-capacity bleachers could be filled.

### ***Site Access Traffic Operation***

With the proposed vehicle access and parking area for the soccer field, traffic operations analyses were conducted for Don Julio Boulevard and the access driveway. Don Julio Boulevard currently carries about 6,240 vehicles per day, based on the daily traffic volume count conducted after mid-March 2021. The morning peak occurred between 7:45 and 8:45 AM and the afternoon peak occurred between 4:45 and 5:45 PM. According to school website information, the school was not yet open for in-person learning until mid-April. However, school athletic teams such as football, baseball, and basketball started practice in mid-March.

Don Julio Boulevard is a four-lane arterial road providing access to and from the area and Highlands High School. The segment between Walerga Road and Guthrie Street is two-lane plus a two-way-left-turn lane in the middle. Its intersections with Walerga Road and Guthrie Street are controlled by traffic signals. From a street design capacity standpoint, a two-lane arterial road such as Don Julio Boulevard can generally accommodate 12,000 vehicles per day at acceptable conditions. The driveway that is expected to provide access to the soccer field has little traffic currently. During the AM peak hour, a total of three vehicles were counted entering and exiting the driveway, respectively. In the PM peak hours, 20 vehicles were counted entering and exiting the driveway.

### ***Driveway Operation Analysis***

Driveway traffic operations were modeled with the added parking to the field and sharing the current employee parking area access to identify problems with vehicle turning movements. Driveway operations analyses were conducted for existing and project conditions for am and pm peak hours. For the purpose of the study, it is conservatively assumed the soccer field would generate 20 trips during am and pm peak hours respectively. Results of the driveway analyses indicated that vehicle turning movements would work no worse than LOS B with about a little more than ten seconds of delays for both am and pm peak hour conditions. There are no curves along this section of the Don Julio Boulevard and the access and driveway do not have any sight restriction issues. Table TRA-1 shows the driveway analyses results.

**TABLE TRA-1: DRIVEWAY TRAFFIC OPERATION (LOS) ANALYSIS**

Study Driveway (Non-Signalized)	Existing Conditions				Project Conditions			
	A.M Peak		P.M. Peak		A.M Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Don Julio Bl./ Access Driveway	10.9	B	11.3	B	11.0	B	11.9	B
<p><b>Notes:</b> Study intersection LOS was calculated with SYNCHRO computer software based on Highway Capacity Manual Methodology for non-signalized intersection. Traffic count data were collected in 3/17/2021 when school athletic teams started practices on 3/15/2021.</p> <p>The above delays and LOS represent the worst-case turning movement, which is the left-turn movement out from the driveway. Through traffic on the major street (Don Julio Boulevard) would operate at LOS A as traffic would not have to stop or yield. LOS Calculation sheets with traffic count data are in the technical appendixes. LOS A: Delay 0.0-10.0 Seconds, B: 10.1-15.0 Seconds, C: 15.1-25.0 Seconds, D: 25.1-35.0 Seconds, LOS E: 35.1-50.0 Seconds, LOS F: &gt;50.0 Seconds</p>								

**Traffic Collisions**

According to collision data collected from TIMS (Traffic Injuries Mapping System) service at University of California at Berkeley, seven traffic collisions occurred along the Don Julio Boulevard segment between Walerga Road and Guthrie Street between 2017 and 2019; two occurred in 2017, three in 2018, and two in 2019. 2020 data was not fully compiled. Based on this data, this segment of Don Julio Boulevard does not appear to be a collision hotspot. Based on general traffic engineering practice, any location that experiences five or more traffic collisions a year requires investigation and mitigation. TIMS obtained its collision data from SWITRS (Statewide Integrated Traffic Records System), which in turn receives its data from CHP.

**Vehicle Miles Traveled (VMT) Analysis**

With the passage of Senate Bill SB 743 in 2013 and full implementation in July 1, 2020, Vehicle Miles Traveled (VMT) became the main metric to evaluate transportation impacts of proposed development projects in CEQA documents. Traffic LOS and parking deficiencies are no longer considered significant impacts in CEQA analysis. With SB 743, development projects in general need to provide a VMT analysis to determine potential impact. However, there are several exceptions, including small projects that generate less than 110 daily trips; locally serving retail and similar land uses; and locally serving public facilities such as public schools and parks.

According to the ITE trip generation rates, a public soccer field is likely to generate an average of about 70 trips a day, which qualifies it for the small-project exemption. Further, as the project is public high school soccer field that mainly serves the students from within the school it would be exempt from VMT analysis. Below is brief discussion of the “Local-Serving Public Facilities” exemption that would apply to the proposed Highlands High School Soccer Field upgrade project.

***Local-Serving Public Facilities Exemption***

According to the Governor's OPR (Office of Planning and Research) Technical Advisory, similar to small projects, locally serving retail and land uses, and local-serving public facilities are presumed to have a less than significant impact on VMT. This would include government facilities intended to serve the local public, parks, and public elementary schools, middle schools, and high schools. A study indicating the user capture area may be required in order to demonstrate that a public facility is local serving. As indicated above, the project is not a new project but an upgrade of an existing facility and would be mainly used by the two high schools on campus as well as the local community after school hours. As such, no additional VMT analysis is needed in this case.

***Site Plan Review***

According to the site plan, the project would provide 39 parking spaces including two handicapped spaces. This should be adequate as most field use would be from on-site students. Visiting school teams would likely arrive in school buses. As such, a parking spot for school bus parking should be designated in the parking area. Without such, school bus parking will be accommodated at the parking lane along Don Julio Boulevard.

The field is currently fenced on all sides and it is not clear from the site plan whether pedestrian paths would be provided to connecting it with the rest of the campus. Since use of the field would be shared by Highlands High School and the Creative Connection Arts Academy High School, providing internal pedestrian paths to connect the facility with both campuses is highly recommended. This would improve student safety and students can access the field internally through the campus without having to walk off-campus on the street sidewalks.

Based on the trip generation rate published in the ITE Trip Generation Manual, 9<sup>th</sup> Edition, a soccer field is likely to generate 71 daily trips, including 1 am peak hour trip and 18 pm peak hour trips. For school soccer field such as this, most trips would be student trips from within the school campus during the day. When inter-school games are held, most trips would occur during the day in the afternoon, evening, or on weekends, and would have little conflict with normal commute hour traffic operation.

Don Julio Boulevard is a four-lane arterial road providing access to and from the area and Highlands High School. The segment between Walerga Road and Guthrie Street is two-lane plus a two-way-left-turn lane in the middle. Its intersections with Walerga Road and Guthrie Street are controlled by traffic signals. From a street design capacity standpoint, a two-lane arterial road such as Don Julio Boulevard generally can accommodate 12,000 vehicles per day at acceptable conditions. The driveway that is expected to provide access to the soccer field has very few traffic currently. During the am peak hour, a total of 3 vehicles were counted entering and exiting the driveway respectively. In the pm peak hours, 20 vehicles were counted entering and exiting the driveway. For the purpose of the study, it is conservatively assumed the soccer field would generate 20 trips during am and pm peak hours respectively.

Results of the driveway analyses indicated that vehicle turning movements would work no worse than LOS B with about a little more than 10 seconds of delays for both am and pm peak hour conditions. This would be acceptable under the City's transportation plans.

- b) With the passage of Senate Bill SB 743 in 2013 and full implementation on July 1, 2020, Vehicle Miles Traveled (VMT) became the main metric to evaluate transportation impacts of proposed development projects. Traffic LOS and parking deficiencies are no longer considered significant impacts in CEQA analysis.

With SB 743, most development projects need to provide a VMT analysis to determine traffic impacts. However, there are several exceptions. These include small projects that generate fewer than 110 daily trips; locally serving retail and similar land uses; and locally serving public facilities such as public schools and parks.

According to the ITE trip generation rates, a public soccer field is likely to generate an average of about 70 trips a day, which qualifies it for the small-project exemption. Further, the project is public high school soccer field that mainly serves the students from within the school and, as such, would be exempt from VMT analysis. According to the Governor's Office of Planning and Research (Technical Advisory on Evaluating Transportation Impacts in CEQA, April 2018), similar to small projects, locally serving retail and land uses, and local-serving public facilities, including schools, are presumed to have a less than significant impact on VMT. A study indicating the user capture area may be required in order to demonstrate that a public facility is local serving. As indicated above, the project is not a new project but an upgrade of an existing facility and would be mainly used by the school, the adjacent art school, and perhaps local residents after school hours for exercise. As such, the VMT impact of the project would be **less than significant**.

- c, d) According to collision data collected from TIMS (Traffic Injuries Mapping System) service at University of California at Berkeley, 7 traffic collisions have occurred along the Don Julio Boulevard segment between Walerga Road and Guthrie Street between 2017 and 2019; 2 occurred in 2017, 3 in 2018, and 2 in 2019. 2020 data was not fully compiled. TIMS obtained its collision data from SWITRS (Statewide Integrated Traffic Records System), which in turn receives its data from CHP. General traffic engineering practice considers any location experiences five or more traffic collisions a year to require investigation and mitigation.

Driveway traffic operations were modeled with the added parking to the field sharing the current employee parking area access, to identify problems with vehicle turning movements. Driveway operations analyses were conducted for existing and project conditions for am and pm peak hours. For the purpose of the study, it was conservatively assumed the soccer field would generate 20 trips during am and pm peak hours respectively. Results of the driveway analyses indicated that vehicle turning movements would result in traffic conditions no worse than Level of Service (LOS) B with about a little more than 10 seconds of delays for both am



and pm peak-hour conditions. There are no curves along this section of the Don Julio Boulevard and the access and driveway do not have any sight restriction issues.

Because proposed project would not introduce new design features or other changes that are incompatible with the existing transportation infrastructure or otherwise adversely affect emergency access, it would not create any traffic hazards. Therefore, project traffic and safety impacts would be **less than significant**.

## XVIII. Tribal Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project cause a significant adverse change in the significance of a tribal cultural resource defined in Public Resource Code Section 21074 as either a site, feature, place cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			X	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			X	

### Background

The existing school on the site was constructed in 1957-58. The entire project site was graded at the time of construction and has been in use as a track and field, like the proposed use. The project site also is surrounded by suburban land uses and not near any streams or other areas where Native American habitation are likely to have occurred. There is no undisturbed land on or near the site. No tribal representatives have requested consultation with the District.

### Discussion

- a) i., ii. As described in the Cultural Resources section of the IS, because the site has already been graded and is the location of an existing high school facility, and because the project would have minimal earthmoving beyond the previously graded depths, impacts to culturally sensitive sites would be unlikely. Additionally, Mitigation Measures

CULT-1 and CULT -2, in the Cultural Resources section would address impacts on any unknown cultural resources and would assure that any potential tribal cultural resource impacts would be reduced to **less than significant**.

## XIX. Utilities and Service Systems

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

### Background

The Sacramento Area Sewer District (SASD) provides wastewater collection, treatment, and disposal services for the project area. SASD's sewer system is a vast and complex set of pipes—measuring 4,600 miles—that interconnect in a web-like pattern underground. Sewage enters the system through lower laterals—small pipes connecting the property owner's plumbing to our sewer main line. Once in the main line, sewage flows into a system of larger pipes called trunk lines. SASD's trunk lines connect to the Regional system, which conveys the sewage to the wastewater treatment plant near Elk Grove. There, Regional San treats the wastewater and safely discharges it to the Sacramento River.

The Sacramento Suburban Water District (SSWD) is responsible for operation and maintenance of the water supply and distribution systems. SSWD provides water to its customers from 70 operational groundwater production wells. In addition, the District has contractual rights to 26,064 acre-feet from

the City of Sacramento water entitlement; and a contract to purchase up to 29,000 acre-feet of surface water per year from Placer County Water Agency.

Sacramento County Department of Waste Management and Recycling provides solid waste management services to the site. Recyclables are handled at the North Area Recovery Station, at 4450 Roseville Road. Wastes are disposed of at the Kiefer Landfill in Sloughouse, about 15 miles south of the project site.

## Discussion

a, b, c) The project would improve an existing athletic field, and replace a large area of natural turf, which requires irrigation, with synthetic turf, for which irrigation would no longer be needed. Therefore, the proposed project would not contribute to depletion of water supplies and **no impact** would occur to surface or groundwater.

The project includes a concession stand and bathroom facilities that would minimally increase sewage generated at the site. These facilities would discharge to SASD's existing lines in Don Julio Blvd. The SASD would review and approve the connection, however, because of the minimal increase in sewage anticipated to be generated by the project, any impacts are expected to be **less than significant**.

The project area is fully developed, and no substantial expansions or extensions of utility services would be required.

d, e) Because the project would replace the existing fields on the site, there would be a minimal increase in solid waste generation as a result of project operation, and there would be **a less-than-significant impact** on solid waste generation or disposal.

## XX. Wildfire Hazards

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

### Discussion

- a-d) The project site is in a heavily developed urban area designated as a “Non-Very High Fire Hazard Zone” by CalFire<sup>12</sup>. The site is level and does not require installation of wildfire-hazard related infrastructure. Therefore, the project would have **no impact** with respect to wildfire hazards, associated hazards, and equipment /infrastructure needs.

<sup>12</sup> [https://osfm.fire.ca.gov/media/6758/fhszl\\_map34.pdf](https://osfm.fire.ca.gov/media/6758/fhszl_map34.pdf)

## XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Issue	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the Project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?			X	
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

- a) As described in the Biological Resources section of this IS, potentially significant impacts to biological resource impacts (nesting birds and bats) would be mitigated to a **less-than-significant** level by measures included in that section. Compliance with the mitigation measures for the unearthing of any unknown cultural resources would ensure all potential impacts associated with cultural resources would be reduced to a **less-than-significant** level.
- b) No other projects are proposed at the school that would overlap this project. Based on a review of the Sacramento County Planning Department database, there are currently no proposed or pending development projects in the North Highlands area (<https://planningdocuments.saccounty.net/>, July 5, 2021). Therefore, there are no projects to which the sports complex would contribute in a cumulatively considerable manner and the project’s contribution to cumulative impacts would be **less than significant**.
- c) The proposed project would not increase long-term air pollutant emissions and greenhouse gasses because it would not add any net new workers. Mitigation measures for emissions from construction emissions would reduce any such emissions to less than significant levels. The project’s noise impacts also would be less than significant with mitigation. The project’s hazards to human health and safety would be less than

significant, as described in Section IX of this Initial Study. The impact would be reduced to **less-than-significant with mitigation**.



## IV. REFERENCES

- California Air Resources Board (CARB). Summary: Diesel Particulate Matter Health Impacts. <https://ww2.arb.ca.gov/index.php/resources/summary-diesel-particulate-matter-health-impacts>
- California Air Pollution Control Officers Association (CAPCOA). *California Emissions Estimator Model (CalEEMod) User's Guide*. <http://www.caleemod.com/>
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- Governor's Office of Planning and Research, Technical Advisory Evaluating Transportation Impacts in CEQA, April 2018.
- Federal Emergency Management Agency (FEMA) FIRM Flood Hazard Maps, number 06067C0086H, effective on 08/16/2012.
- Federal Highway Administration (FHWA), *Roadway Construction Noise Model User's Guide*. [https://www.gsweventcenter.com/Draft\\_SEIR\\_References/2006\\_01\\_Roadway\\_Construction\\_Noise\\_Model\\_User\\_Guide\\_FHWA.pdf](https://www.gsweventcenter.com/Draft_SEIR_References/2006_01_Roadway_Construction_Noise_Model_User_Guide_FHWA.pdf)
- Federal Emergency Management Agency (FEMA). Flood Hazard Map Panel No. 06085C0382H, effective on 05/18/2009, accessed July 10, 2019.
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- Lakes Environmental, *SCREEN View User's Guide*. [https://www.weblakes.com/products/screen/resources/lakes\\_screen\\_view\\_user\\_guide.pdf](https://www.weblakes.com/products/screen/resources/lakes_screen_view_user_guide.pdf)
- Office of Environmental Health Hazard Assessment (OEHHA). *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, February 2015.
- PHA Transportation Consultants (PHA), Traffic Impact Assessment Highlands High School-Sacramento County, May 27, 2021
- RDG Acoustical Consulting, Noise Impact Assessment for Highlands High School Sports Complex, North Highlands, CA, August 6, 2021.
- Wallace Kuhl and Associates, Geotechnical Engineering Report, Highlands High School Sports Complex, April 2, 2021.

## **V. REPORT PREPARERS**

### **Twin Rivers Unified School District**

Perry Herrera, Director of Facilities Construction & Engineering

### **Grassetti Environmental Consulting**

Richard Grassetti, Principal

Deborah Holley, Planner

Geoff Hornek, Air Quality Specialist

Alan Rosen, Harold Goldberg, P.E., and Anthony Wong, RDG Acoustical Consulting

Richard Denney, Graphics

### **Greystone West Company**

Todd Lee, Principal

Chris Zunino, Project Manager

## **APPENDIX A: MUSCO LIGHTING INFORMATION**

# Highlands High School Sports Park

North Highlands, CA

## Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1-F2	80'	80'	8	TLC-LED-1500	11.44 kW	A
		80'	1	TLC-LED-600	0.58 kW	C
F3-F4	80'	16'	2	TLC-BT-575	1.15 kW	A
		80'	9	TLC-LED-1500	12.87 kW	A
		80'	1	TLC-LED-600	0.58 kW	C
		16'	2	TLC-BT-575	1.15 kW	A
P1	50'	50'	2	TLC-LED-900	1.78 kW	B
<b>5</b>			<b>48</b>		<b>57.32 kW</b>	

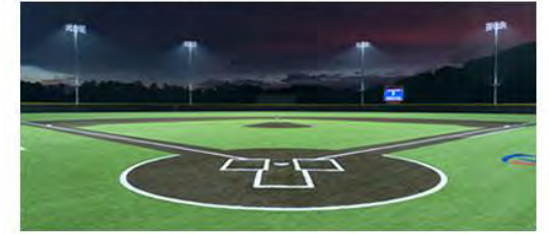
Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	53.22 kW	42
B	Shotput	1.78 kW	2
C	Egress	2.32 kW	4

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>120,000	>120,000	>120,000	4
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	34
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	2
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8

## Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Blanket Grid to 0.0	Horizontal	10.5	0	46	92739.91		A,B,C	48
Bleacher 1	Horizontal Illuminance	9.53	5	12	2.18	1.91	C	4
Bleacher 2	Horizontal Illuminance	9.53	5	12	2.18	1.91	C	4
Bleacher 3	Horizontal Illuminance	9.58	5	12	2.59	1.92	C	4
Bleacher 4	Horizontal Illuminance	9.70	5	12	2.42	1.94	C	4
D Zones	Horizontal	21.5	9	40	4.25	2.39	A	42
Far Sidewalk	Horizontal	0.04	0	0.37	0.00		A,B,C	48
Far Sidewalk	Max Candela (by Fixture)	2452	0	7558	0.00		A,B,C	48
Far Sidewalk	Max Vertical Illuminance Metric	0.09	0	0.56	0.00		A,B,C	48
Football	Horizontal Illuminance	32.2	26	39	1.48	1.24	A	42
Property Spill	Horizontal	0	0	0	0.00		A,B,C	48
Property Spill	Max Candela (by Fixture)	4.38	0	16.1	0.00		A,B,C	48
Property Spill	Max Vertical Illuminance Metric	0	0	0	0.00		A,B,C	48
Shot Put Area	Horizontal	23.3	9	38	4.18	2.59	B	2
Soccer	Horizontal Illuminance	33.8	28	39	1.41	1.21	A	42
Track	Horizontal Illuminance	25.1	6	46	8.23	4.19	A	42

## From Hometown to Professional



**We Make It Happen.**

# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	F1-F2	80'	-	80'	TLC-LED-1500	8	8	0	
				15.5'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	0	1	
2	F3-F4	80'	-	80'	TLC-LED-1500	9	9	0	
				15.5'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	0	1	
4	TOTALS					46	42	4	

GRID SUMMARY	
Name:	Football
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

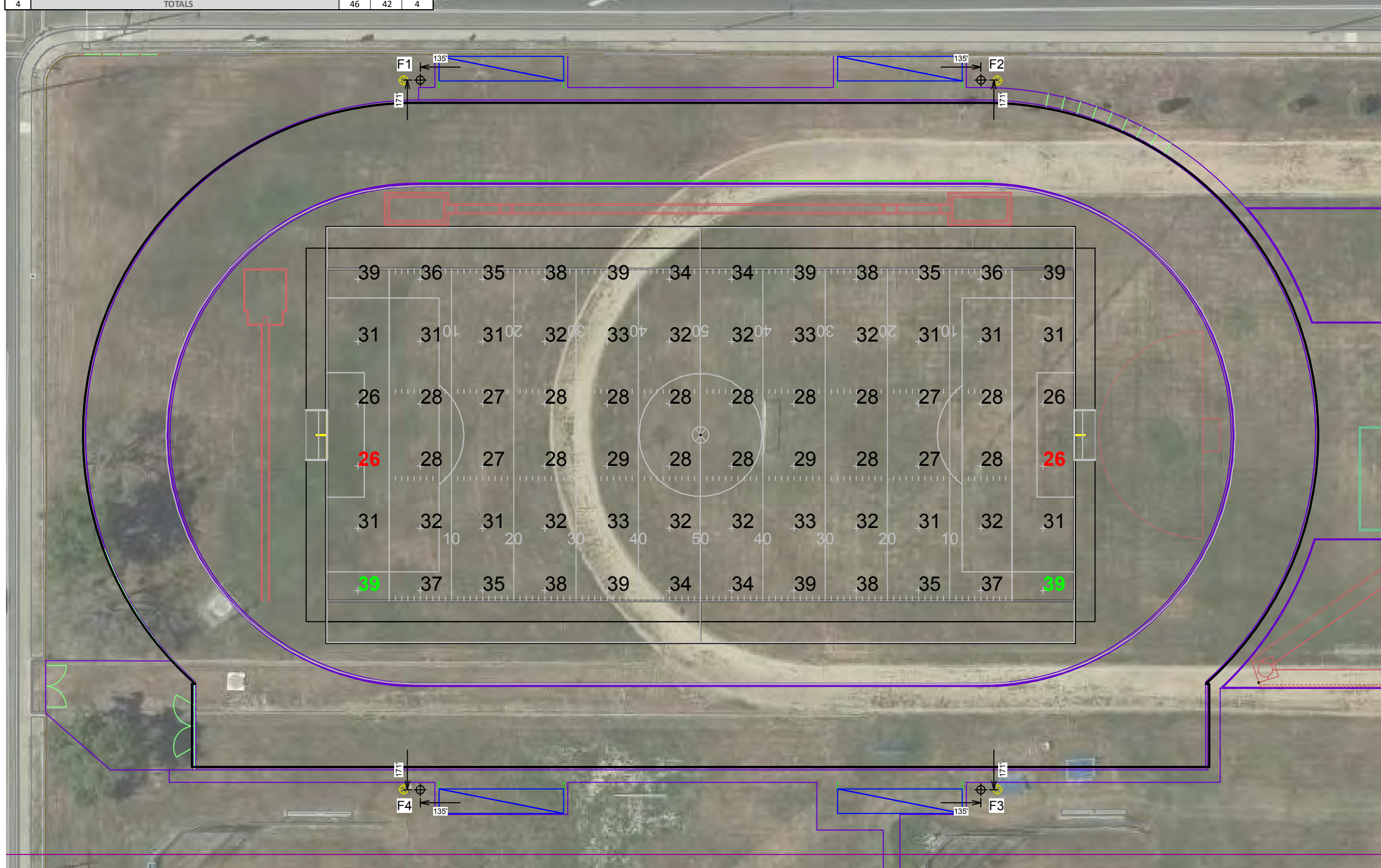
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average:	30
Scan Average:	32.19
Maximum:	39
Minimum:	26
Avg / Min:	1.22
Guaranteed Max / Min:	2.5
Max / Min:	1.48
UG (adjacent pts):	1.24
CU:	0.36
No. of Points:	72
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	42
Total Load:	53.22 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.



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





# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	F1-F2	80'	5'	85'	TLC-LED-1500	8	8	0	
				20.48'	TLC-BT-575	2	2	0	
				85'	TLC-LED-600	1	0	1	
2	F3-F4	80'	5'	85'	TLC-LED-1500	9	9	0	
				20.48'	TLC-BT-575	2	2	0	
				85'	TLC-LED-600	1	0	1	
4	TOTALS					46	42	4	

GRID SUMMARY	
Name:	Soccer
Size:	360' x 200'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

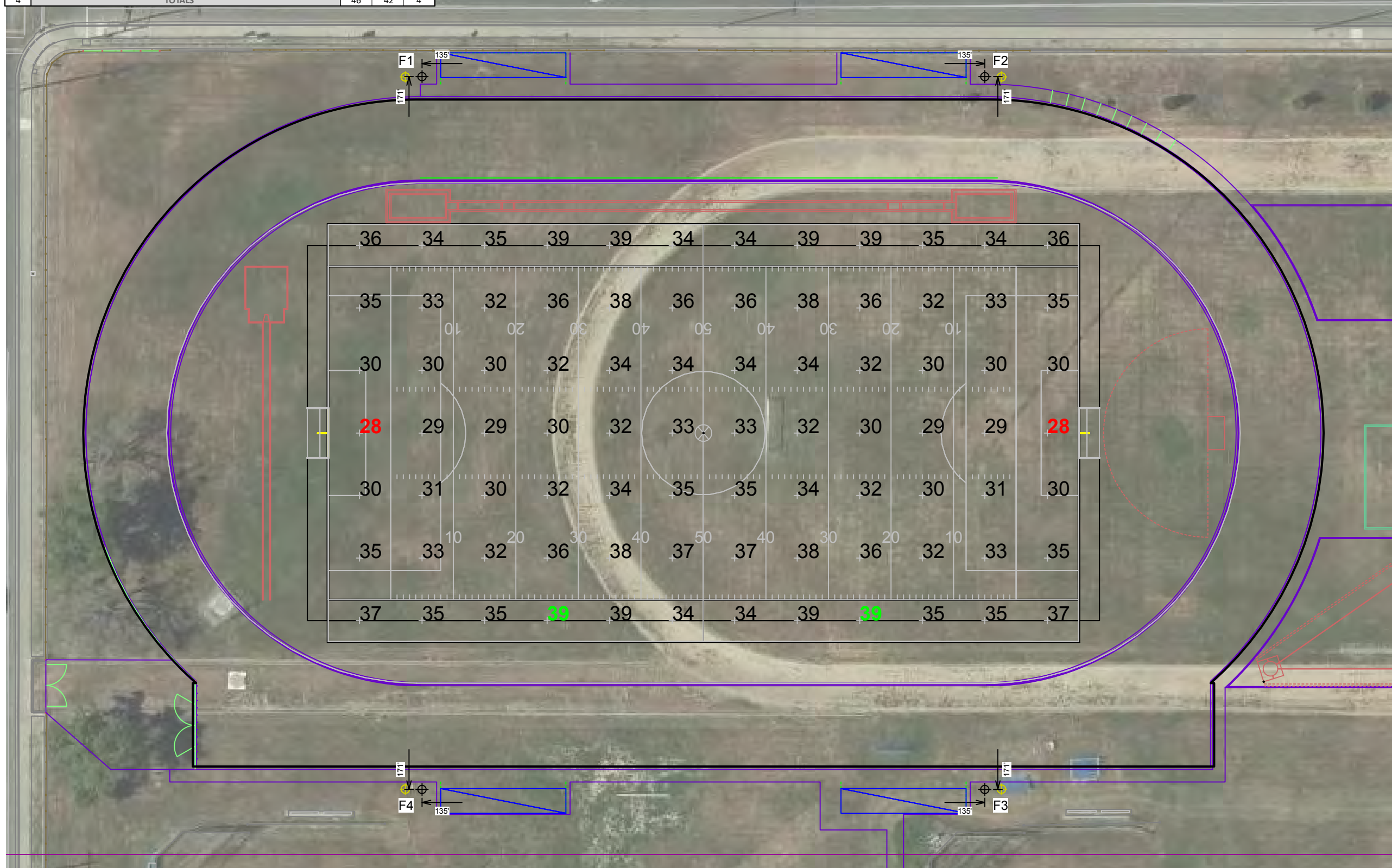
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average:	30
Scan Average:	33.75
Maximum:	39
Minimum:	28
Avg / Min:	1.22
Guaranteed Max / Min:	2.5
Max / Min:	1.41
UG (adjacent pts):	1.17
CU:	0.44
No. of Points:	84
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	42
Total Load:	53.22 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.



Pole location(s)  $\oplus$  dimensions are relative to 0,0 reference point(s)  $\otimes$



# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8	0	
				15.52'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	0	1	
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	9	0	
				15.52'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	0	1	
4	TOTALS					46	42	4	

GRID SUMMARY	
Name:	D Zones
Size:	Irregular
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

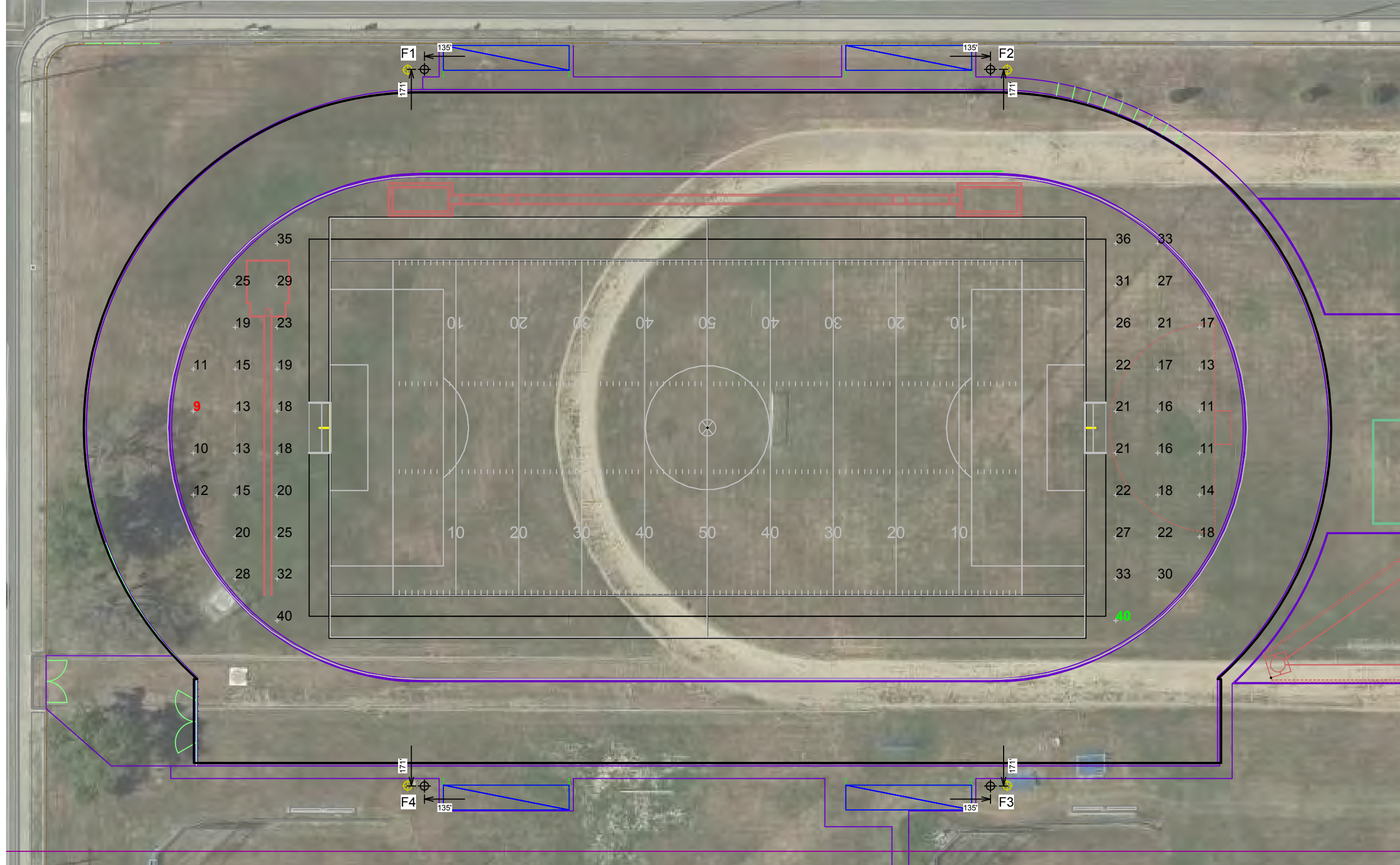
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	21.54
Maximum:	40
Minimum:	9
Avg / Min:	2.29
Max / Min:	4.25
UG (adjacent pts):	1.39
CU:	0.07
No. of Points:	47
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	42
Total Load:	53.22 kW

**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.



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

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## ILLUMINATION SUMMARY



EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8	0	
				15.52'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	0	1	
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	9	0	
				15.52'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	0	1	
4	TOTALS					46	42	4	

GRID SUMMARY	
Name:	Track
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

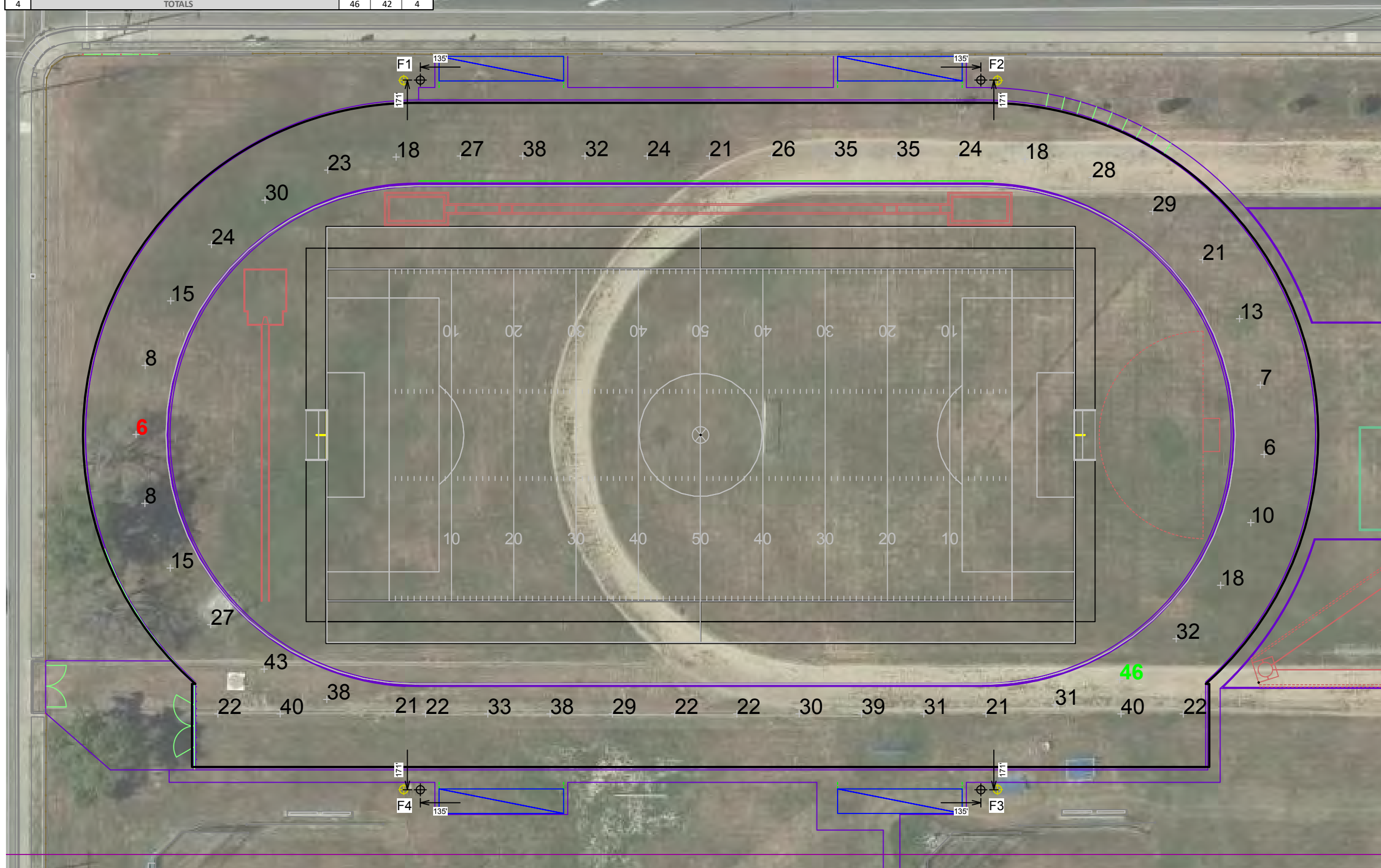
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	25.12
Maximum:	46
Minimum:	6
Avg / Min:	4.54
Max / Min:	8.23
UG (adjacent pts):	0.00
CU:	0.19
No. of Points:	48
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	42
Total Load:	53.22 kW

**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.



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





EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	0	8
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	0	9
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
4	TOTALS					46	4	42

GRID SUMMARY	
Name:	Bleacher 1
Size:	0' x 0'
Spacing:	5.0' x 5.0'
Height:	4.4' above grade

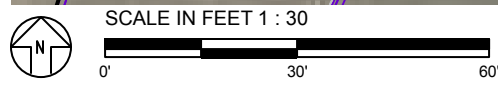
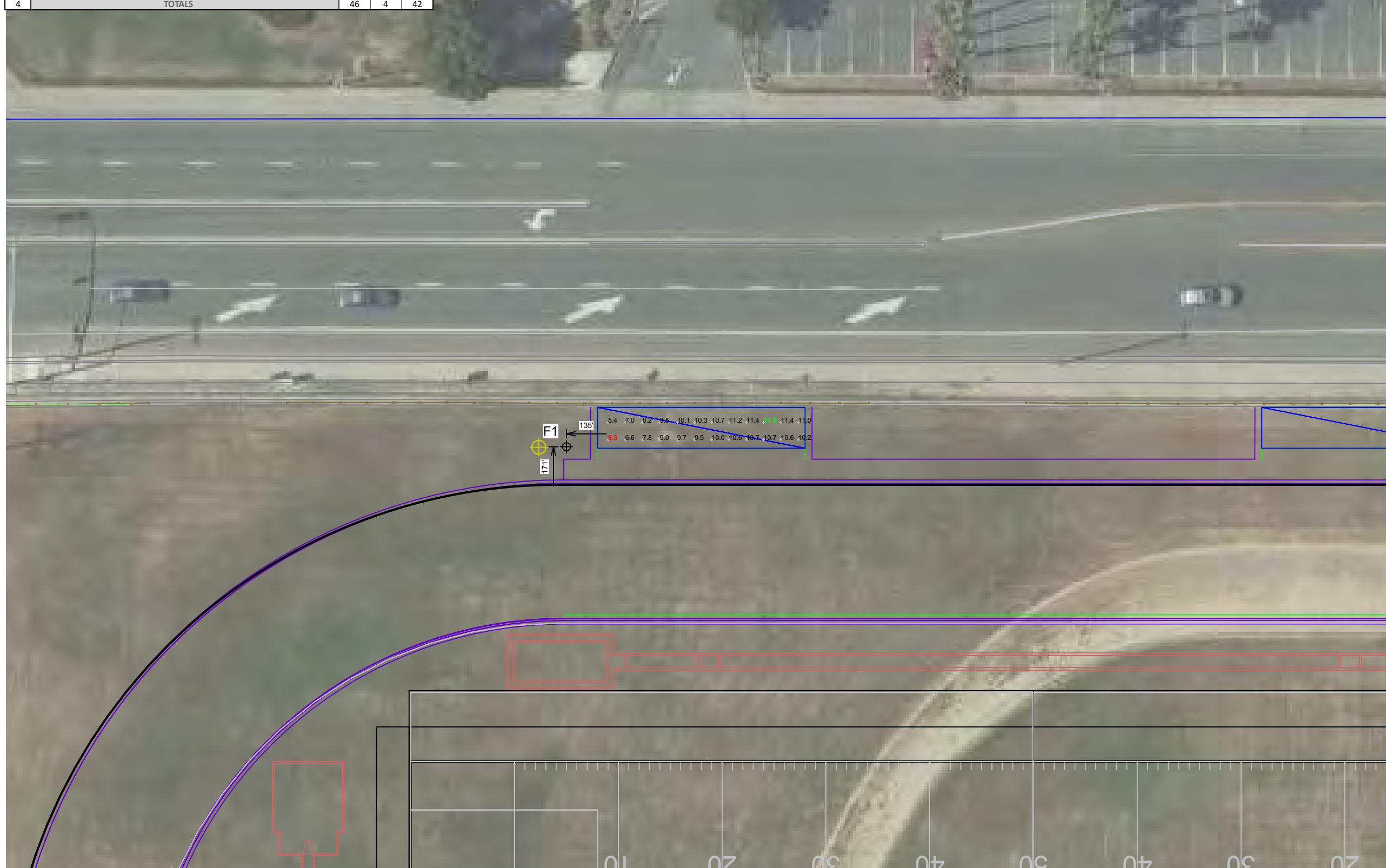
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	9.53
Maximum:	12
Minimum:	5
Avg / Min:	1.80
Max / Min:	2.18
UG (adjacent pts):	0.00
CU:	0.02
No. of Points:	24
LUMINAIRE INFORMATION	
Applied Circuits:	C
No. of Luminaires:	4
Total Load:	2.32 kW

**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.



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



# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	0	8
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	0	9
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
4	TOTALS					46	4	42

GRID SUMMARY	
Name:	Bleacher 2
Size:	0' x 0'
Spacing:	5.0' x 5.0'
Height:	4.4' above grade

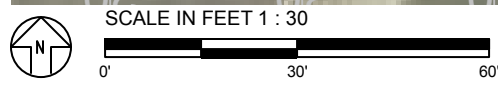
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	9.53
Maximum:	12
Minimum:	5
Avg / Min:	1.80
Max / Min:	2.18
UG (adjacent pts):	0.00
CU:	0.02
No. of Points:	24
LUMINAIRE INFORMATION	
Applied Circuits:	C
No. of Luminaires:	4
Total Load:	2.32 kW

**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.



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



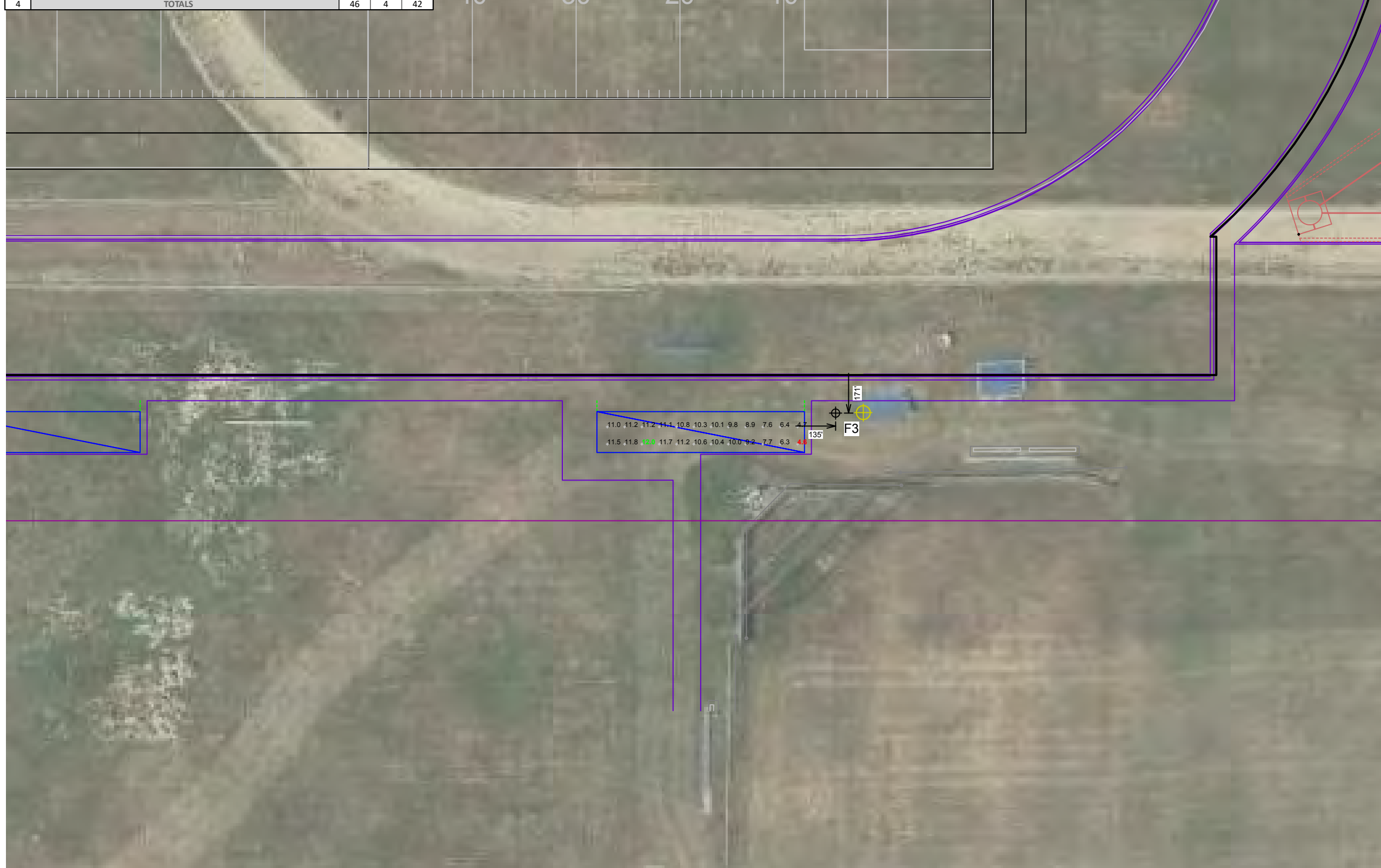
# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	0	8
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	0	9
				15.48'	TLC-BT-575	2	0	2
				80'	TLC-LED-600	1	1	0
4	TOTALS					46	4	42

GRID SUMMARY	
Name:	Bleacher 3
Size:	0' x 0'
Spacing:	5.0' x 5.0'
Height:	8.5' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	9.58
Maximum:	12
Minimum:	5
Avg / Min:	2.07
Max / Min:	2.59
UG (adjacent pts):	0.00
CU:	0.02
No. of Points:	24
LUMINAIRE INFORMATION	
Applied Circuits:	C
No. of Luminaires:	4
Total Load:	2.32 kW

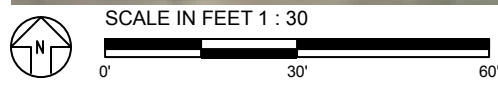


**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**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.



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



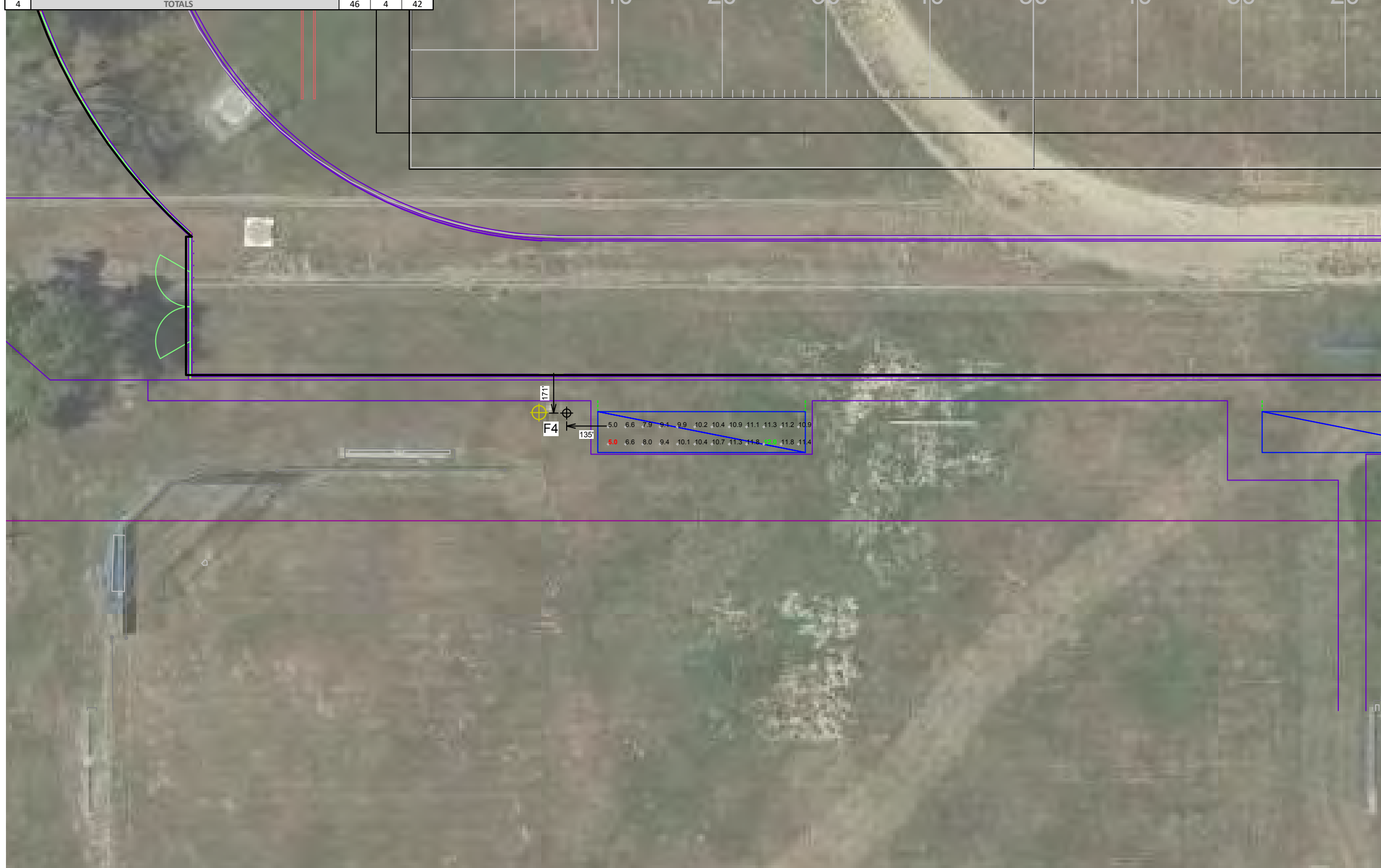
# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	0
				15.48'	TLC-BT-575	2	0
				80'	TLC-LED-600	1	1
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	0
				15.48'	TLC-BT-575	2	0
				80'	TLC-LED-600	1	1
4	TOTALS					46	4

GRID SUMMARY	
Name:	Bleacher 4
Size:	0' x 0'
Spacing:	5.0' x 5.0'
Height:	8.5' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	9.70
Maximum:	12
Minimum:	5
Avg / Min:	1.95
Max / Min:	2.42
UG (adjacent pts):	0.00
CU:	0.02
No. of Points:	24
LUMINAIRE INFORMATION	
Applied Circuits:	C
No. of Luminaires:	4
Total Load:	2.32 kW

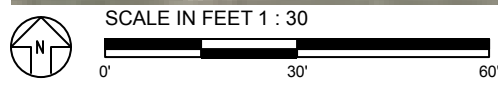


**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**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.



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





# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	P1	50'	-	50'	TLC-LED-900	2	2	0
1	TOTALS							
						2	2	0

GRID SUMMARY	
Name:	Shot Put Area
Size:	0' x 0'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

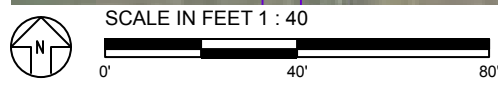
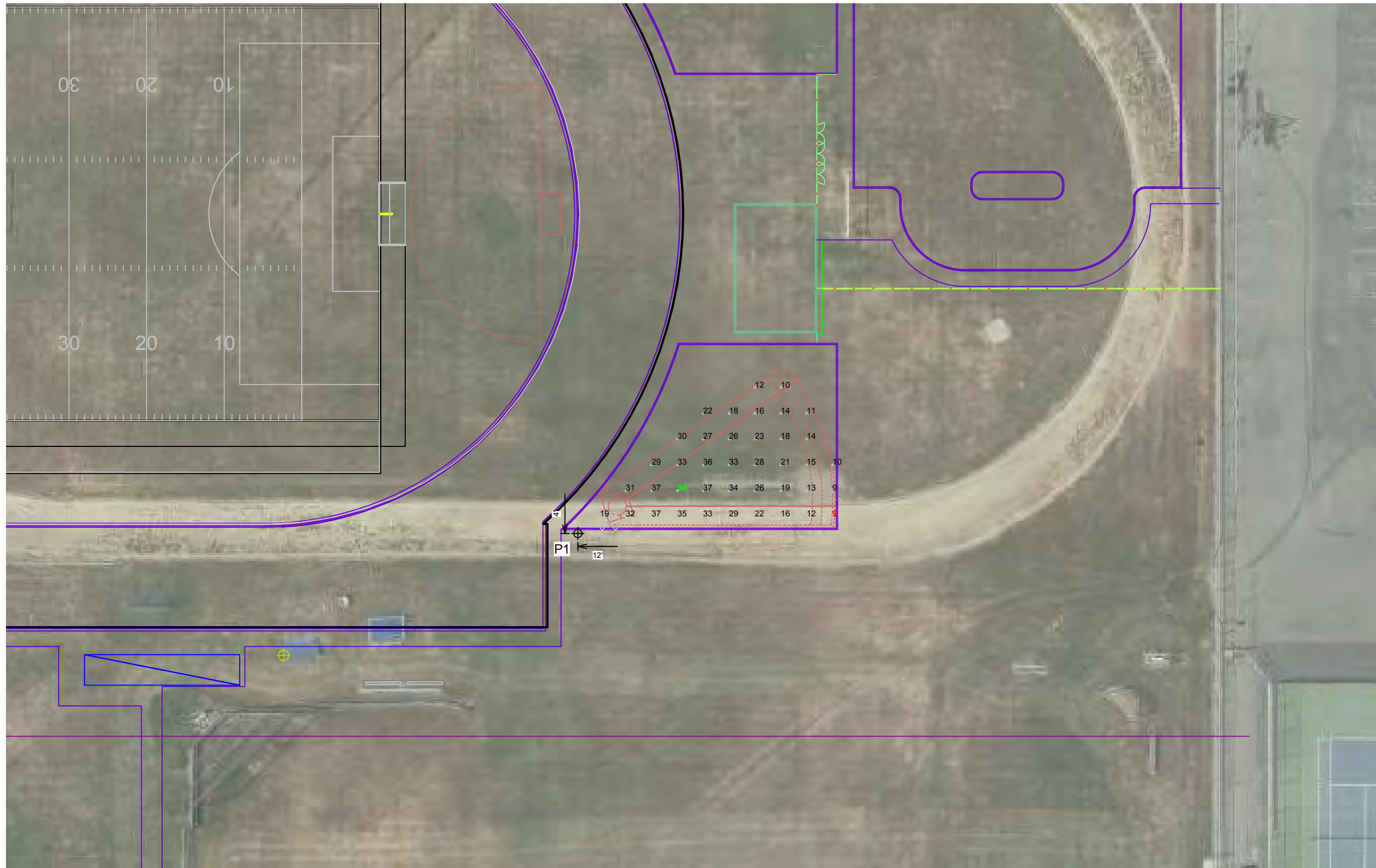
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	23.32
Maximum:	38
Minimum:	9
Avg / Min:	2.57
Max / Min:	4.18
UG (adjacent pts):	1.72
CU:	0.49
No. of Points:	40
LUMINAIRE INFORMATION	
Applied Circuits:	B
No. of Luminaires:	2
Total Load:	1.78 kW

**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.



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





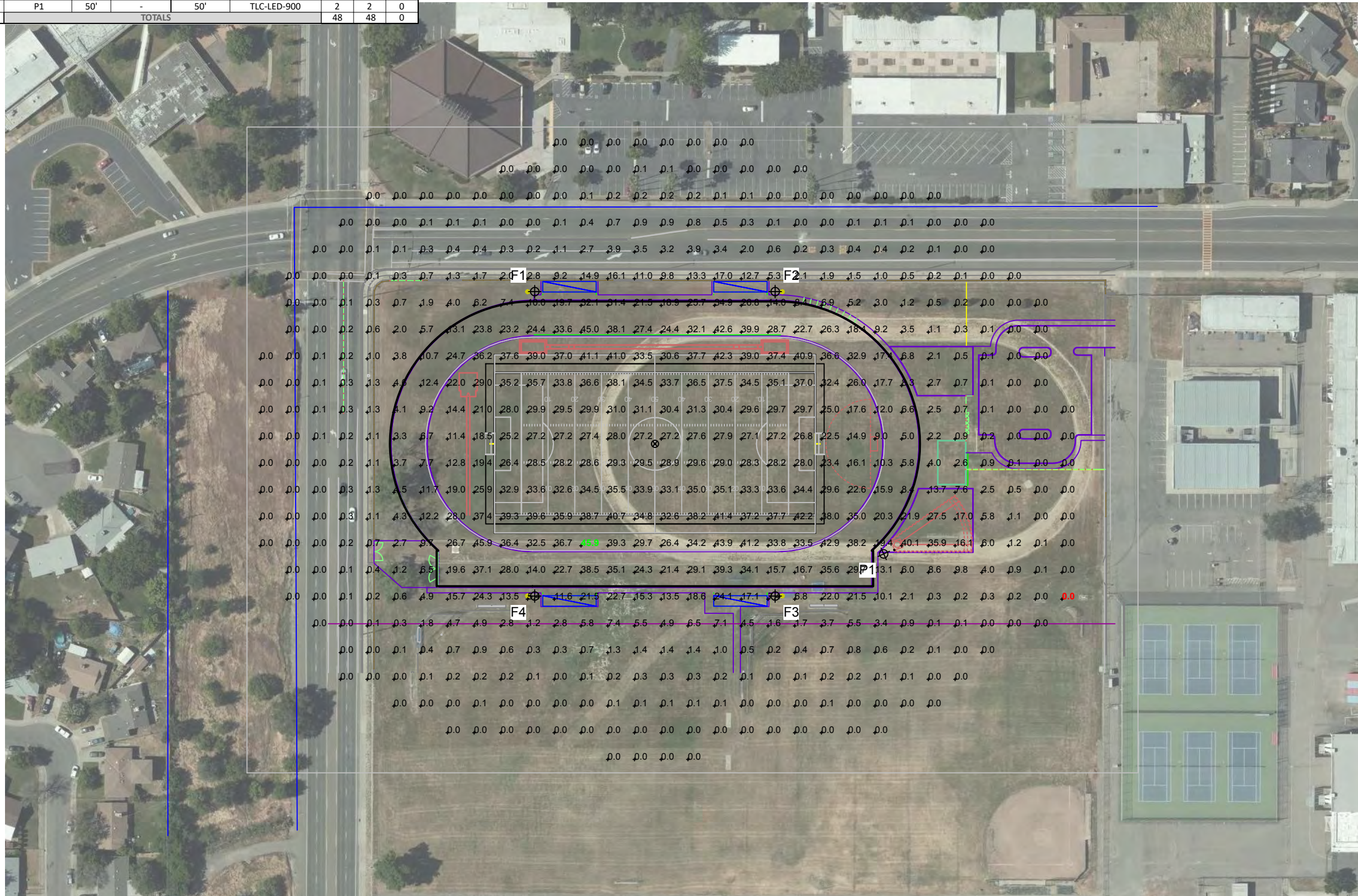
# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8	0	
				15.48'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	1	0	
				80'	TLC-LED-1500	9	9	0	
2	F3-F4	80'	0'	15.48'	TLC-BT-575	2	2	0	
				80'	TLC-LED-600	1	1	0	
				80'	TLC-LED-900	2	2	0	
1	P1	50'	-	50'	TLC-LED-900	2	2	0	
5	TOTALS					48	48	0	

GRID SUMMARY	
Name:	Blanket Grid to 0.0
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	10.53
Maximum:	46
Minimum:	0
Avg / Min:	21251.55
Max / Min:	92739.91
UG (adjacent pts):	59.84
CU:	0.92
No. of Points:	604
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

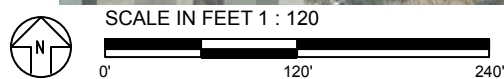


**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**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.



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



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## ILLUMINATION SUMMARY



# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	9
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
1	P1	50'	-	50'	TLC-LED-900	2	2
5	TOTALS					48	48

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

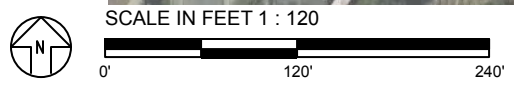
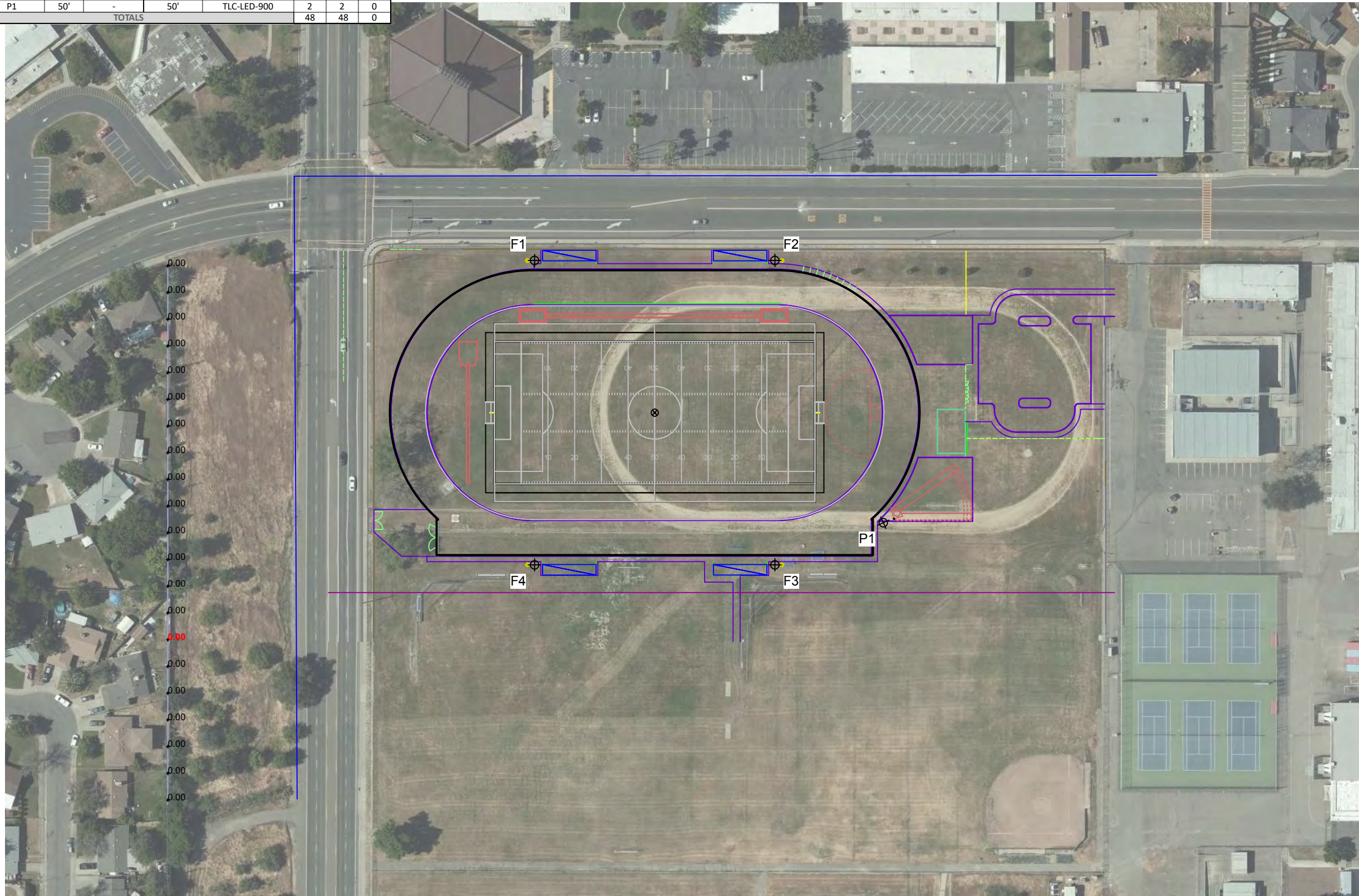
ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.0000
Maximum:	0.00
Minimum:	0.00
No. of Points:	21
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

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

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

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

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



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





# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
				80'	TLC-LED-1500	9	9
2	F3-F4	80'	0'	15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
				80'	TLC-LED-1500	2	2
				50'	TLC-LED-900	2	2
1	P1	50'	-	50'	TLC-LED-900	2	2
5	TOTALS					48	48

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

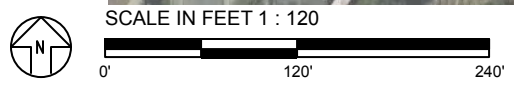
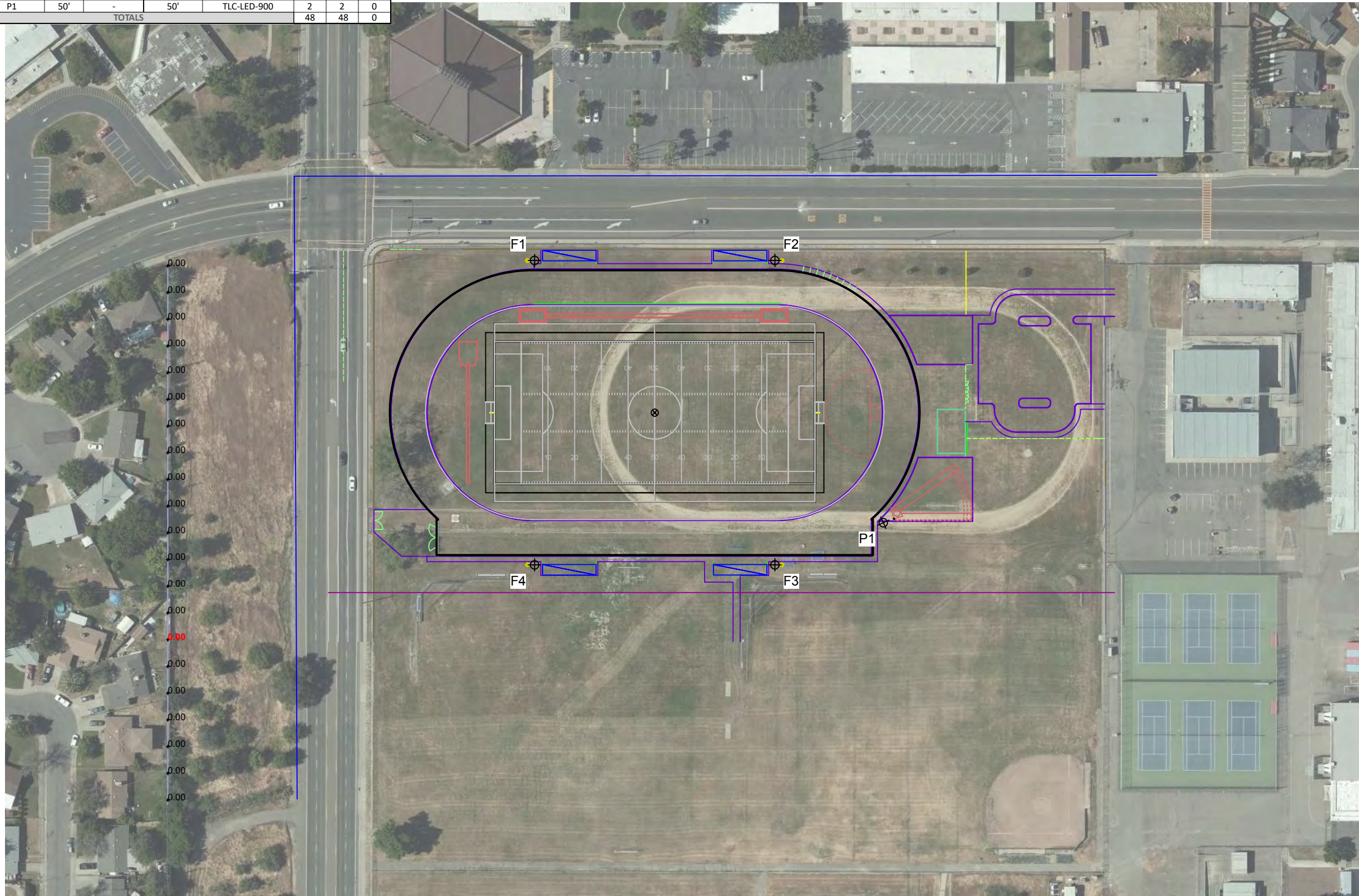
ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.0000
Maximum:	0.00
Minimum:	0.00
No. of Points:	21
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

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

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

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

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



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



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# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
				80'	TLC-LED-1500	9	9	0
2	F3-F4	80'	0'	15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
				80'	TLC-LED-1500	2	2	0
				50'	TLC-LED-900	2	2	0
1	P1	50'	-	50'	TLC-LED-900	2	2	0
5	TOTALS					48	48	0

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

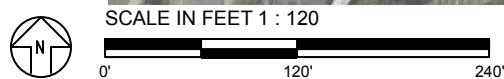
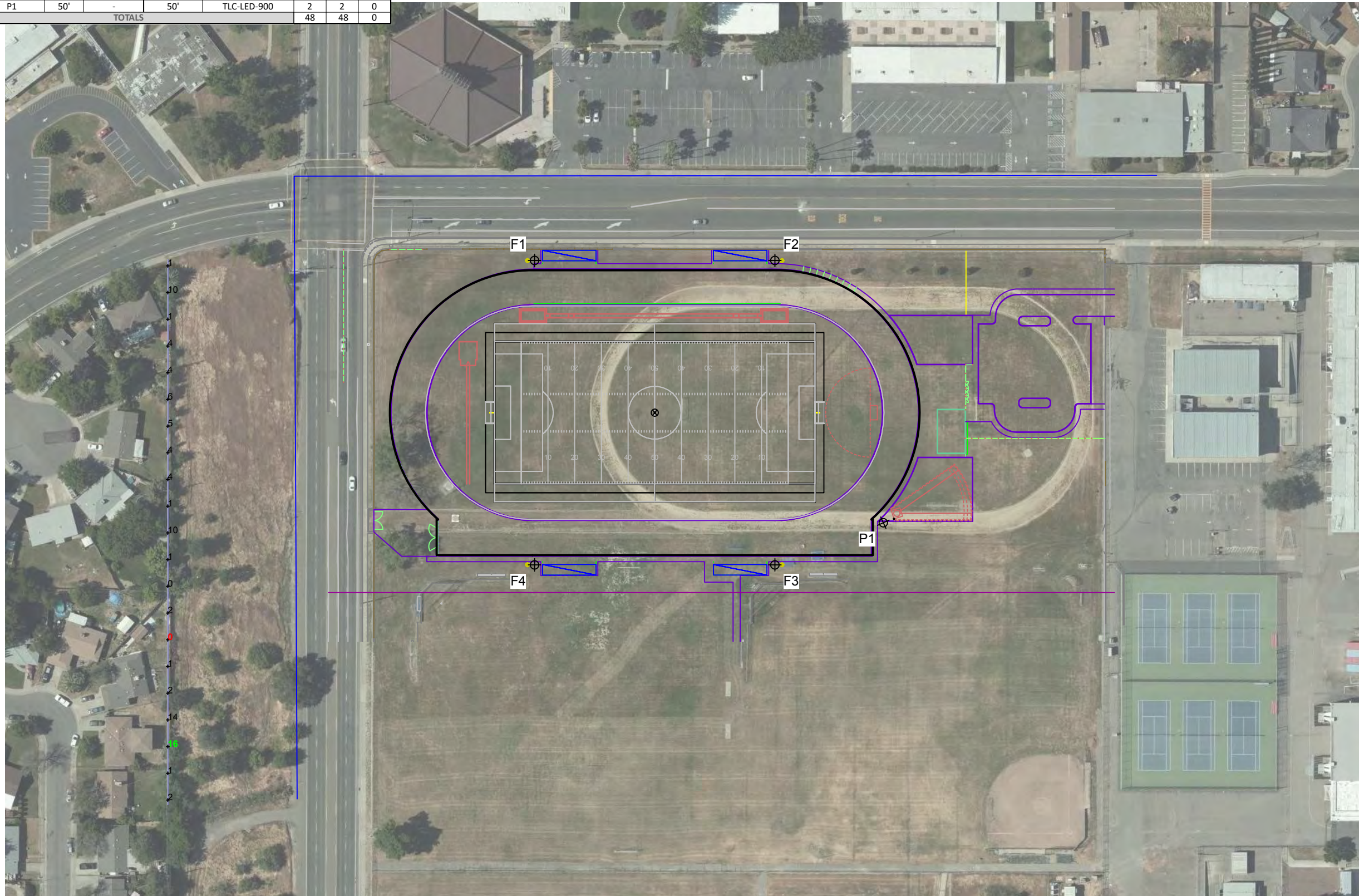
ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 4.3846
Maximum:	16.13
Minimum:	0.00
No. of Points:	21
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

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

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

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

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



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



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# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	9
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
1	P1	50'	-	50'	TLC-LED-900	2	2
5	TOTALS					48	48

GRID SUMMARY	
Name:	Far Sidewalk
Spacing:	30.0'
Height:	3.0' above grade

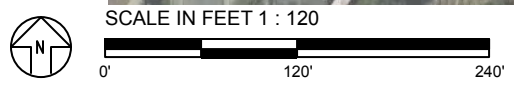
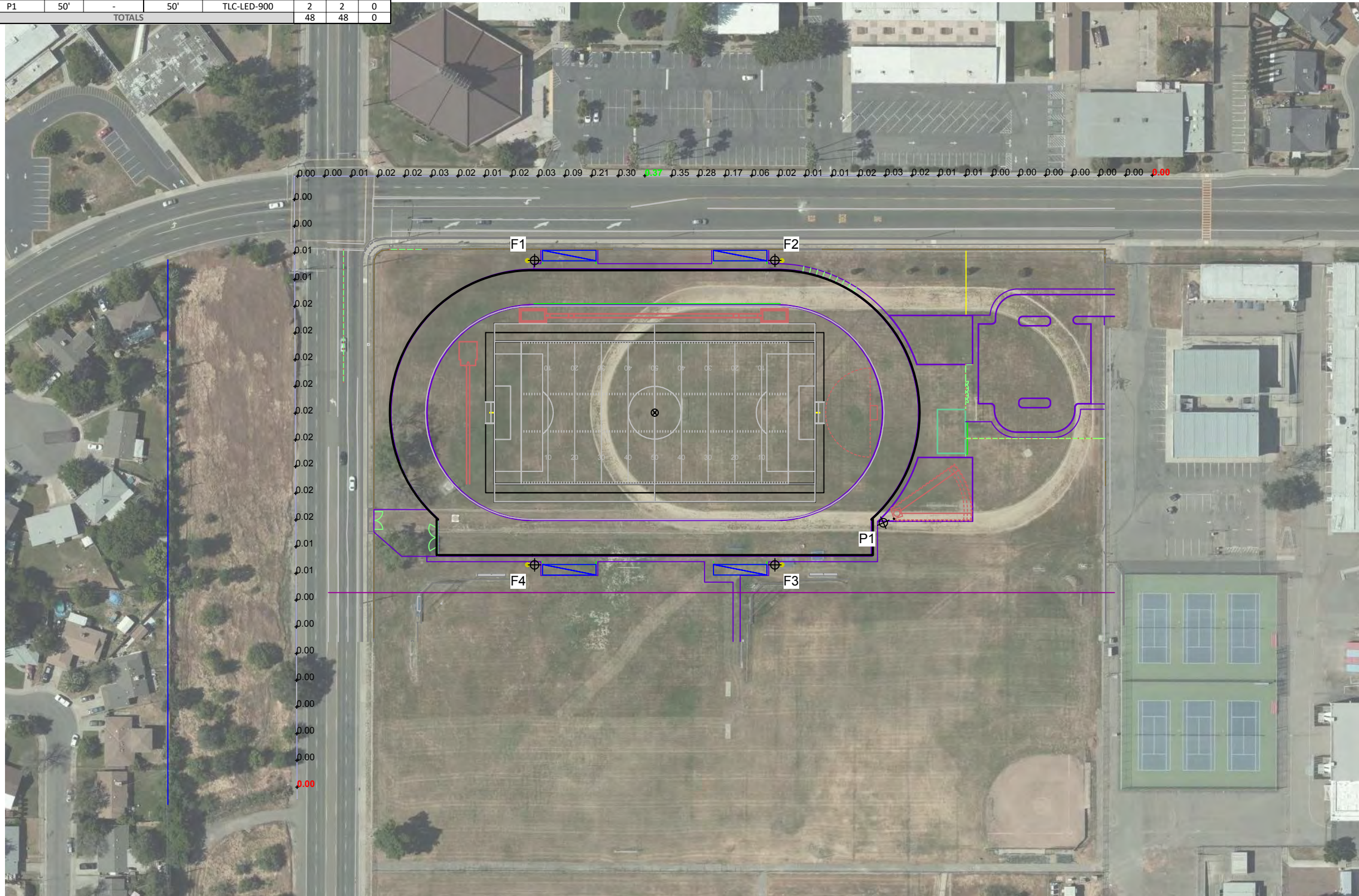
ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.0423
Maximum:	0.37
Minimum:	0.00
No. of Points:	56
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

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

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

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

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



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



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# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	9
				15.48'	TLC-BT-575	2	2
				80'	TLC-LED-600	1	1
1	P1	50'	-	50'	TLC-LED-900	2	2
5	TOTALS					48	48

GRID SUMMARY	
Name:	Far Sidewalk
Spacing:	30.0'
Height:	3.0' above grade

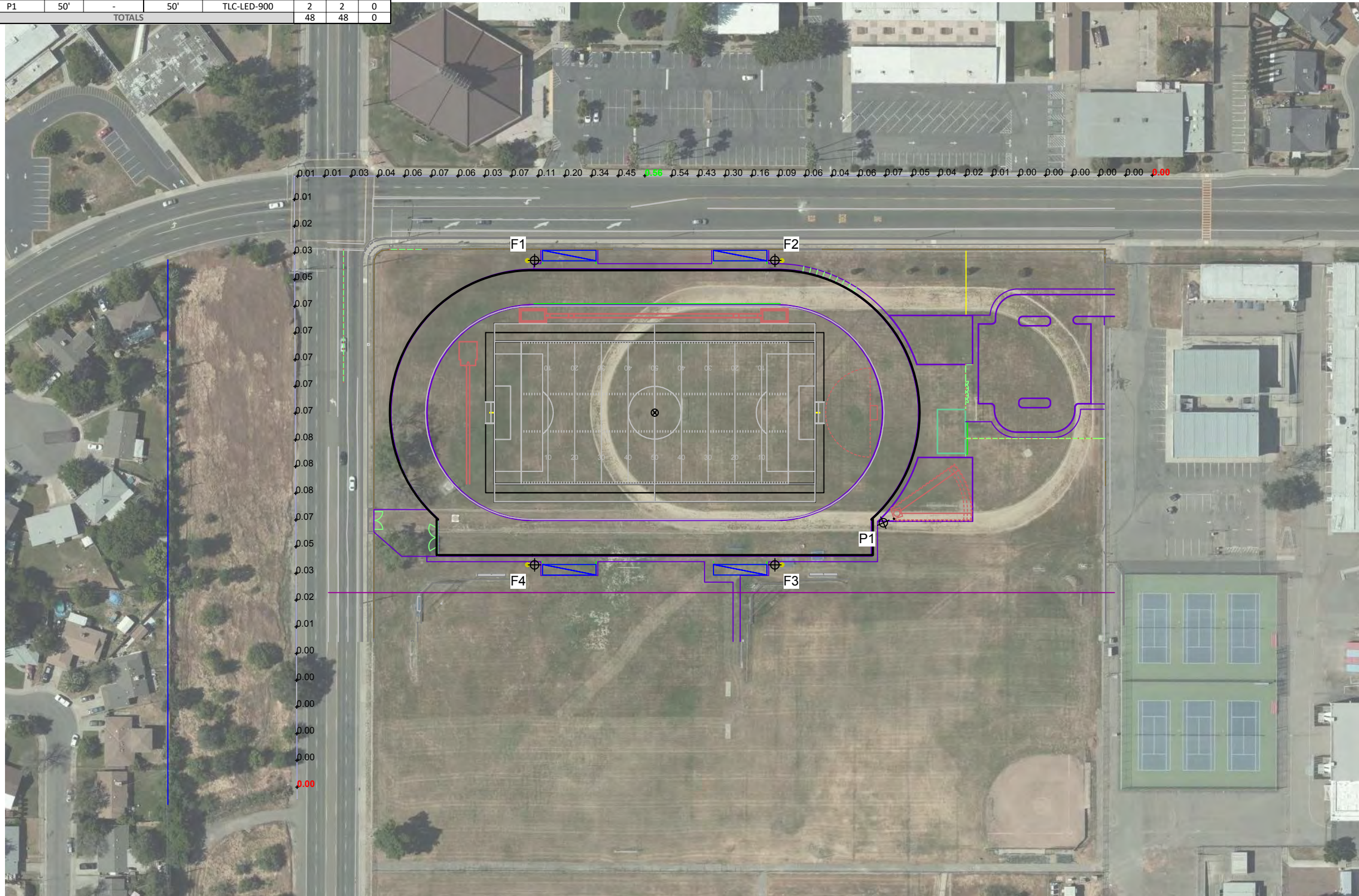
ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.0856
Maximum:	0.56
Minimum:	0.00
No. of Points:	56
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

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

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

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

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



SCALE IN FEET 1 : 120

0' 120' 240'

ENGINEERED DESIGN By: H.Sabers · File #208540B · 26-Mar-21

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



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## ILLUMINATION SUMMARY



# Highlands High School Sports Park

North Highlands, CA

EQUIPMENT LIST FOR AREAS SHOWN								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	0'	80'	TLC-LED-1500	8	8	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
2	F3-F4	80'	0'	80'	TLC-LED-1500	9	9	0
				15.48'	TLC-BT-575	2	2	0
				80'	TLC-LED-600	1	1	0
1	P1	50'	-	50'	TLC-LED-900	2	2	0
5	TOTALS					48	48	0

GRID SUMMARY	
Name:	Far Sidewalk
Spacing:	30.0'
Height:	3.0' above grade

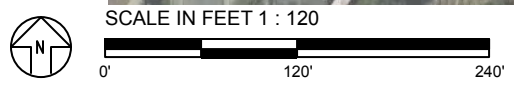
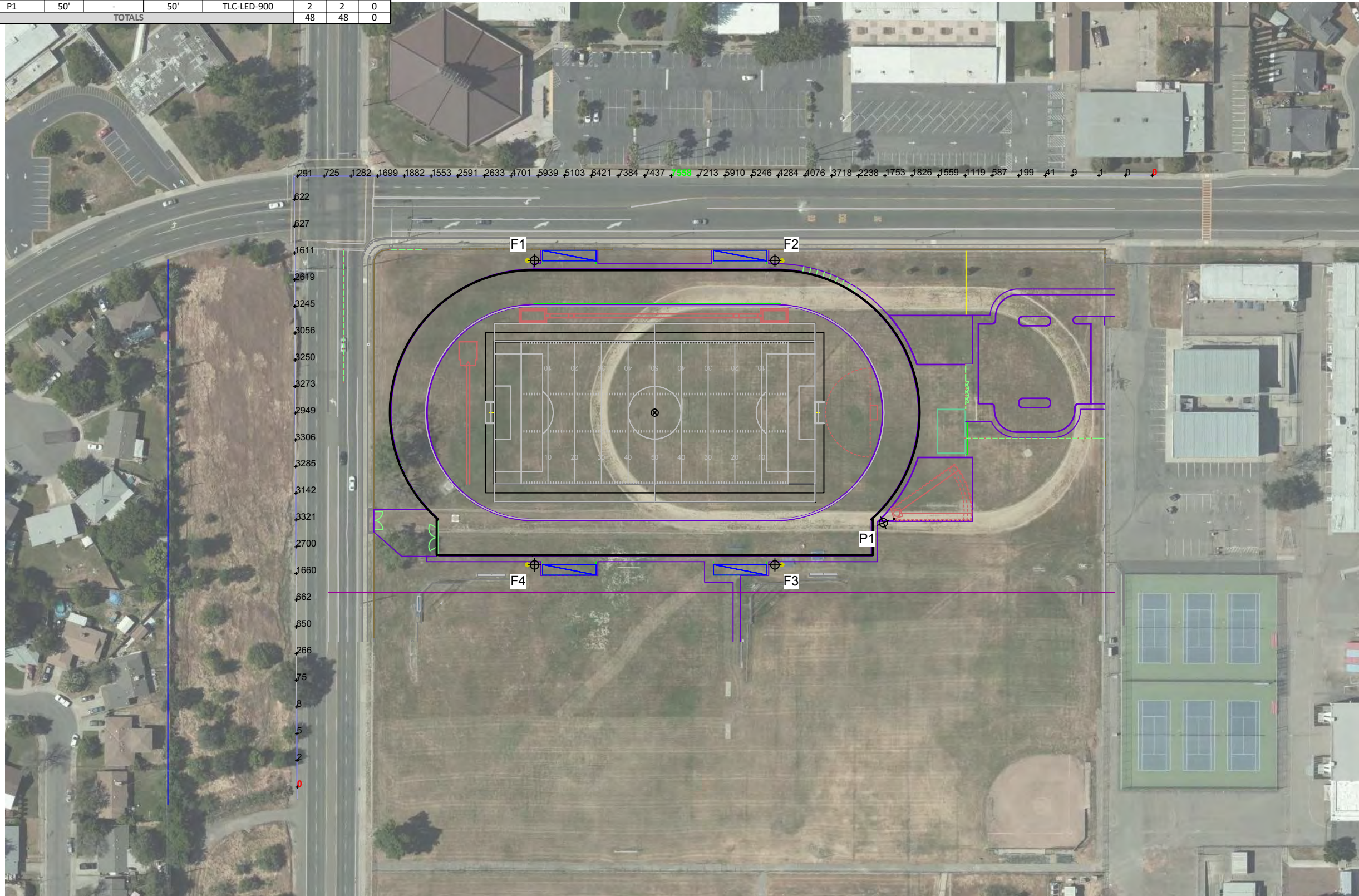
ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 2451.9763
Maximum:	7558.28
Minimum:	0.00
No. of Points:	56
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C
No. of Luminaires:	48
Total Load:	57.32 kW

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

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

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

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



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





# Highlands High School Sports Park

North Highlands, CA

## EQUIPMENT LAYOUT

### INCLUDES:

- Egress
- Football
- Shot Put Area
- Soccer
- Track

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

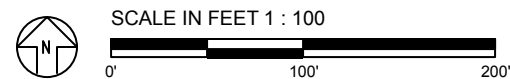
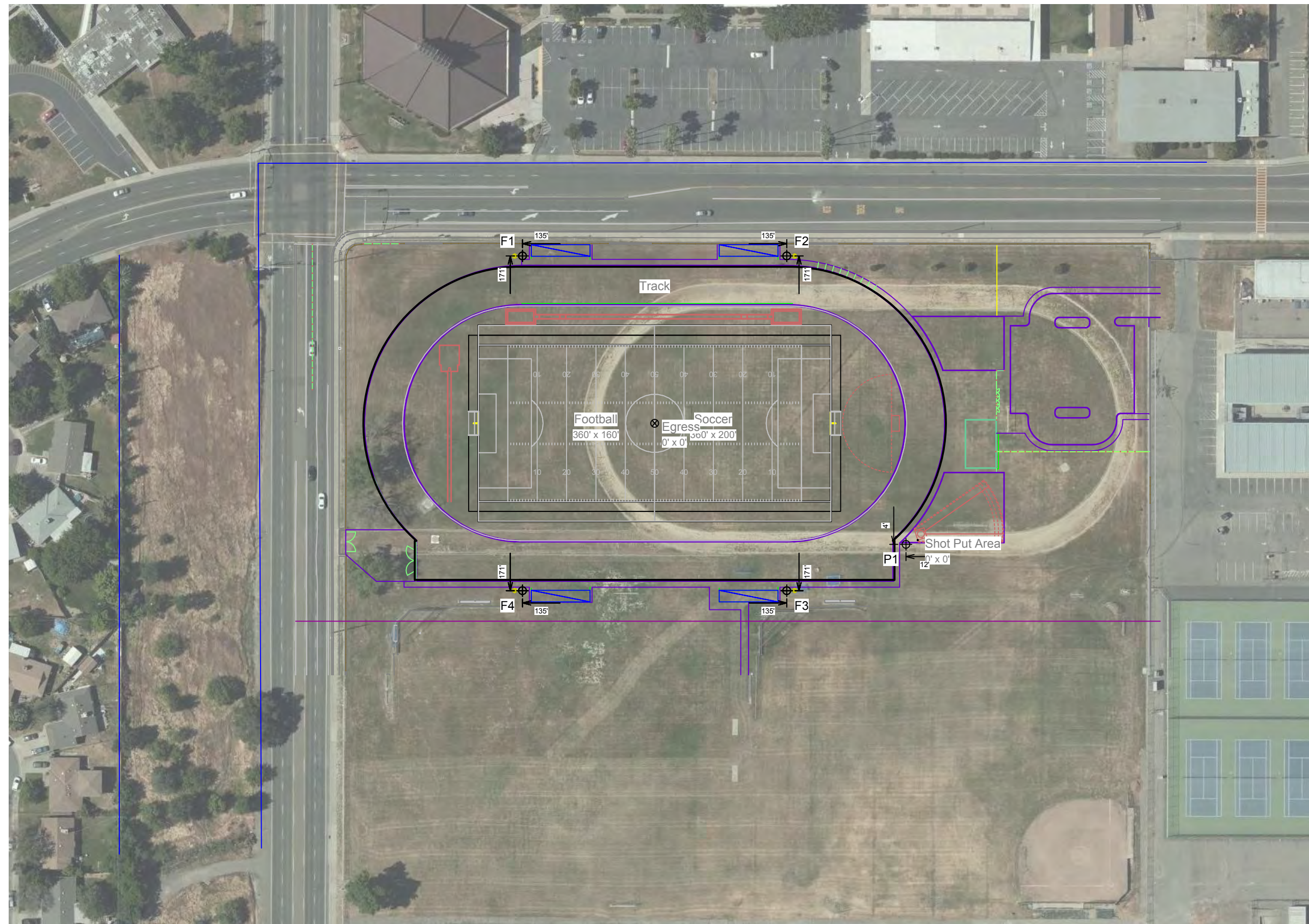
**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

## EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	Pole		Luminaires		
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	F1-F2	80'	-	80'	TLC-LED-1500	8
				15.5'	TLC-BT-575	2
				80'	TLC-LED-600	1
2	F3-F4	80'	-	80'	TLC-LED-1500	9
				15.5'	TLC-BT-575	2
				80'	TLC-LED-600	1
1	P1	50'	-	50'	TLC-LED-900	2
TOTALS						48

## SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast 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	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-600	3.4	3.2	3.0	2.6	2.0	1.9	1.5
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5



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





## **APPENDIX B: NOISE REPORT**



*Acoustical & Audiovisual Consultants*

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**NOISE IMPACT ASSESSMENT FOR:**

## **Highlands High School Sports Complex**

**North Highlands, CA**

RGD Project #: 21-003

**PREPARED FOR:**

Grassetti Environmental Consulting  
7008 Bristol Drive.  
Berkeley, CA 94705

**PREPARED BY:**

Alan Rosen  
Harold Goldberg, P.E.  
Anthony Wong

**DATE:**

9 August 2021

## 1. Executive Summary

The proposed project is the renovation of the track and practice field at Highlands High School. The project includes field lighting with a new PA sound system. This study addresses project noise impacts with consideration of the General Plan policies and Municipal Code requirements of the County of Sacramento, as well as the potential for the project to significantly increase noise levels.

Noise impacts are identified for the public address sound system, use of the field during events with maximum attendance and construction. Mitigation is proposed for each of the identified impact as follows: 1) For all activities using the PA system, there is a maximum PA noise level limit that must be met at the neighboring noise sensitive uses; 2) For events with maximum attendance, there is also a limit on hours of use; 3) For construction, there is a list of specific construction noise reduction measures to be implemented.

## 2. Environmental Noise Fundamentals

Noise can be defined as unwanted sound. It is commonly measured with an instrument called a sound level meter. The sound level meter captures the sound with a microphone and converts it into a number called a sound level. Sound levels are expressed in units of decibels.

To correlate the microphone signal to a level that corresponds to the way humans perceive noise, the A-weighting filter is used. A-weighting de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The use of A-weighting is required by most local General Plans as well as federal and state noise regulations (e.g. Caltrans, EPA, OSHA and HUD). The abbreviation dBA is sometimes used when the A-weighted sound level is reported.

Because of the time-varying nature of environmental sound, there are many descriptors that are used to quantify the sound level. Although one individual descriptor alone does not fully describe a particular noise environment, taken together, they can more accurately represent the noise environment. The maximum instantaneous noise level ( $L_{max}$ ) is often used to identify the loudness of a single event such as a car pass-by or airplane flyover.

To express the average noise level the  $L_{eq}$  (equivalent noise level) is used. The  $L_{eq}$  can be measured over any length of time but is typically reported for periods of 15 minutes to 1 hour. The background noise level (or residual noise level) is the sound level during the quietest moments. It is usually generated by steady sources such as distant freeway traffic. It can be quantified with a descriptor called the  $L_{90}$  which is the sound level exceeded 90 percent of the time.



There are other statistical descriptors that are used, often times as part of a local noise ordinance. These descriptors are used since local ordinances will have limits based on the number of minutes per hour that an intrusive sound may exceed a specified limit. For example, if a specified noise level cannot be exceeded more than 30 minutes in an hour that is referred to as the  $L_{50}$ . The  $L_{50}$  is also referred to as the median noise level.

To quantify the noise level over a 24-hour period, the Day/Night Average Sound Level (DNL or  $L_{dn}$ ) or Community Noise Equivalent Level (CNEL) is used. These descriptors are averages like the  $L_{eq}$  except they include a 10 dB penalty during nighttime hours (and a 5 dB penalty during evening hours in the CNEL) to account for peoples increased sensitivity during these hours. The CNEL and DNL are typically within one decibel of each other.

In environmental noise, a change in noise level of 3 dB is considered a just noticeable difference. A 5 dB change is clearly noticeable, but not dramatic. A 10 dB change is perceived as a halving or doubling in loudness.

Examples of common noise sources and their corresponding noise levels are provided in the following table.

Sound Source	Sound Pressure Level (dBA)
Air raid siren at 50 ft (threshold of pain) <sup>(1)</sup>	120
Maximum levels in audience at rock concerts <sup>(1)</sup>	110
Train horn at 100 ft <sup>(3)</sup>	103
On platform by passing subway train <sup>(1)</sup>	100
On sidewalk by passing heavy truck or bus <sup>(1)</sup>	90
Commuter train traveling at 79 mph at 100 ft <sup>(3)</sup>	88
On sidewalk by passing automobiles <sup>(1)</sup>	70
Typical gas and electric powered leaf blower at 50 ft <sup>(2)</sup>	68 - 71
Conversational speech <sup>(4)</sup>	60
Typical urban area background/busy office <sup>(1)</sup>	60
Typical suburban area background <sup>(1)</sup>	50
Quiet suburban area at night <sup>(1)</sup>	40
Typical rural area at night <sup>(1)</sup>	30
Isolated broadcast studio <sup>(1)</sup>	20
Audiometric (hearing testing) booth <sup>(1)</sup>	10
Threshold of hearing without hearing damage <sup>(1)</sup>	0

<sup>1</sup>Cowan, James P. *Handbook of Environmental Acoustics*. Van Nostrand Reinhold, 1994.

<sup>2</sup>California Environmental Protection Agency, Air Resources Board. Mobile Source Control Division (2000). A report to the California legislature on the potential health and environmental impacts of leaf blowers. Retrieved from <https://ww3.arb.ca.gov/msprog/leafblow/leafblow.htm>

<sup>3</sup>California High-Speed Rail Authority. (2018). *How do High-Speed Train Noise Levels Compare to Traditional Trains*. Retrieved from [https://www.hsr.ca.gov/communication/info\\_center/factsheets.aspx](https://www.hsr.ca.gov/communication/info_center/factsheets.aspx)

<sup>4</sup>Everest, Fredrick Alton, and Ken C. Pohlmann. *Master Handbook of Acoustics, 5<sup>th</sup> Ed.* McGraw-Hill, 2009.

Vibration is an oscillatory motion which can be described in terms of the displacement, velocity, or acceleration. Because the motion is oscillatory, there is no net movement. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the floor movement. The peak particle velocity (PPV) is the descriptor used in monitoring of construction vibration.

### 3. Acoustical Criteria

#### 3.1. General Plan Noise Element

The Noise Element of the Sacramento County General Plan (amended 2017) has goals and policies to assure the compatibility of a new development with the noise environment of the County. The applicable goals, policies and actions are below:

**GOAL 1:** To protect the existing and future citizens of Sacramento County from the harmful effects of exposure to excessive noise. More specifically, to protect existing noise-sensitive land uses from new uses that would generate noise levels which are incompatible with those uses, and to discourage new noise sensitive land uses from being developed near sources of high noise levels.

**GOAL 2:** To protect the economic base of Sacramento County by preventing the encroachment of noise-sensitive land uses into areas affected by existing noise-producing uses. More specifically, to recognize that noise is an inherent by-product of many land uses and to prevent new noise-sensitive land uses from being developed in areas affected by existing noise-producing uses.

**GOAL 3:** To provide the County with flexibility in the development of infill properties which may be located in elevated noise environments.

**GOAL 4:** To provide sufficient noise exposure information so that existing and potential future noise impacts may be effectively addressed in the land use planning and project review processes.

#### Traffic And Railroad Noise Sources

**NO-1.** The noise level standards for noise-sensitive areas of new uses affected by traffic or railroad noise sources in Sacramento County are shown by Table 1. Where the noise level standards of Table 1 are predicted to be exceeded at new uses proposed within Sacramento County which are affected by traffic or railroad noise, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 1 standards.

<b>Table 1</b> <b>Noise Standards for New Uses Affected by Traffic and Railroad Noise</b> <b>Sacramento County Noise Element</b>			
New Land Use	Sensitive <sup>1</sup> Outdoor Area - Ldn	Sensitive Interior <sup>2</sup> Area - Ldn	Notes
All Residential	65	45	5
Transient Lodging	65	45	3,5
Hospitals & Nursing Homes	65	45	3, 4, 5
Theaters & Auditoriums	---	35	3
Churches, Meeting Halls	65	40	3
Schools, Libraries, etc.	65	40	3
Office Buildings	65	45	3
Commercial Buildings	---	50	3
Playgrounds, Parks, etc.	70	---	
Industry	65	50	3

Notes:

1. Sensitive areas are defined in acoustic terminology section.
2. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
3. Where there are no sensitive exterior spaces proposed for these uses, only the interior noise level standard shall apply.
4. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
5. If this use is affected by railroad noise, a maximum (Lmax) noise level standard of 70 dB shall be applied to all sleeping rooms to reduce the potential for sleep disturbance during nighttime train passages.

### Non-Transportation Noise Source

**NO-5.** The interior and exterior noise level standards for noise-sensitive areas of new uses affected by existing non-transportation noise sources in Sacramento County are shown by Table 2. Where the noise level standards of Table 2 are predicted to be exceeded at a proposed noise-sensitive area due to existing non-transportation noise sources, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 2 standards within sensitive areas.

**NO-6.** Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 at existing noise-sensitive areas in the project vicinity.

<b>Table 2 Non-Transportation Noise Standards Sacramento County Noise Element Median (L50) / Maximum (Lmax)<sup>1</sup></b>				
Receiving Land Use	Outdoor Area <sup>2</sup>		Interior <sup>3</sup>	Notes
	Daytime	Nighttime	Day & Night	
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5, 6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60	6
Office Buildings	60 / 75	---	45 / 65	6
Commercial Buildings	---	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

**Notes:**

- The Table 2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table 2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
- Sensitive areas are defined acoustic terminology section.
- Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
- Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
- Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
- The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
- Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

**NO-7.** The “last use there” shall be responsible for noise mitigation. However, if a noise generating use is proposed adjacent to lands zoned for uses which may have sensitivity to noise, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the Table 2 standards at the property line of the generating use in anticipation of the future neighboring development.

**Construction Noise**

**NO-8.** Noise associated with construction activities shall adhere to the County Code requirements. Specifically, Section 6.68.090(e) addresses construction noise within the County

### Transportation Projects

**NO-9.** For capacity enhancing roadway or rail projects, or the construction of new roadways or railways, a noise analysis shall be prepared in accordance with the Table 3 noise standards of Table 1, the feasible methods of reducing noise to levels consistent with the Table 1 standards shall be analyzed as part of the noise analysis. In the case of existing residential uses, sensitive outdoor areas shall be mitigated to 60 dB, when possible, through the application of feasible methods to reduce noise. If 60 dB cannot be achieved after the application of all feasible methods of reducing noise, then noise levels up to 65 dB are allowed.

If pre-project traffic noise levels for existing uses already exceed the noise standards of Table 1 and the increase is significant as defined below, feasible methods of reducing noise to levels consistent with the Table 1 standards should be applied. In no case shall the long-term noise exposure above this level has the potential to result in hearing loss.

A significant increase is defined as follows:

Pre-Project Noise Environment ( $L_{dn}$ )	Significant Increase
Less than 60 dB	5+ dB
60 – 65 dB	3+ dB
Greater than 65 dB	1.5+ dB

### Exemptions

**NO-16.** The following sources of noise shall be exempt from the provisions of this Noise Element:

- a. Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours.
- b. Activities associated with events for which a permit has been obtained from the County.



**3.2. Sacramento County Municipal Code  
Chapter 6.68.070 Exterior Noise Standards.**

- a. The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all properties within a designated noise area.

Noise Area	County Zoning Districts	Time Period	Exterior Noise Standard
1	RE-1, RD-1, RE-2, RD-2, RE-3, RD-3, RD-4, R-1-A, RD-5, R-2, RD-10, R-2A, RD-20, R-3, R-D-30, RD-40, RM-1, RM-2, A-1-B, AR-1, A-2, AR-2, A-5, AR-5	7 a.m.—10 p.m.	55 dBA
		10 p.m.—7 a.m.	50dBA

- b. It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated noise area, to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	+ 5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

- c. Each of the noise limits specified in subdivision (b) of this section shall be reduced by five dBA for impulsive or simple tone noises, or for noises consisting of speech or music.
- d. If the ambient noise level exceeds that permitted by any of the first four noise-limit categories specified in subdivision (b), the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category. (SCC 490 § 2, 1981; SCC 254 § 1, 1976.)

**Chapter 6.68.090 Exemptions.**

The following activities shall be exempted from the provisions of this chapter:

- a. School bands, school athletic and school entertainment events;

- b. Outdoor gatherings, public dances, shows and sporting and entertainment events, provided said events are conducted pursuant to a license or permit by the County;
- c. Activities conducted on parks, public playgrounds and school grounds, provided such parks, playgrounds and school grounds are owned and operated by a public entity or private school;
- d. Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of eight p.m. and six a.m. on weekdays and Friday commencing at eight p.m. through and including seven a.m. on Saturday; Saturdays commencing at eight p.m. through and including seven a.m. on the next following Sunday and on each Sunday after the hour of eight p.m. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after eight p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner;

#### Chapter 6.68.110 Schools, Hospitals and Churches.

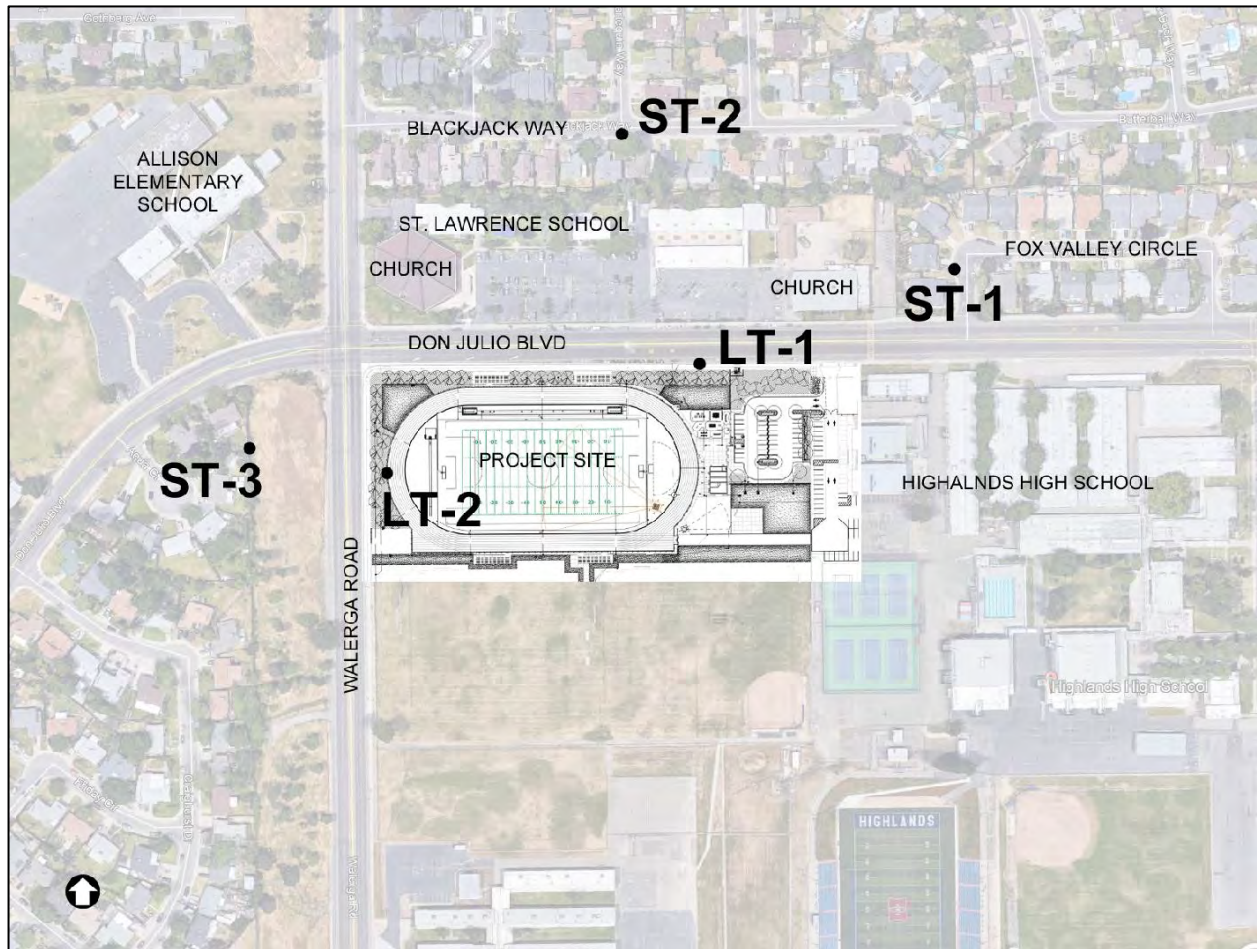
It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church, while the same is in use, to exceed the noise standards specified in Section 6.68.070 or to create any noise which unreasonably interferes with the use of such institution or unreasonably disturbs or annoys patients in the hospital. In any disputed case, interfering noise which is ten dBA or more, greater than the ambient noise level at the building, shall be deemed excessive and unlawful. (SCC 254 § 1, 1976.)



#### 4. Existing Noise Environment

To quantify ambient noise levels, two continuous, long-term (2-day) noise measurement and three short-term (15-minute) noise measurements were made in the project vicinity. The long-term monitors began on Wednesday, 21 April 2021 and ended on Friday, 23 April 2021. The noise measurement locations are shown in Figure 1.

**Figure 1: Noise Measurement Locations**

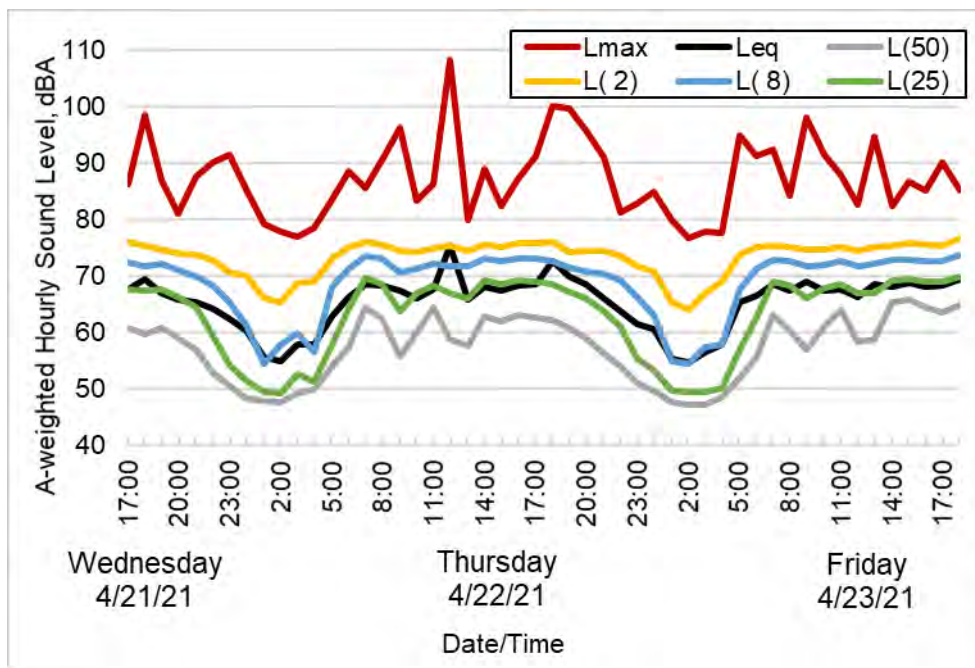


The long-term noise measurement at location LT-1 was made on a utility pole along Don Julio Boulevard at 12 feet above ground. The long-term noise measurement at location LT-2 was made on a tree at the western side of the project site along Walerga Road at approximately 10 feet above ground.

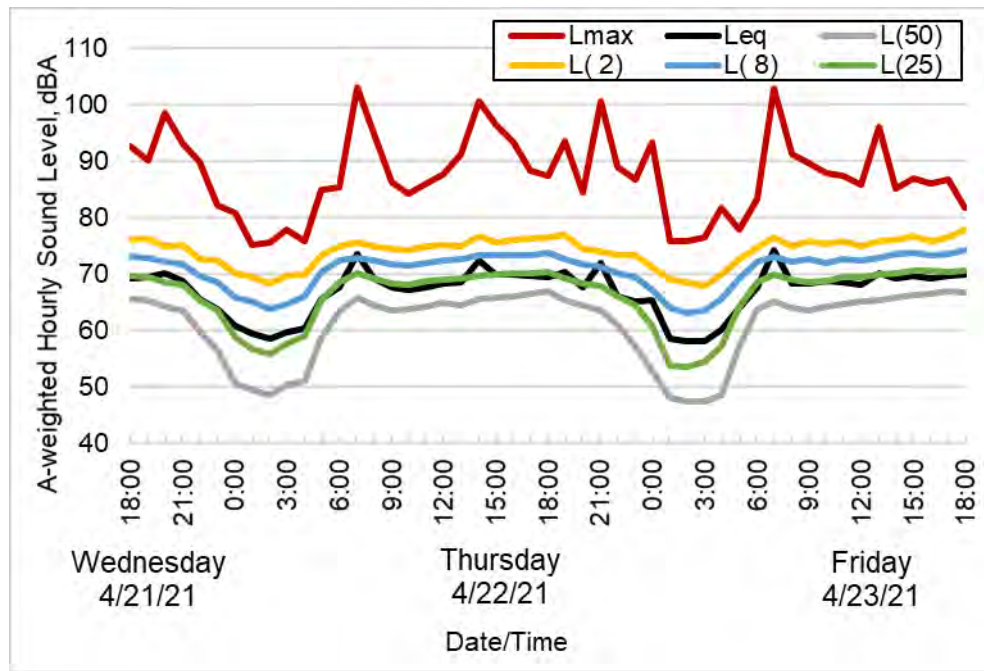
The three short-term noise measurements were made in the surrounding neighborhoods. The short-term noise measurement at location ST-1 was made at the homes along Fox Valley Circle at 5 feet above ground. The short-term noise measurement at location ST-2 was made at the intersection of Blackjack Way and Harlequin Way at 5 feet above ground. The short-term noise measurement at location ST-3 was made near the existing homes to the west of the project site, across Walerga Road.

Figures 2 and 3 show a graph of the long-term measurement results at LT-1 and LT-2, respectively. A summary of the short-term measurements is provided in Table 1. The sound measurements were made with Larson-Davis Model 820 and Larson-Davis Model 824 sound level meters meeting Type 1 specifications (ANSI S1.4). The sound level meter calibration was checked with an acoustical calibrator (Larson-Davis Model Cal200).

**Figure 2: Long-Term Noise Measurement Results, Location LT-1  
CNEL 71 dBA**



**Figure 3: Long-Term Noise Measurement Results, Location LT-2**  
**CNEL 72 dBA**



**Table 1: Short-Term Noise Measurement Results – 21 April 2021**

Location		Time	A-weighted Sound Level, dBA					CNEL*	L <sub>max</sub>
			L <sub>eq</sub>	L <sub>2</sub>	L <sub>8</sub>	L <sub>50</sub>			
ST-1	Fox Valley Circle	6:22 PM – 6:38 PM	65 (59 w/o loud car)	67	62	53	63	Cars: 62 – 68 typical, 91 Distant brief landscaping: 53 – 56	
ST-2	Blackjack Way	6:44 PM – 6:59 PM	59 54 (w/o loud car)	66	56	45	58	Cars: 53, 65, 66, 84 Jet: 54 Helicopter: 70	
ST-3	West of project site, across Walerga Road	7:07 PM – 7:23 PM	63	71	66	60	66	Cars: 60 – 72, 79 Heavy Truck slow cruise: 62	

\*CNEL based on comparison with simultaneous measurement at the long-term location. For ST-1 and ST-2, noise from a loud car passby was excluded in the calculation of the CNEL.

#### 4.1. Coronavirus Pandemic

Based on our observations and experience with other projects, it appears that the coronavirus pandemic has affected traffic volumes on roadways in the Sacramento Area. Information from the school's website shows that Highlands High School was operating on a "hybrid" bell schedule due to COVID-19 which incorporates virtual learning to limit in-person learning. As a result of limited in-person learning and the COVID pandemic, the measured ambient noise levels are likely lower compared to before the COVID pandemic. According to the project's traffic engineer<sup>1</sup>, traffic volumes are expected to be higher once the school is fully open. However, not enough detailed current and prior traffic volume data is available to fully quantify the degree to which the ambient noise levels measured during the ambient noise survey underrepresent the pre-pandemic traffic noise levels. Since the impact analysis uses the measured ambient noise levels without adjustment, it tends to result in a conservative assessment of increase in noise due to the project.

### 5. Project Generated Noise

#### 5.1. Computer Modeling

The SoundPLAN computer program was used to model and predict noise levels from the loudspeakers and field noise at measurement locations and additional points of interest in the surrounding residential areas. SoundPLAN is a 3D environmental acoustics modeling software package. The SoundPLAN model takes into account attenuation from distance, terrain and intervening buildings.

#### 5.2. PA System

According to the project description, the project's PA system would use standard sound system components and be designed to provide sound coverage for the seating and competition areas. For the purposes of this analysis, it is assumed that there will be two loudspeakers installed on each of the four light poles by the bleacher areas. To provide adequate sound coverage we assumed that the sound system would be designed and used to provide a design sound level of 85 dBA in the bleachers and 75 dBA on the field.

#### 5.3. Noise from Future Field Activities

According to the project description and information from the school, the practice field and track areas would typically be used by soccer games/practices, school P.E. classes, cross-country training, track and field meets/practices, and football

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<sup>1</sup>Ho, Pang. PHA Transportation Consultants. "Re: Grant and Highlands Noise." Email to Anthony Wong.



practices. There could be up to 10 full capacity events (496 spectators) per year and 30 to 50 community events with lower attendance. There would be no change in student enrollment. In general, there would be no change in the other sports facilities at the school.

In order to evaluate the impact of the project on the neighbors surrounding the school, the data acquired from other similar projects were used to determine future noise levels emanating from the proposed project. The characteristics and assumptions used for calculating project related noise levels for each activity are discussed in the following sections. Table 2 summarizes the existing and proposed field usage.

### 5.3.1. Soccer

Soccer games currently occur at the stadium whereas soccer practices occur at the existing field. Soccer games are currently scheduled from 4:00 p.m. to 10:00 p.m. and practices are scheduled from 3:30 p.m. to 9:30 p.m.

With the project, soccer games and practices would be relocated to the new field but the hours of the soccer games and practices would not change; 20 soccer games per year and 100 soccer practices per year.

To determine the noise associated with soccer games, noise measurements were taken during a soccer game at Grant Union High School on 23 April 2021. During the soccer game, only the players and coaches were allowed to be in the stadium due to COVID related restrictions. At the top of the bleachers, approximately 150 feet from the center of the field, the typical maximum instantaneous noise levels ( $L_{max}$ ) were 58 to 70 dBA from player voices, 67 to 72 dBA from the coaches, and  $L_{max}$  67 dBA from whistles near the center field.

To account for noise from the expected 100 spectators, noise measurements from a 2016 football game at San Marin High School in Novato, CA with approximately 350 spectators was used. An adjustment was included to account for the difference in number of spectators. Specifically, the crowd noise was adjusted using a standard rate of 3 dBA for each doubling of crowd size.

To determine the noise associated with soccer practices, noise measurements from a 2019 soccer practice at Mills High School in Millbrae was used. The soccer practice occurred on a field with a layout similar to the project. During the soccer practice, there were approximately 50 people on the field. Voices of students generated a typical  $L_{max}$  of 56 to 63 dBA at the bleachers which were approximately 130 feet from the center of the field.

### 5.3.2. Physical Education Classes

The Physical Education department of Highlands High School and Creative Connections Arts Academy (CCAA) would use the new field for their physical education (P.E) classes during school hours. To quantify noise from P.E. classes, we used noise measurements from a soccer practice as discussed above with an adjustment for a class size of 30 students using a rate of 3 dB per doubling of people.

### 5.3.3. Track and Field

Currently, there is no usable facility for track and field meets or practices at the school. With the project, the new track and field would be used for meets as well as practices. There would be 35 to 50 student athletes and a crowd size of up to 50 for track meets.

Track and field meets are scheduled from 2 p.m. to 8 p.m., five times per year, and would use the PA system. Track and field practices are scheduled from 2 p.m. to 4 p.m., 60 times per year and would not use the PA system.

Soccer game noise levels were used to model track and field meets and soccer practice noise levels used to model track and field practices. An adjustment of 3 dB per doubling of spectators was included to account for the difference in number of spectators.

### 5.3.4. Cross-country Training

Cross-country training (practices) currently occurs at the existing field and will continue to occur at the field with the project. The hours and number of practices per year are assumed to be the same as those for current track and field practices. The project is not expected to change the hours and number of practices.

### 5.3.5. Football Practices

Football practices currently occur at the stadium but practices may occasionally be relocated to the new practice field with the project. Each practice has between 45 to 55 students and is assumed to occur for no more than four hours during the daytime. For the purposes of assessing impact, this report assumes up to 100 practices per year at the new field. To determine the noise level from football practices, we used the noise measurements from a soccer practice as discussed above.

### 5.3.6. Full Capacity Events

According to the project description there could be up to 10 large school events per year (sports tournaments, student rallies, etc.) with crowd size that could reach the bleacher capacity of 496<sup>2</sup>. These events will use the PA system.

For the purposes of this analysis, we modeled a full capacity event as a soccer game with an adjustment to account for 496 spectators. Each full capacity event is assumed to last for six hours.

### 5.3.7. Community Events

According to the project description, there would be 30 to 50 community use events between the daytime hours of 8 a.m. to 10 p.m. Community use is expected to be similar to the school usage but could include sport clinics/camps for various other sports such as softball, baseball, ultimate frisbee and youth football with 100 to 200 spectators. For the purpose of this report, community use includes competition games with spectators and practices with minimal spectators, similar to soccer games/practices.

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<sup>2</sup> Greystone West Company, Email from Richard Grassetto to Alan Rosen re: Phone call from Chris Zuniga, July 29, 2021

**Table 2: Field Usage**

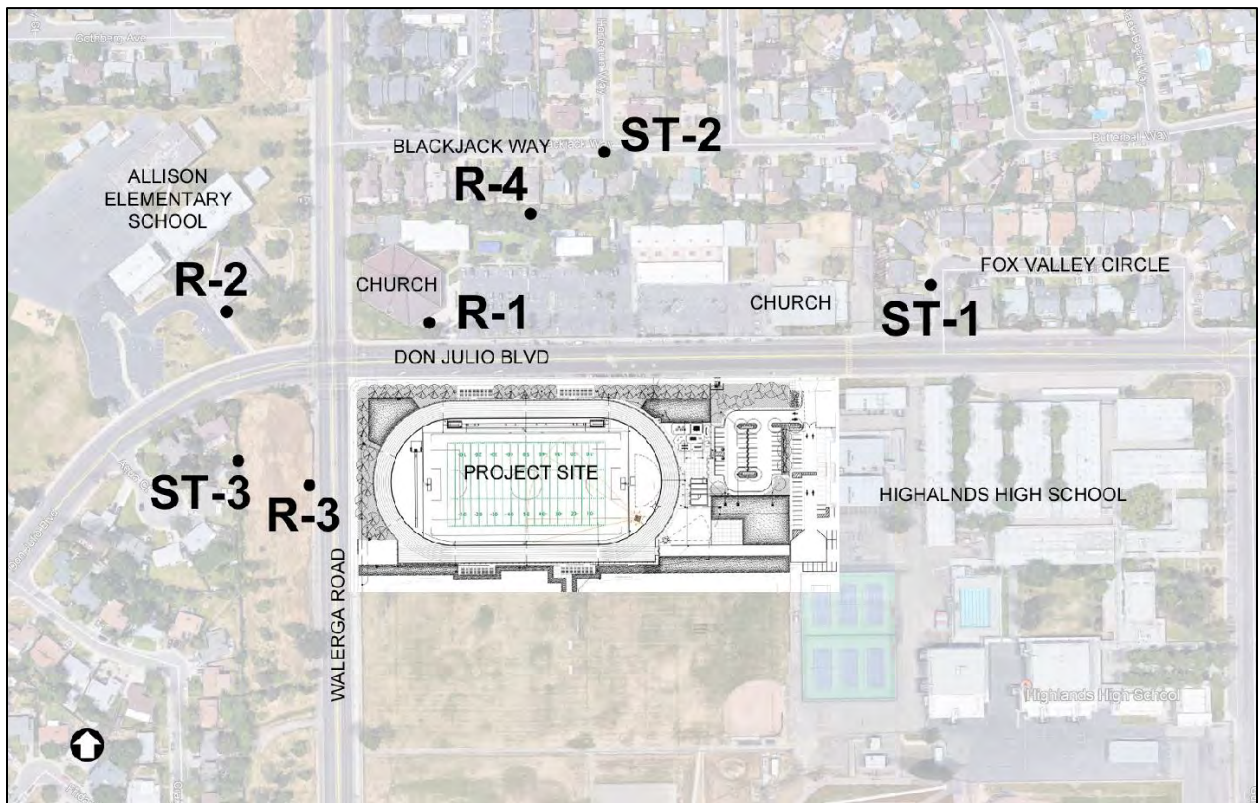
Activities	Existing					With Project					
	Location	# of players	# of spectators	Time of Day	Events per year	Location	# of players	# of spectators	Time of Day	Events per year	Events with PA use
Soccer Game	Stadium	40	50 - 100	4 PM – 10 PM	20	New Field	40	50 – 100	4 PM – 10 PM	20	20
Soccer Practice	Existing Field	40	10	3:30 PM – 9 PM	100	New Field	40	10	3:30 PM – 9 PM	100	0
P.E. Classes	Existing Track/Field	30	0	During school day	180	New Track/Field	30	0	During school day	180	0
Track and Field Meets	N/A	----	----	----	----	New Track/Field	35 - 50	50	2 PM – 8 PM	5	5
Track and Field Practice	N/A	----	----	----	----	New Track/Field	35 - 50	10	2 PM – 4 PM	60	0
Cross-county Training	Existing Field	44 - 58	0	2 PM – 4 PM	60	New Track/Field	44 - 58	0	2 PM – 4 PM	60	0
Football Practice	Stadium	45 – 55	0	3 PM – 7 PM	100	New Field	45 – 55	0	3 PM – 7 PM	100	0
Full Capacity Events	N/A	----	----	----	----	New Field	40	496	4 PM – 10 PM	10	10
Community Events - Games	N/A	----	----	----	----	New Field	40	100 – 200	4 PM – 10 PM	10	10
Community Events - Practices	N/A	----	----	----	----	New Field	40	10	3:30 PM – 9 PM	40	0



#### 5.4. Noise Assessment Locations

Figure 4 shows the noise assessment locations that represent noise sensitive uses (residences, church and schools) near the project. Locations ST-1 to ST-3 represent receivers at the short-term noise measurement locations. Location R-1 represents the St. Lawrence the Martyr Catholic church across Don Julio Boulevard. Location R-2 represents Allison Elementary School. Location R-3 represents the currently vacant site across Walerga Road zoned both “RD-20” (Multiple Family Residential) and “BP” (Business and Professional Office). Location R-4 represents the backyards of the homes along Blackjack Way and the St. Lawrence School.

**Figure 4: Noise Assessment Locations**



## 5.5. Noise Modeling Results

Table 3 shows the calculated hourly  $L_{eq}$  noise levels from the activities related to the project at the various receiver locations. The noise levels include contributions of all of the noise sources at the field including players and coaches on the field and spectators in the bleachers. Noise from the PA usage is included, if applicable. Table 3 also shows the existing ambient peak hour  $L_{eq}$  between 8 a.m. and 10 p.m. at each of the receiver locations due to ambient noise sources such as local traffic. The  $L_{eq}$  during evening hours would be up to 7 dBA less.

**Table 3:  $L_{eq}$  Due to Field Activities**

Receiver	Hourly $L_{eq}$ , dBA										
	Soccer Game	Soccer Practice	Track Meet	Track Practice	Cross County Training	P.E. Classes	Football Practice	Community Use - Game	Community Use - Practice	Full Capacity Event	AMBIENT (Peak hour $L_{eq}$ )
R-1	63	48	61	49	50	46	48	64	48	67	71
R-2	58	46	57	46	46	43	46	60	46	63	64
R-3	60	47	59	49	50	45	47	61	47	64	73
R-4	60	48	59	48	48	45	48	62	48	65	65
ST-1	47	33	46	33	34	31	33	48	33	51	66
ST-2	53	38	52	38	39	36	38	54	38	57	60
ST-3	57	43	55	44	44	41	43	58	43	61	64

When project noise levels are greater than the ambient noise levels, the project noise will be clearly noticeable and tend to dominate the noise environment. When ambient noise levels are greater than project noise levels, the project noise may be audible but would tend to blend into the ambient noise environment.

## 6. Thresholds of Significance used in this Report

According to Appendix G of the *CEQA Guidelines*, a proposed project could have a significant environmental impact if it would result in:

- a. *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.*
- b. *Generation of excessive groundborne vibration or groundborne noise levels.*
- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.*

CEQA does not provide quantitative noise level limits to use as thresholds of significance for a project. Instead, it points to the potential for a project to significantly increase existing noise levels above adopted standards such a local ordinance or general plan, or adopted standards of other agencies. Within this framework, the following thresholds are adopted for this project.

*Threshold 1: A significant noise impact would occur if the noise from the new PA system would exceed 70 dBA at the neighboring noise sensitive uses.*

Discussion: The County General Plan's non-transportation noise standards (GP Table 2) has a maximum outdoor noise standard of  $L_{max}$  75 dBA at receiving residential land uses, schools, and churches. The  $L_{max}$  standard is reduced by 5 dB for sounds consisting primarily of speech or music.

*Threshold 2: A significant impact would occur if the daily CNEL:*

- increases by more than 5 dBA and the future CNEL is less than 60 dBA, or
- increases by more than 3 dBA and the future CNEL is 60 dBA or greater and less than 65 dBA, or
- increases by more than 1.5 dBA and the future CNEL is 65 dBA or greater.

Discussion: For the purposes of assessing impact due to increased noise from the project, this report uses thresholds based on a FAA Draft Policy discussion screening and impact thresholds for increases in aircraft noise. This is also consistent with the Sacramento County General Plan's thresholds of noise increase for transportation projects (Policy NO-9). In order to evaluate the potential impact that would occur as a result of peoples' sensitivity to evening noise, this report considers the increase in the daily CNEL. The CNEL includes a 5 dBA "penalty" which is added to noise during evening hours (7 pm – 10 pm) to account for peoples'

increased sensitivity during the evening. The existing and future daily CNEL due to project-related activity was then added to the ambient CNEL to determine a total CNEL for both existing and future conditions. Analysis of a day with a sports game/community event is used since they are generally louder than practices.

*Threshold 3: A significant impact would occur if the annual average CNEL:*

- increases by more than 5 dBA and the future CNEL is less than 60 dBA, or
- increases by more than 3 dBA and the future CNEL is 60 dBA or greater and less than 65 dBA, or
- increases by more than 1.5 dBA and the future CNEL is 65 dBA or greater.

Discussion: While the CNEL increase on a game day is helpful to understand potential impact on a daily basis, it does not necessarily provide a measure of the impact based on the frequency of events since they will be happening on the field throughout the year.

In order to evaluate the potential impact of noise from all field related activities during the course of a year, this report considers the increase in the annual average CNEL that would result from all games, practices and events attributed to the project.

In this case, an annual average CNEL from each noise source was calculated for existing and future conditions based on Table 2. The existing and future annual average CNEL for each source was then added to the ambient CNEL to determine a total CNEL for existing and future conditions.

*Threshold 4: A significant impact would occur if the project results in the generation of construction noise outside the allowable hours per County Municipal Code and exceeds the exterior noise standards per County Municipal Code.*

Discussion: Per Municipal Code Section 6.68.090.e, construction noise is exempted from the exterior noise standards of Section 6.68.070 provided that construction activities do not take place between the hours of 8 p.m. and 6 a.m. on weekdays, between Friday 8 p.m. to Saturday 7 a.m., between Saturday 8 p.m. to Sunday 7 a.m. and after 8 p.m. on Sundays.

*Threshold 5: A significant impact would occur if the project results in the generation of excessive groundborne vibration or groundborne noise.*

Discussion: The operation of the project (i.e. activities on the field) is not expected to include groundborne vibration sources. However, construction activities will generate groundborne vibration.

Neither CEQA, County, nor the State specifies acceptable vibration levels from construction activities. For the purposes of this assessment, the guideline criteria for building damage recommended by Caltrans<sup>3</sup> is used. The construction vibration damage criteria range from a Peak Particle Velocity (PPV) of 0.5 inches/sec for new residential and modern commercial structures.

*Threshold 6: A significant impact would occur if the project would expose people residing or working in the project area to excessive aircraft noise levels.*

Discussion: According to Sacramento County General Plan's Land Use Compatibility for Aircraft Noise (General Plan Table 4), schools exposed to an aircraft CNEL of 65 dBA or less are considered "Yes" or compatible.

## 7. Impacts and Mitigation Measures

The following section describes potential impacts based on a comparison of project generated noise with adopted thresholds of significance. Where impacts are identified, feasible noise mitigation measures are provided. For ease of identification, any receptor exposed to a significant impact is identified in the following tables with "**bold**" numbers.

### Impact 1: Noise from PA Sound System exceeds $L_{max}$ 70 dBA at sensitive receivers

Based on the SoundPLAN model results for the PA system, as described in Section 5.2, noise from the PA sound system has the potential to exceed an  $L_{max}$  of 70 dBA at noise sensitive neighboring land uses (R-1, R-2, R-3, and R-4). This includes 15 homes, the church and two schools across Don Julio Blvd. It also includes the undeveloped residentially zoned parcel west of Walerga Road. This is a potentially significant impact.

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<sup>3</sup> Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013.



It is feasible to design a sound system that can be limited to not exceed an  $L_{max}$  of 70 dBA at the neighboring noise sensitive uses. Therefore, this is a less than significant impact with mitigation measure NO-1.

#### Mitigation Measure NO-1

The PA system must be designed to not exceed a  $L_{max}$  of 70 dBA at the neighboring noise sensitive land uses (R-1, R-2, R-3, and R-4). This would require the installation of a distributing sound system with highly directional and carefully aimed loudspeakers around the bleachers and field. The distance between the loudspeakers and the coverage area should be minimized to reduce spill to the community. In addition, the PA system output volume should be regulated by an audio processor with the ability to limit the audio output levels (e.g. compressor/limiter).

#### Impact 2: Daily CNEL Increase Due to Field and PA Noise Exceeds Thresholds

Tables 4 to 6 show the change in CNEL for a soccer game day, community use game day, and a full capacity event day due to the project. Noise levels exceeding the significance thresholds are in **bold**.

The calculations include contribution from future traffic to and from the school site. According to the project's traffic engineer, there would be 20 incoming and outgoing trips due to typical game days and 25 incoming and outgoing trips due to community events. For the full capacity event with 496 spectators, a vehicle occupancy between 2 to 4 persons per vehicle can be assumed. Based on these traffic volumes, an hourly traffic noise level is calculated using the Federal Highway Administration's Traffic Noise Model (TNM 2.5). The hourly traffic noise level is then converted to a CNEL level by assuming generated traffic would occur an hour before and an hour after the event.

Table 4 shows that the increase in daily average CNEL from a soccer game day would be less than 1 dBA at all locations except location R-4 where the increase is 1.1 dBA and the total CNEL is less than 65 dBA. Table 5 also shows that the increase in daily average CNEL from a community use game day would be less than 1 dBA at all locations except location R-4 where the increase is 1.7 dBA and the total CNEL remains less than 65 dBA. Since the increases in daily CNEL on a soccer game day and on a community game day are less than the threshold of significance, noise from these events is less than significant.

**Table 4: Increase in CNEL on a Soccer Game Day**

Locations	Sources	Daily CNEL, dBA		Increase
		Existing	with Project	
R-1	Ambient	68.7	68.7	
	Soccer Game	45.5	59.7	
	Project-Generated Traffic	--	42.2	
	Total	68.7	69.2	0.5
R-2	Ambient	65.1	65.1	
	Soccer Game	43.4	55.1	
	Project-Generated Traffic	--	39.7	
	Total	65.1	65.5	0.4
R-3	Ambient	74.2	74.2	
	Soccer Game	46.0	56.8	
	Project-Generated Traffic	--	45.5	
	Total	74.2	74.3	0.1
R-4	Ambient	62.6	62.6	
	Soccer Game	46.6	57.5	
	Project-Generated Traffic	--	35.6	
	Total	62.7	63.8	1.1
ST-1	Ambient	63.4	63.4	
	Soccer Game	44.9	43.7	
	Project-Generated Traffic	--	39.3	
	Total	63.5	63.5	< 0.1
ST-2	Ambient	58.4	58.4	
	Soccer Game	35.8	49.9	
	Project-Generated Traffic	--	33.9	
	Total	58.4	59.0	0.6
ST-3	Ambient	65.5	65.5	
	Soccer Game	42.1	50.3	
	Project-Generated Traffic	--	37.0	
	Total	65.5	65.6	0.1

**Table 5: Increase in CNEL on a Community Use Game Day**

Locations	Sources	Daily CNEL, dBA		Increase
		Existing	with Project	
R-1	Ambient	68.7	68.7	
	Community Use - Game	--	61.5	
	Project-Generated Traffic	--	43.2	
	Total	68.7	69.4	0.7
R-2	Ambient	65.1	65.1	
	Community Use - Game	--	56.8	
	Project-Generated Traffic	--	40.7	
	Total	65.1	65.7	0.6
R-3	Ambient	74.2	74.2	
	Community Use - Game	--	58.5	
	Project-Generated Traffic	--	46.5	
	Total	74.2	74.3	0.1
R-4	Ambient	62.6	62.6	
	Community Use - Game	--	59.3	
	Project-Generated Traffic	--	36.6	
	Total	62.6	64.3	1.7
ST-1	Ambient	63.4	63.4	
	Community Use - Game	--	45.2	
	Project-Generated Traffic	--	40.3	
	Total	63.4	63.5	0.1
ST-2	Ambient	58.4	58.4	
	Community Use - Game	--	51.3	
	Project-Generated Traffic	--	34.9	
	Total	58.4	59.2	0.8
ST-3	Ambient	65.5	65.5	
	Community Use - Game	--	55.4	
	Project-Generated Traffic	--	38.0	
	Total	65.5	65.9	0.4



Table 6 shows that a full capacity event with 496 people (occurring between 4 p.m. to 10 p.m.) would increase the daily CNEL from by up to 2.9 dBA. For locations R-1 to R-4, and ST-3, where the noise levels with the project is a CNEL of 65 dBA or greater, the threshold of significance is an increase in the CNEL of 1.5 dBA. For locations ST-1 and ST-2 where the noise levels with the project is between CNEL 60 to 65 dBA, the threshold of significance is an increase in the CNEL of 3 dBA.

Per Table 6, the calculated increase in CNEL would exceed the threshold of significance at locations R-1 and R-4. This significant increase would affect 18 homes, the church and school. Therefore, the increase in noise due to full capacity events is considered potentially significant.

**Table 6: Increase in CNEL on a Full Capacity Event Day**

Locations	Sources	Daily CNEL, dBA		
		Existing	with Project	Increase
R-1	Ambient	68.7	68.7	
	Full Capacity Event	--	64.6	
	Project-Generated Traffic	--	52.0	
	Total	68.7	70.2	<b>1.5</b>
R-2	Ambient	65.1	65.1	
	Full Capacity Event	--	59.8	
	Project-Generated Traffic	--	49.5	
	Total	65.1	66.3	1.2
R-3	Ambient	74.2	74.2	
	Full Capacity Event	--	61.4	
	Project-Generated Traffic	--	55.4	
	Total	74.2	74.5	0.3
R-4	Ambient	62.6	62.6	
	Full Capacity Event	--	62.3	
	Project-Generated Traffic	--	45.4	
	Total	62.6	65.5	<b>2.9</b>
ST-1	Ambient	63.4	63.4	
	Full Capacity Event	--	48.0	
	Project-Generated Traffic	--	49.1	
	Total	63.4	63.7	0.3
ST-2	Ambient	58.4	58.4	
	Full Capacity Event	--	50.4	
	Project-Generated Traffic	--	43.7	
	Total	58.4	59.2	0.8
ST-3	Ambient	65.5	65.5	
	Full Capacity Event	--	58.3	
	Project-Generated Traffic	--	46.8	
	Total	65.5	66.3	0.8

For the purpose of this report, the calculated results in Tables 4, 5, and 6 do not include Mitigation Measure NO-1. Incorporation of Mitigation Measure NO-1 would reduce the increases shown in Table 4 to 6 but would not be sufficient to reduce the increase in CNEL below the threshold of significance.

Limiting event hours in the evening and/or the total event hours of full capacity events would reduce the increase in CNEL to below the threshold of significance. With Mitigation Measure NO-2, this is a less than significant impact with mitigation.

**Mitigation Measure NO-2**

Limit full-capacity events to no more than a total of seven hours and ending before 9 p.m.

**Impact 3: Average Annual CNEL Increase Due to Field and PA Noise Exceeds Thresholds**

Table 7 shows the change in the annual average CNEL as a result of the project. The calculated levels show that the annual average CNEL would increase by 0.4 dBA or less at all receiver locations and this is considered less than significant.

**Table 7: Increase in Annual Average CNEL from All Field Activities**

Locations	Sources	Annual CNEL, dBA		
		Existing	with Project	Increase
R-1	Ambient	68.7	68.7	
	Soccer Games	32.9	47.1	
	Soccer Practices	36.4	38.7	
	Track And Field Meets	--	37.9	
	Track And Field Practices	--	30.4	
	Cross County Training	28.0	31.0	
	P.E.	36.0	37.6	
	Football Practices	23.9	34.8	
	Full Capacity Events	--	49.0	
	Community Events	--	52.9	
	Total	68.7	68.9	0.2

**Table 7 (cont.): Increase in Annual Average CNEL from All Field Activities**

Locations	Sources	Annual CNEL, dBA		
		Existing	with Project	Increase
R-2	Ambient	65.1	65.1	
	Soccer Games	30.8	42.4	
	Soccer Practices	34.1	36.1	
	Track And Field Meets	--	33.3	
	Track And Field Practices	--	27.1	
	Cross County Training	25.4	27.7	
	P.E.	33.4	35.0	
	Football Practices	21.2	32.2	
	Full Capacity Events	--	44.1	
	Community Events	--	48.2	
	Total	65.1	65.2	0.1
R-3	Ambient	74.2	74.2	
	Soccer Games	33.4	44.2	
	Soccer Practices	33.8	37.7	
	Track And Field Meets	--	35.8	
	Track And Field Practices	--	30.4	
	Cross County Training	25.2	31.0	
	P.E.	33.2	36.6	
	Football Practices	23.9	33.8	
	Full Capacity Events	--	45.7	
	Community Events	--	49.8	
	Total	74.2	74.2	< 0.1
R-4	Ambient	62.6	62.6	
	Soccer Games	34.0	44.9	
	Soccer Practices	37.1	38.0	
	Track And Field Meets	--	35.8	
	Track And Field Practices	--	29.1	
	Cross County Training	28.0	29.7	
	P.E.	36.0	36.9	
	Football Practices	25.3	34.1	
	Full Capacity Events	--	46.6	
	Community Events	--	50.7	
	Total	62.7	63.1	0.4

**Table 7 (cont.): Increase in Annual Average CNEL from All Field Activities**

Locations	Sources	Annual CNEL, dBA		
		Existing	with Project	Increase
ST-1	Ambient	63.4	63.4	
	Soccer Games	32.3	31.1	
	Soccer Practices	26.3	23.8	
	Track And Field Meets	--	22.3	
	Track And Field Practices	--	14.8	
	Cross County Training	17.0	15.4	
	P.E.	25.0	22.7	
	Football Practices	25.3	19.9	
	Full Capacity Events	--	32.3	
	Community Events	--	36.6	
	Total	63.4	63.4	< 0.1
ST-2	Ambient	58.4	58.4	
	Soccer Games	23.2	37.3	
	Soccer Practices	30.4	28.9	
	Track And Field Meets	--	28.7	
	Track And Field Practices	--	19.8	
	Cross County Training	20.0	20.4	
	P.E.	28.0	27.8	
	Football Practices	14.1	25.0	
	Full Capacity Events	--	38.2	
	Community Events	--	42.7	
	Total	58.4	58.6	0.2
ST-3	Ambient	65.5	65.5	
	Soccer Games	32.9	41.1	
	Soccer Practices	30.9	33.6	
	Track And Field Meets	--	32.2	
	Track And Field Practices	--	25.0	
	Cross County Training	22.1	25.6	
	P.E.	30.1	32.5	
	Football Practices	23.4	29.7	
	Full Capacity Events	--	42.7	
	Community Events	--	46.8	
	Total	65.5	65.6	0.1

Table 7 does not include the effect of Mitigation Measure NO-1 and Mitigation Measure NO-2 on future noise levels. Incorporation of Mitigation Measures NO-1 and NO-2 would reduce the noise increases shown in Table 7.

#### Impact 4: Construction Noise

Construction of the project would include the renovation of existing fields, grading/foundation work, and the addition of light poles and other structures. Equipment used during construction would vary by phase, but would include excavators, backhoes, dump trucks, graders, compactors, water trucks and similar equipment.

According to the Project Description, there would be up to 12 construction workers on-site on an average day and construction hours would be 7:00 AM to 4:30 PM on weekdays. Some work may be done on Saturdays between 7:00 AM to 4:30 PM. Project construction has a tentative start of September 2021 with completion anticipated by mid-March 2022.

Table 8 presents typical construction equipment noise levels at a reference distance of 50 feet.

**Table 8: Construction Equipment Sound Levels**

Construction Equipment	Ref. Sound Level (dBA at 50 feet)
Backhoe	78
Compressor	78
Dozer	82
Dump Truck	76
Gradall	83
Grader	85
Flat Bed Trucks	74
Excavator	81
Tractor	84
Front End Loader	79
Compactor (ground)	83
Generator	81
Pneumatic Tools	85
Pump	81
Roller	80
Paver	77

For the nearest church building across Don Julio Boulevard, the project's proposed field upgrades are between 110 feet to 960 feet away. For the nearest homes along Fox Valley Circle, the project's proposed field upgrades are located between 220 to 1100 feet away. For the nearest existing homes to the west, across Walerga Road (Aqua Court), the project's proposed field upgrades are located between 230 feet to 1030 feet away.



Based on a source noise level of 85 dBA at 50 feet, the noise levels are calculated to be approximately 78 dBA at the nearest noise sensitive receptors across Don Julio Blvd when construction equipment is located near the perimeter of the project site. Construction equipment noise level would be 72 dBA or less for the nearest homes along Fox Valley Circle and 72 dBA or less for the nearest homes to the west across Walerga Road.

Construction noise will be noticeable at times and may temporarily interfere with normal outdoor activities such as speech communications. When construction activities occur farther from the neighboring uses, construction noise levels will be reduced due to the greater distance. For example, when construction activities occur at the center of the new soccer field, the typical noise source would be attenuated to 64 dBA at the nearest school building across Don Julio Boulevard, 63 dBA at the nearest home along Fox Valley Circle, and 63 dBA at the nearest home to the west across Walerga Road.

Since the project's construction hours are 7:00 a.m. to 4:30 p.m. on Mondays to Fridays and occasionally Saturdays, the County's municipal code Section 6.68.090.e provides an exemption to construction noise from the municipal code's exterior noise standards.

Noise from construction activities is considered a less than significant impact with the following mitigation measure (NO-3).

*Mitigation Measure NO-3*

- All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment.
- Maintain all construction equipment to minimize noise emissions.
- Stationary equipment shall be located on the site so as to maintain the greatest possible distance to the sensitive receptors.
- Unnecessary idling of internal combustion engines should be strictly prohibited.
- The construction contractor shall provide the name and telephone number an on-site construction liaison. In the event that construction noise is intrusive to the community, the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.

### Impact 5: Construction Vibration

The nearest neighboring buildings are the church buildings across Don Julio Boulevard located more than 110 feet from the nearest edge of the project site. Table 9 shows the calculated vibration levels. The calculations were based on the distance of noise sensitive receptors closest to the project site.

**Table 9: Calculated Vibration Levels**

<b>Equipment</b>	<b>PPV (inches/sec) 110 feet from Equipment</b>
Vibratory Roller	0.02
Hoe Ram	0.01
Large Bulldozer	0.01
Caisson Drilling	0.01
Loaded Trucks	0.01
Jackhammer	< 0.01
Small Bulldozer	< 0.01

Table 9 shows that construction vibration levels are expected to be PPV 0.02 inches/sec or less at the nearest church building across Don Julio Boulevard. A vibration level of 0.02 inches/sec would be considered barely perceptible but not great enough to be distinctly perceptible. Additionally, construction vibration would be less than the adopted threshold of significance of the potential building damage criteria of 0.5 inches/sec for new residential and modern commercial buildings. Since vibration from construction would not exceed the threshold for potential building damage, this is considered less than significant.

### Impact 6: Aircraft Noise Exposure

The project site is located approximately 2 miles northeast of the nearest runway from Sacramento McClellan Airport. According to the McClellan Airport Noise Contours from the Sacramento County Airport Land Use Commission's website<sup>4</sup>, the project site is located outside the CNEL 60 dBA aircraft noise contour. Based on the Sacramento County General Plan's Land Use Compatibility for Aircraft Noise (General Plan Table 4), schools are compatible with this level of aircraft noise exposure. This is considered to be "no impact."

<sup>4</sup> SACRAMENTO AREA COUNCIL OF GOVERNMENTS, AIRPORT LAND USE COMMISSION. *McClellan Airport Noise Contours*. [www.sacog.org/post/airport-land-use-commission](http://www.sacog.org/post/airport-land-use-commission).

## **APPENDIX C: TRAFFIC REPORT**

# Soccer Field Traffic Impact Assessment

Highlands High School-Sacramento County

5/27/2021

## Introduction

PHA Transportation Consultants (PHA) has conducted this focused traffic assessment report for Highlands High School in Sacramento County as part of the CEQA Initial Study. The purpose of the report is to evaluate the potential impact of a proposal to upgrade an existing grass soccer field to an artificial turf soccer/football field. The subject soccer field site is at the northwest part of the campus near the intersection of Don Julio Boulevard and Walerga Road in East Sacramento.

## Existing Conditions

The school currently has an artificial turf football field, two baseball fields, two multi-purpose fields, six tennis courts, swimming pool a grass soccer field that is in poor condition. The project proposal would convert the subject grass soccer field to artificial turf soccer and practice field with running tracks and bleachers. Figure 1 shows the location of the school facilities and the soccer field. According to the 2021 Twin Rivers Unified School District website, the school has an enrollment of 790 students.

The main access to the campus is at Guthrie Street, which provides student pedestrian and vehicle access and parking. There are two secondary school accesses on Don Julio Boulevard. The east driveway is near the intersection with Guthrie Street has a student drop-off area and a walkway to the classroom buildings. The west driveway adjacent to the subject soccer field has a small parking area. The parking area is fenced off from the rest of the campus and classroom buildings. The sign posted at the gate indicates the parking area is for the Twin River School District IT Department. Students would be unable to walk through this driveway and parking area to the classroom building area.

There is no vehicular connection between the campus area and the subject soccer field. The existing soccer field is fenced on all sides with no vehicle access. Pedestrian access to the field is via a small gate next to the IT employee parking area at the corner of Don Julio Boulevard and the parking lot driveway. Students using the subject soccer field would have to walk from the classroom build area to the sidewalk on Don Julio Boulevard to enter the field. There is no off-street parking for the soccer field. Soccer field users parking is accommodated at the parking lane in in the eastbound direction at Don Julio Boulevard.

According to Sacramento Bike Master Plan, Don Julio Boulevard between Walerga Road and Guthrie Street along the school frontage is a designated Class III bike route currently but is planned to be upgraded to a Class II bike lane, however, there is no schedule on when this will happen. A Class III bike way is a “bike route,” which is identified by signing. On-street Class III bikeways are shared with motorists, may provide a designated route through areas not served by Class I or II facilities, or connect discontinuous segments of a bikeway.

Class II bikeways are bike lanes established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic travelling in the same direction.

The proposed soccer field upgrade will not have conflicts with the existing Sacramento Transportation Plan as the project is to upgrade an existing field within the school and would not change street configuration and site access.



Figure 1 Highlands High School - Sacramento



## **Project Description**

As indicated above, the Project proposal will upgrade the existing grass field to a regulation size artificial turf soccer field with a 9-lane running track. The soccer field will have four sets of bleachers, two on the north side for the visitors and two on the south side for the home team. According to proposed site plan, the field will be designed and striped for both soccer and football games. However, school officials indicated that the field would be mainly used for soccer games and for occasional football team practice but would not be used for official football games. All league football games will be played at the main football stadium on the south side of the campus, which is accessed from Guthrie Street.

The proposed upgrade would include 39 parking spaces, a fitness area near the entrance, a building with locker room facilities, restrooms, and a concession stands. Vehicle will access the soccer field via the existing west secondary school access driveway at Don Julio Boulevard. School official indicated that the upgraded field will be reserved exclusively for school use during school hours; public use and access of the field must be arranged by obtaining permits through the School District. Like most public schools, area residents are likely be able to use the field and the tracks after school hours for exercise, jogging, and other non-organized small group recreation activities. Figure 2 shows the site plan for the proposed soccer field upgrade.

## **Project Traffic Generation Estimates**

Based on the trip generation rate published in the ITE Trip Generation Manual, 9<sup>th</sup> Editions, a soccer field is likely to generate 71 daily trips, including 1 am peak hour trip and 18 pm peak hour trips. For school soccer field such as this, most trips will be student trips from within the school campus during the day. When inter school games are held, most trips would occur during the day in the afternoon, evening, or on weekends, and will have little conflict with normal commute hour traffic operation.

According to school estimates, there will be about 20 soccer games plus 100 practice sessions yearly. Games generally run about 6 hours, including field setups, player warm-ups, and half-time activities. Practice sessions generally run about 5 hours. Practices generally occur after school at 3:30 p.m. with about 40 players. Games generally occur between 4 and 6 p.m. with about 40 players on each side. An estimated between 50 and 100 spectators attend each games.

## **Site Access Traffic Operation**

With the proposed vehicle access and parking area for the soccer field, traffic operations analyses were conducted for Don Julio Boulevard and the access driveway. Don Julio Boulevard currently carries about 6,240 vehicles per day, based on the daily traffic volume count conducted after mid-March 2021. The morning peak occurred between 7:45 and 8:45 am and

the afternoon peak occurred between 4:45 and 5:45 pm. According to school website information, the school was not yet open for in-person learning until mid- April. However, school athletic teams such as football, baseball, and basketball started practice in mid-March.

Don Julio Boulevard is a four-lane arterial road providing access to and from the area and Highlands High School. The segment between Walerga Road and Guthrie Street is two-lane plus a TWLTL (two-way-left-turn lane) in the middle for left-turn access. Its intersections with Walerga Road and Guthrie Street are controlled by traffic signals. From a street design capacity stand point, a two-lane arterial road such as Don Julio Boulevard generally can accommodate 12,000 vehicles per day at acceptable conditions. The driveway that is expected to provide access to the soccer field has very few traffic currently. During the am peak hour, a total of 3 vehicles were counted entering and exiting the driveway respectively. In the pm peak hours, 20 vehicles were counted entering and exiting the driveway.

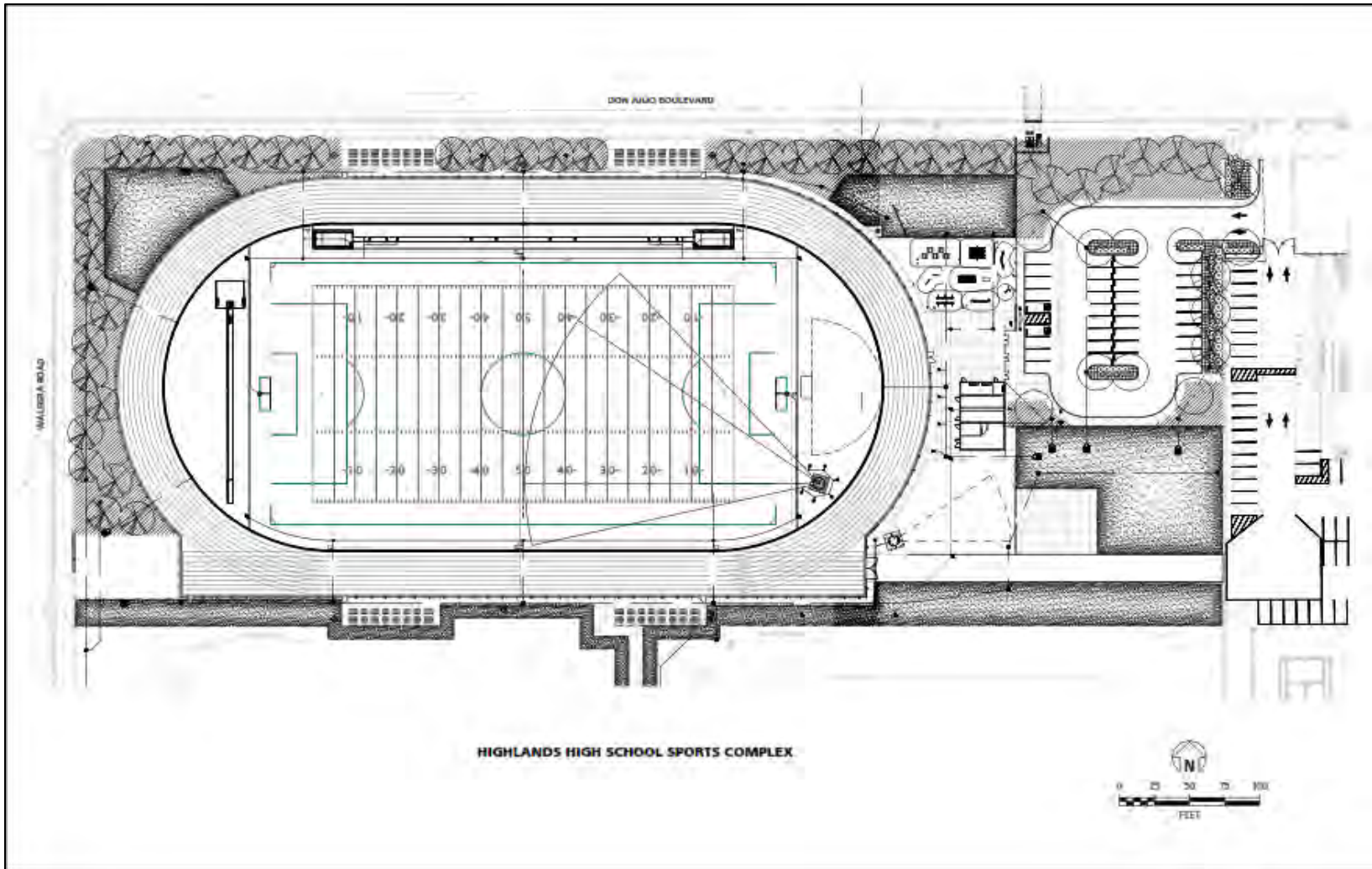


Figure 2 Project Site Plan – Grassetti Environmental and PBK Architects, Inc.

## Driveway Operation Analysis

With the added parking to the field sharing the current employee parking area access, driveway traffic operations were modeled to identify problems with vehicle turning movements. Driveway operations analyses were conducted for existing and project conditions for am and pm peak hours. For the purpose of the study, it is conservatively assumed the soccer field will generate 20 trips during am and pm peak hours respectively. Results of the driveway analyses indicated that vehicle turning movements would work no worse than LOS B with about a little more than 10 seconds of delays for both am and pm peak hour conditions. There are no curves along this section of the Don Julio Boulevard and the access and driveway do not have any sight restriction issues. Table 1 shows the driveway analyses results.

<b>Table 1 Driveway Traffic Operation (LOS) Analysis</b> Highlands High School Soccer Field Upgrade Traffic Study – Sacramento								
Study Driveway (Non-Signalized)	Existing Conditions				Project Conditions			
	A.M Peak		P.M. Peak		A.M Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Don Julio Bl./ Access Driveway	10.9	B	11.3	B	11.0	B	11.9	B
Study intersection LOS was calculated with SYNCHRO computer software based on Highway Capacity Manual Methodology for non-signalized intersection. Traffic count data were collected in 3/17/2021 when school athletic teams started practices on 3/15/2021. The above delays and LOS represent the worst-case turning movement, which is the left-turn movement out from the driveway. Through traffic on the major street (Don Julio Boulevard) would operate at LOS A as traffic would not have to stop or yield. LOS Calculation sheets with traffic count data are in the technical appendixes. LOS A: Delay 0.0-10.0 Seconds, B: 10.1-15.0 Seconds, C: 15.1-25.0 Seconds, D: 25.1-35.0 Seconds, LOS E: 35.1-50.0 Seconds, LOS F: >50.0 Seconds								

## Traffic Collisions

According to collision data collected from TIMS (Traffic Injuries Mapping System) service at University of California at Berkeley, there are 7 traffic collisions occurred along the Don Julio Boulevard segment between Walerga Road and Guthrie Street between 2017 and 2019; 2 occurred in 2017, 3 in 2018, and 2 in 2019. 2020 data was not fully compiled. Based on this data, this segment of Don Julio Boulevard does not appear to be a collision hotspot. Based on general traffic engineering practice, any location experiences five or more traffic collisions a year requires investigation and mitigation. TIMS obtained its collision data from SWITRS (Statewide Integrated Traffic Records System), which in turn receives its data from CHP. Figure 3 shows the locations of the reported collisions over the past three years.



Figure 3 Traffic Collisions near the Project Site - TIMS

## Vehicle Miles Travel (VMT) Analysis

With the passage of Senate Bill SB 743 in 2013 and full implementation in July 1, 2020, Vehicle Miles Travel (VMT) becomes the main metric to evaluate transportation impacts of proposed development projects. Traffic LOS and parking deficiencies are no longer considered significant impacts in CEQA analysis.

With SB 743, development projects in general would need to provide a VMT analysis to determine its impact. However, there are several exceptions. These include small projects that generate less than 110 daily trips; locally serving retail and similar land uses; and locally serving public facilities such as public schools and parks.

According to the ITE trip generation rates, a public soccer field is likely to generate an average of about 70 trips a day, which qualifies it for the small-project exemption. Further, the project is public high school soccer field that mainly serves the students from within the school and, as such, would be exempt from VMT analysis. Below is brief discussion of the “Local-Serving



Public Facilities” exemption that would apply to the proposed Highlands High School Soccer Field upgrade project.

#### Local-Serving Public Facilities Exemption

According to the Governor’s OPR (Office of Planning and Research) Technical Advisory, similar to small projects, locally serving retail and land uses, and local-serving public facilities are presumed to have a less than significant impact on VMT. This would include government facilities intended to serve the local public, parks, and public elementary schools, middle schools, and high schools. A study indicating the user capture area may be required in order to demonstrate that a public facility is local-serving. As indicated above, the project is not a new project but an upgrade of an existing facility and will be mainly used by the school, the adjacent art school, and perhaps local residents after school hours for exercise. As such, no additional VMT analysis is needed in this case.

#### **Site Plan Review**

According to the site plan, the field will provide 39 parking spaces including two handicapped spaces. This should be adequate as most field user will be students from within the school campus. Visiting school teams will likely arrive in school buses. As such, a parking spot for school bus parking should be designated in the parking area. Without such, school bus parking will be accommodated at the parking lane along Don Julio Boulevard.

The field currently is fenced on all sides and it is not clear from the site plan whether or not there will be pedestrian paths connecting it with the campus/classroom building area and the adjacent arts school. Since the field is expected to be shared use by Highlands High School and the Arts High School, providing pedestrian paths to connect with both campuses is highly recommended. This will improve student safety and students can access the field internally through the campus without having to walk on the street sidewalks.

# **Appendices**

## **Traffic Counts and LOS Calculations**



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	204	5	10	189	10	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	222	5	11	205	11	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume			227		452	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	99
cM capacity (veh/h)			1341		561	815

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	227	216	16
Volume Left	0	11	11
Volume Right	5	0	5
cSH	1700	1341	626
Volume to Capacity	0.13	0.01	0.03
Queue Length (ft)	0	1	2
Control Delay (s)	0.0	0.5	10.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	10.9
Approach LOS			B

**Intersection Summary**

Average Delay	0.6	
Intersection Capacity Utilization	23.2%	ICU Level of Service A



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	260	5	5	244	10	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	283	5	5	265	11	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
vC, conflicting volume			288		561	285
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1274		486	754

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	288	271	22
Volume Left	0	5	11
Volume Right	5	0	11
cSH	1700	1274	591
Volume to Capacity	0.17	0.00	0.04
Queue Length (ft)	0	0	3
Control Delay (s)	0.0	0.2	11.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	11.3
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization	25.3%	ICU Level of Service	A



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	204	20	20	189	20	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	222	22	22	205	22	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
vC, conflicting volume			243		482	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	97
cM capacity (veh/h)			1323		535	807

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	243	227	43
Volume Left	0	22	22
Volume Right	22	0	22
cSH	1700	1323	643
Volume to Capacity	0.14	0.02	0.07
Queue Length (ft)	0	1	5
Control Delay (s)	0.0	0.9	11.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.9	11.0
Approach LOS			B

**Intersection Summary**

Average Delay		1.3	
Intersection Capacity Utilization		27.0%	ICU Level of Service
			A





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	260	20	20	244	20	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	283	22	22	265	22	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
vC, conflicting volume			304		602	293
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		95	97
cM capacity (veh/h)			1256		455	746

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	304	287	43
Volume Left	0	22	22
Volume Right	22	0	22
cSH	1700	1256	565
Volume to Capacity	0.18	0.02	0.08
Queue Length (ft)	0	1	6
Control Delay (s)	0.0	0.7	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.7	11.9
Approach LOS			B

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization	31.9%	ICU Level of Service	A

# VOLUME

Don Julio Blvd W/O Highlands High School

Day: Wednesday  
Date: 3/17/2021

City: North Highlands  
Project #: CA21\_070038\_001

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	3,347	2,890	6,237					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			9	13	22	12:00			60	31	91			
00:15			7	7	14	12:15			45	53	98			
00:30			6	12	18	12:30			57	57	114			
00:45			3	25	6	38	12:45		54	216	46	187	100	403
01:00			3	4	7	13:00			43	56	99			
01:15			2	4	6	13:15			62	45	107			
01:30			3	2	5	13:30			51	46	97			
01:45			2	10	5	15	13:45		54	210	37	184	91	394
02:00			3	3	6	14:00			42	45	87			
02:15			0	2	2	14:15			65	61	126			
02:30			1	1	2	14:30			82	43	125			
02:45			1	5	0	6	14:45		78	267	43	192	121	459
03:00			5	3	8	15:00			63	56	119			
03:15			5	3	8	15:15			70	41	111			
03:30			5	2	7	15:30			43	51	94			
03:45			5	20	2	10	15:45		55	231	61	209	116	440
04:00			3	1	4	16:00			77	48	125			
04:15			5	2	7	16:15			52	67	119			
04:30			10	5	15	16:30			71	56	127			
04:45			4	22	1	9	16:45		66	266	81	252	147	518
05:00			11	6	17	17:00			69	53	122			
05:15			19	3	22	17:15			78	63	141			
05:30			14	11	25	17:30			82	64	146			
05:45			18	62	12	32	17:45		68	297	58	238	126	535
06:00			20	11	31	18:00			71	55	126			
06:15			33	20	53	18:15			59	48	107			
06:30			24	15	39	18:30			54	58	112			
06:45			40	117	16	62	18:45		49	233	54	215	103	448
07:00			28	22	50	19:00			34	49	83			
07:15			64	29	93	19:15			47	41	88			
07:30			53	23	76	19:30			32	42	74			
07:45			47	192	52	126	19:45		36	149	46	178	82	327
08:00			39	49	88	20:00			35	48	83			
08:15			55	47	102	20:15			41	58	99			
08:30			64	44	108	20:30			32	30	62			
08:45			45	203	31	171	20:45		32	140	23	159	55	299
09:00			38	22	60	21:00			36	33	69			
09:15			51	26	77	21:15			26	31	57			
09:30			41	25	66	21:30			31	29	60			
09:45			41	171	43	116	21:45		22	115	22	115	44	230
10:00			45	30	75	22:00			11	25	36			
10:15			42	37	79	22:15			14	22	36			
10:30			31	17	48	22:30			8	22	30			
10:45			47	165	28	112	22:45		16	49	12	81	28	130
11:00			31	32	63	23:00			6	8	14			
11:15			37	29	66	23:15			7	18	25			
11:30			47	33	80	23:30			9	7	16			
11:45			39	154	47	141	23:45		6	28	9	42	15	70
<b>TOTALS</b>			1146	838	1984	<b>TOTALS</b>			2201	2052	4253			
<b>SPLIT %</b>			57.8%	42.2%	31.8%	<b>SPLIT %</b>			51.8%	48.2%	68.2%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	3,347	2,890	6,237

AM Peak Hour	07:45	07:45	07:45	PM Peak Hour	17:15	16:45	16:45				
AM Pk Volume	205	192	397	PM Pk Volume	299	261	556				
Pk Hr Factor	0.801	0.923	0.919	Pk Hr Factor	0.912	0.806	0.946				
7 - 9 Volume	0	0	395	297	692	4 - 6 Volume	0	0	563	490	1053
7 - 9 Peak Hour	07:45	07:45	07:45	4 - 6 Peak Hour	17:00	16:45	16:45				
7 - 9 Pk Volume	0	0	205	192	397	4 - 6 Pk Volume	0	0	297	261	556
Pk Hr Factor	0.000	0.000	0.801	0.923	0.919	Pk Hr Factor	0.000	0.000	0.905	0.806	0.946

National Data & Surveying Services

# Intersection Turning Movement Count

**Location:** Highlands High School Dwy & Don Julio Blvd  
**City:** North Highlands  
**Control:** No Control

**Project ID:** 21-070039-001  
**Date:** 03/17/2021

**Total**

NS/EW Streets:	Highlands High School Dwy				Highlands High School Dwy				Don Julio Blvd				Don Julio Blvd				TOTAL			
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND							
AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU				
7:00 AM	0	0	1	0	0	0	0	0	0	22	4	0	0	22	0	0				49
7:15 AM	0	0	0	0	0	0	0	0	0	63	0	0	0	28	0	0				91
7:30 AM	0	0	0	0	0	0	0	0	0	53	0	0	0	24	0	0				77
7:45 AM	0	0	0	0	0	0	0	0	0	46	1	0	1	52	0	0				100
8:00 AM	0	0	0	0	0	0	0	0	0	40	0	0	0	48	0	0				88
8:15 AM	0	0	0	0	0	0	0	0	0	54	0	0	1	46	0	0				101
8:30 AM	0	0	0	0	0	0	0	0	0	64	0	0	1	43	0	0				108
8:45 AM	0	0	0	0	0	0	0	0	0	45	0	0	0	30	0	0				75
<b>TOTAL VOLUMES :</b>	0	0	1	0	0	0	0	0	0	387	5	0	3	293	0	0				689
<b>APPROACH %'s :</b>	0.00%	0.00%	100.00%	0.00%					0.00%	98.72%	1.28%	0.00%	1.01%	98.99%	0.00%	0.00%				
<b>PEAK HR :</b>	<b>07:45 AM - 08:45 AM</b>																<b>TOTAL</b>			
<b>PEAK HR VOL :</b>	0	0	0	0	0	0	0	0	0	204	1	0	3	189	0	0				397
<b>PEAK HR FACTOR :</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.797	0.250	0.000	0.750	0.909	0.000	0.000				0.919
										0.801				0.906						

NS/EW Streets:	Highlands High School Dwy				Highlands High School Dwy				Don Julio Blvd				Don Julio Blvd				TOTAL			
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND							
PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU				
3:00 PM	4	0	0	0	0	0	0	0	0	58	5	0	0	50	0	0				117
3:15 PM	1	0	0	0	0	0	0	0	0	69	1	0	2	41	0	0				114
3:30 PM	1	0	0	0	0	0	0	0	0	44	0	0	0	49	0	0				94
3:45 PM	0	0	1	0	0	0	0	0	0	53	0	0	2	59	0	0				115
4:00 PM	0	0	2	0	0	0	0	0	0	76	1	0	0	50	0	0				129
4:15 PM	2	0	1	0	0	0	0	0	0	50	2	0	2	60	0	0				117
4:30 PM	2	0	1	0	0	0	0	0	0	69	2	0	0	60	0	0				134
4:45 PM	3	0	0	0	0	0	0	0	0	65	2	0	0	74	0	0				144
<b>TOTAL VOLUMES :</b>	13	0	5	0	0	0	0	0	0	484	13	0	6	443	0	0				964
<b>APPROACH %'s :</b>	72.22%	0.00%	27.78%	0.00%					0.00%	97.38%	2.62%	0.00%	1.34%	98.66%	0.00%	0.00%				
<b>PEAK HR :</b>	<b>04:00 PM - 05:00 PM</b>																<b>TOTAL</b>			
<b>PEAK HR VOL :</b>	7	0	4	0	0	0	0	0	0	260	7	0	2	244	0	0				524
<b>PEAK HR FACTOR :</b>	0.583	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.855	0.875	0.000	0.250	0.824	0.000	0.000				0.910
										0.867				0.831						

**APPENDIX D:  
MITIGATION MONITORING AND REPORTING PROGRAM**

## MITIGATION MONITORING AND REPORTING PROGRAM – HIGHLANDS HIGH SCHOOL SPORTS COMPLEX PROJECT

When adopting a Mitigated Negative Declaration, the CEQA Guidelines [Section 15074(d)] require that Lead Agencies adopt a program for reporting on or monitoring the changes that it has required in the project or made a condition of approval to mitigate or avoid significant environmental effects.

This monitoring program for mitigation measures identified by the Mitigated Negative Declaration includes:

1. A list of mitigation measures with a space for the completion date,
2. The full text of the mitigation measures, and
3. Monitoring details, including: 1) agency responsible for implementation, 2) timing of implementation and monitoring, and 3) monitoring verification.

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date

<i>BIOLOGICAL RESOURCES</i>						
<b>Loss of active protected bird nesting.</b>	<b>Measure BIO-1:</b> Prevent Loss of Active Bird Nests. A pre-construction survey for nesting birds shall be conducted by a qualified biologist within two weeks of construction activities, if activities are to occur within nesting/breeding season of native bird species (February- August). If active nests are identified within 300 feet of construction, and would be exposed to prolonged construction-related noise above normal levels, a buffer shall be implemented around nests during the breeding season, or until a biologist determines the young have fledged. The size of the buffer and the type of construction activity will depend on multiple factors including relative change in noise and disturbance during construction activity, amount of vegetative screening between activity and nest, and sensitivity of species.	TRUSD Construction contractor	TRUSD Project Manager/Consulting Biologist	Condition of construction contract; field verify implementation prior to start of construction		
<i>CULTURAL RESOURCES</i>						
<b>Potential impacts to archaeological deposits and human remains.</b>	<b>Mitigation Measure CULT-1: Archaeological Deposits.</b> If archaeological remains are encountered during project activities, project ground disturbances at the find and immediate vicinity shall be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]). The archaeologist	TRUSD Project Manager	TRUSD Project Manager	Construction contractors shall monitor during ground disturbing activities; if cultural resources are encountered, archaeologist and NAHC, as applicable, shall		



Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	<p>shall examine the finds and recommend mitigation measures which may include documentation in place, avoidance, testing, and/or data recovery. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies. In addition, as a precaution, the project shall include cultural resource sensitivity training for crews involved in grading activities, as well as construction monitoring by a qualified professional archaeologist during all ground disturbing activities.</p> <p><b><i>Mitigation Measure CULT-2: Human Remains.</i></b> California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction.</p>			determine appropriate treatment for the resources.		

Identified Impact	Related Mitigation Measure	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	<p>The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097.</p> <p>In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the District or the District's designated representative shall be notified. The District shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]).</p> <p>The responsibilities of the District for</p>					

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	acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The District or their appointed representative and the professional archaeologist will consult with a Most Likely Descendent determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.					
<i>GEOLOGIC HAZARDS</i>						
<b>Geotechnical Hazards.</b>	<b>Mitigation Measure GEO-1.</b> The project's site clearing, site preparation, subgrade preparation and stabilization, fill, drainage, and any foundation systems shall be designed and constructed per the specifications set forth in the WKA Geotechnical Engineering Report (WKA 2021).	TRUSD Project Manager	TRUSD Project geotechnical engineer	Prior to submittal of final design plans to Division of the State Architect		
<i>HYDROLOGY AND WATER QUALITY</i>						
<b>Impacts on Water Quality.</b>	<b>Mitigation Measure HYD-1.</b> Prior to the issuance of grading permits for the proposed Project, the Project engineers shall prepare a Stormwater Control Plan. The Stormwater Control Plan shall identify pollution prevention measures and practices to prevent polluted runoff from leaving the Project site.	TRUSD Project Manager	TRUSD Project Manager/ Project Civil Engineer	Prior to submittal of final design plans to Division of the State Architect		

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	<p><b>Mitigation Measure HYD-2.</b> The District shall maintain in perpetuity the post-construction BMPs listed in the Stormwater Operations and Management Plan. The owner shall make changes or modifications to the LID measures to ensure peak performance. The District shall be responsible for costs incurred in operating, maintaining, repairing, and replacing any stormwater quality improvements and features. The District shall conduct inspection and maintenance activities and complete annual reports.</p>	TRUSD Project Manager	TRUSD Project Manager/ Project Civil Engineer	Prior to submittal of final design plans to Division of the State Architect		
<p><b>Construction Noise impacts.</b></p>	<p><b>Mitigation Measure NO-1.</b> In order to minimize disruption and potential annoyance during construction, the following is recommended:</p> <ul style="list-style-type: none"> <li>• All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment.</li> <li>• Maintain all construction equipment to minimize noise emissions.</li> <li>• Stationary equipment shall be located on the site to maintain the greatest possible distance to the sensitive receptors.</li> </ul>	Project Construction Manager	TRUSD Project Manager	During construction		

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	<ul style="list-style-type: none"> <li>• Unnecessary idling of internal combustion engines should be strictly prohibited.</li> <li>• The construction contractor shall provide the name and telephone number an on-site construction liaison. In the event that construction noise is intrusive to the community, the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.</li> </ul>					
<b>Public Address System Impacts</b>	<p><i>Mitigation Measure NO-2.</i> Design the PA system so that it does not exceed a Lmax of 70 dBA at the neighboring noise sensitive land uses (R1, R2, R3 and R4). This would require the installation of a distributing sound system with highly directional and carefully aimed loudspeakers around the bleachers and field. The distance between the loudspeakers and the coverage area should be minimized to reduce spill to the community. In addition, the PA system output volume should be regulated by an audio processor with the ability to limit the audio output levels (e.g. compressor/limiter).</p>	TRUSD Project Manager/PA System Engineer	TRUSD Project Manager	Prior to submittal of final design plans to Division of the State Architect		

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<b>Large-Capacity Events Noise.</b>	<b><i>Mitigation Measure NO-3.</i></b> Limit full-capacity events to no more than a total of seven hours in duration, ending before 9:00 PM.	TRUSD Athletics Director	TRUSD Project Manager	Prior to and during all large large-capacity events on the field.		