ALAMEDA UNIFIED SCHOOL DISTRICT (AUSD)
CITY OF ALAMEDA, CALIFORNIA

Wood Middle School Field Lighting Project

INITIAL STUDY &
MITIGATED NEGATIVE DECLARATION

AUGUST 2014

Douglas Herring & Associates
Environmental, Policy, and Planning Services

Wood Middle School Field Lighting Project

Initial Study

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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California Environmental Quality Act (CEQA)
Environmental Checklist Form

1. Project Title: Wood Middle School Field Lighting Project

2. Lead Agency Name and Address:

Alameda Unified School District
2060 Challenger Drive
Alameda, CA 94501

3. Contact Person and Phone Number:

Robert Clark, Chief Business Officer
(510) 337-7066
rclark@alameda.k12ca.us

4. Project Location:

Wood Middle School
420 Grand Street
Alameda, CA 94501
Assessor Parcel Number (APN) 074-1250-1-2

The project site is located approximately 700 feet north of the southern waterfront of the City of Alameda, on the east side of Grand Street, between Shoreline Drive on the south and Otis Drive on the north, as shown on Figure 1. The approximately 9.7-acre middle school property is currently developed with two school buildings, three portable classrooms, a parking lot, and various outdoor recreation facilities. The project site consists of one of two baseball diamonds located to the east of the main school buildings. The site is bounded on the west and east by low-density single-family residential development, on the south by apartments and condominiums, and on the north by Donald D. Lum Elementary School, as shown on Figure 2.

5. Project Sponsor's Name and Address:

Alameda Unified School District
2060 Challenger Drive
Alameda, CA 94501

Contact: Robert Clark, Chief Business Officer
(510) 337-7066
rclark@alameda.k12ca.us

6. General Plan Designation:

Public/Institutional/School

7. Zoning:

R-1 (One Family Residential)

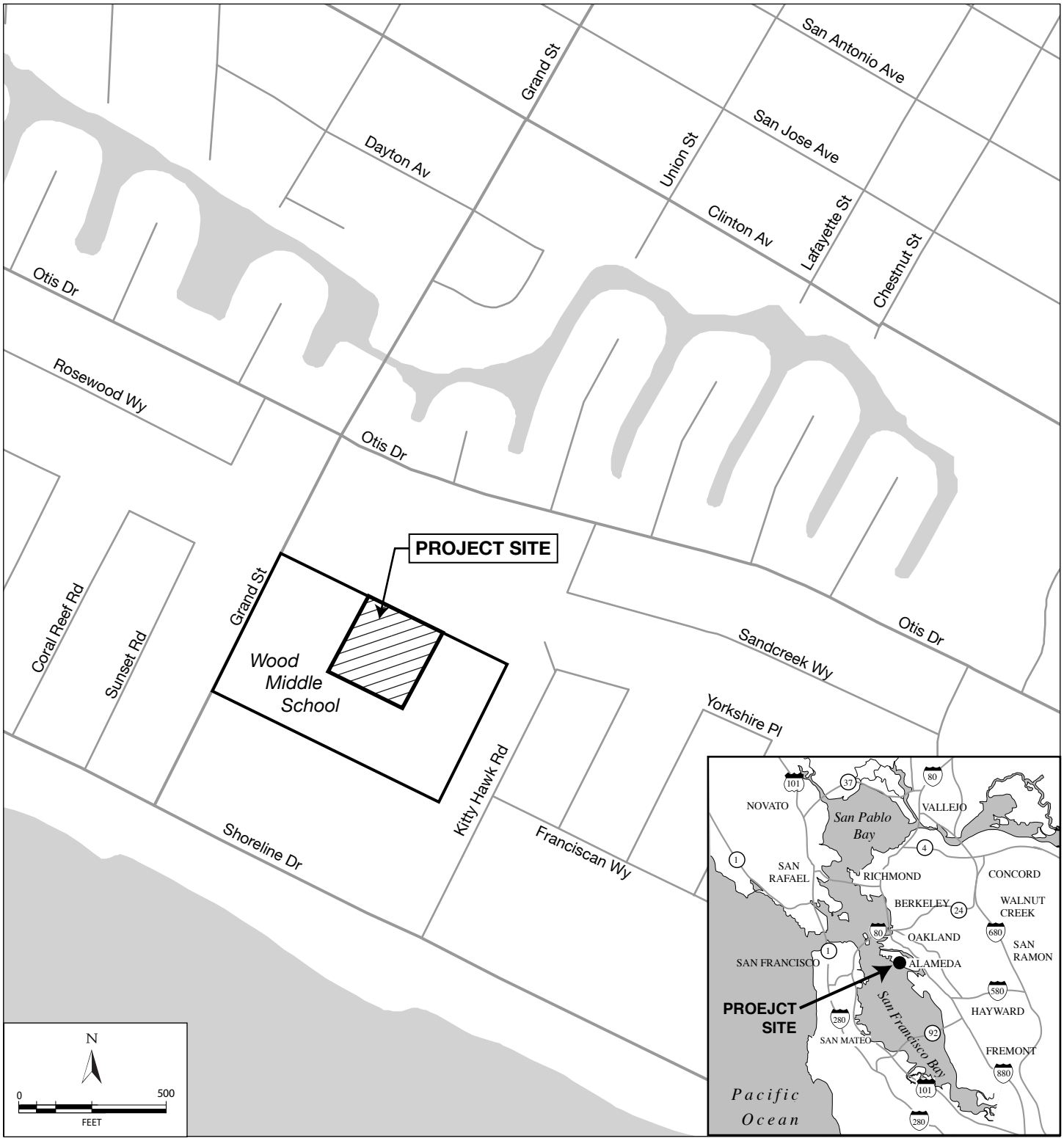


Figure 1

Project Site Location

Source: Douglas Herring & Associates

Figure 2

Aerial Overview of Project Vicinity

Source: Google Maps

8. Description of Project:

The Alameda Unified School District (AUSD) is proposing to install nighttime lighting on one of two baseball diamonds located at Wood Middle School. The lighting would be utilized predominantly for night baseball games played by the Alameda Little League and potentially other similar uses on the Minor Field, the westerly of the two ball fields located on Wood Middle School property. The proposed lighting would consist of four cylindrical steel light poles, each mounted with an assembly of shielded luminaires.

Although simultaneous Little League games are typically played at both the Minor Field and the Major Field located at Wood Middle School, as well as on the two ball fields at the adjacent Rittler Park (i.e., four games total), the proposed lighting would occur at the Minor Field only. Due to the proximity of residential homes to the other three ball fields, the AUSD has no plans to install lighting at the other three fields now or in the future.[1]

Project Details

Two 60-foot-tall light poles topped with four luminaire fixtures would be placed at the edges of the infield, one approximately 34 feet from first base and the other approximately 56 feet from third base. Two 70-foot-tall light poles topped with five luminaire fixtures would be placed at the outer edges of the outfield, in line with the infield poles. One outfield pole would be approximately 156 from the infield pole near first base; the other would be approximately 164 from the infield pole near third base. The infield poles are identified as A1 and A2 on Figure 3, while the outfield poles are labeled as B1 and B2. Details of the poles are shown on Figures 4 and 5.

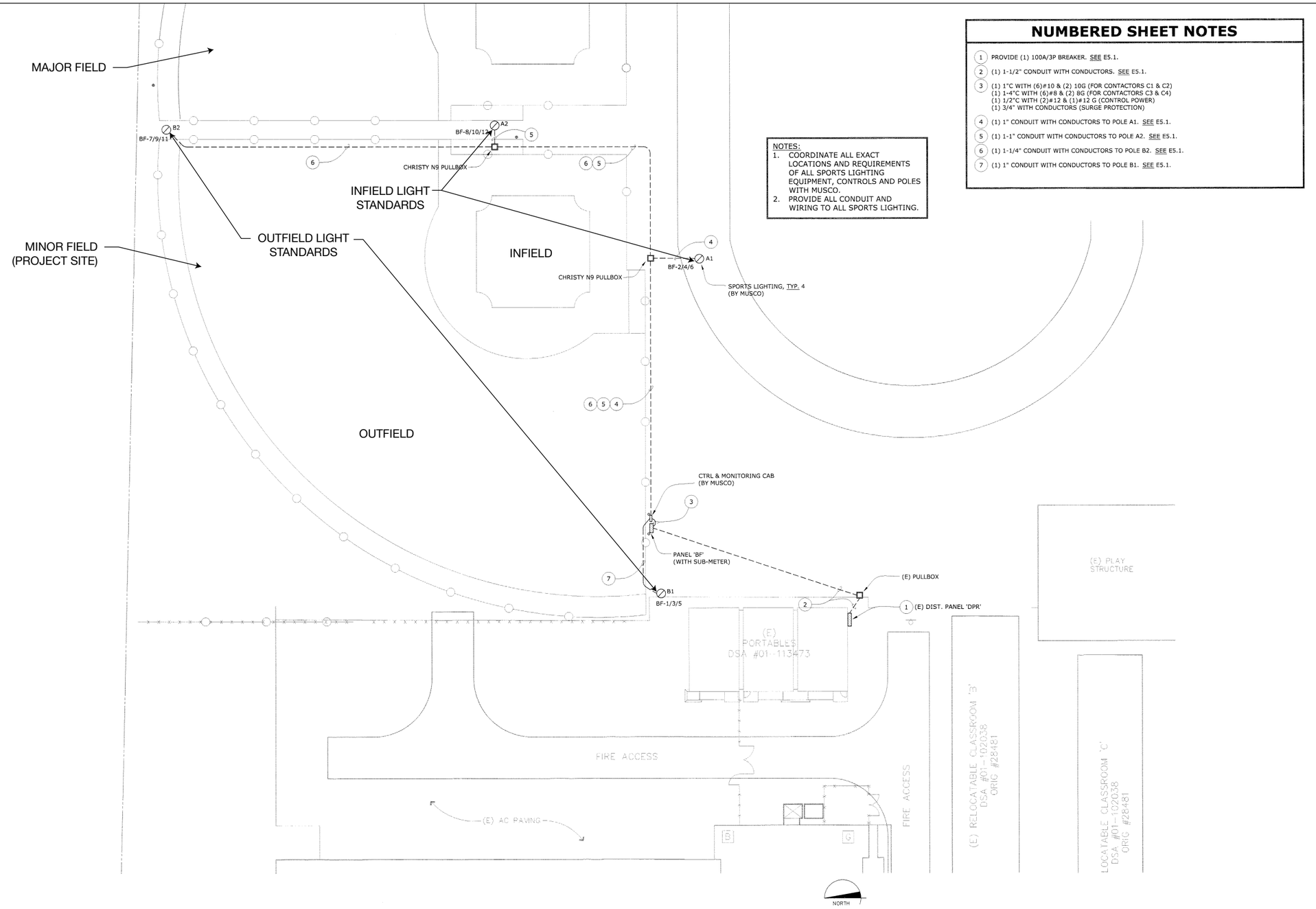
The light standards would be mounted with an array of four (infield) or five (outfield) shielded cast aluminum luminaires, each equipped with a high-intensity metal halide bulb rated at 1500 watts, and with a design illumination of 134,000 lumens.[2] The luminaires would each have an outside diameter of 23.15 inches as measured across the outer edge of the reflectors, and would be mounted side-by-side on an aluminum cross-arm, in a linear alignment. The tops of the reflectors would be fitted with aluminum visor hoods to control glare and prevent upward spill of fugitive light. The lights would be aimed by a laser aiming bracket mounted just below the luminaires. The luminaires would be aimed, in a distributed manner, at various points of the infield and outfield called aiming points, to achieve an approximately uniform light level across the playing field.

The infield lights would be directed so as to illuminate the infield of the baseball field, with minimal fugitive light. The outfield lights would be directed toward each other so as to provide coverage of the outfield and some overlapping coverage of the infield. These lights would have reduced vertical shielding in comparison with the infield lights so that outfield players are able to spot high fly balls. Details of the luminaires are shown on Figure 6. (Additional details on the illumination of the lights are provided in Section I-d.)

The tapered steel light poles would be constructed of three sections, including the top section mounted with a cross-arm for the luminaires. The sections would be connected by lap slip joints. The infield poles would have an outside diameter of 15.75 inches at the base and 8.0

[1] Ron Matthews, President, Alameda Little League, Inc., personal communication, May 16, 2014.

[2] A lumen is a measurement of luminous flux, or the perceived intensity of light, that is adjusted to reflect the varying sensitivity of the human eye to different wavelengths of light.



NOTES:
1. COORDINATE ALL EXACT LOCATIONS AND REQUIREMENTS OF ALL SPORTS LIGHTING EQUIPMENT, CONTROLS AND POLES WITH MUSCO.
2. PROVIDE ALL CONDUIT AND WIRING TO ALL SPORTS LIGHTING.

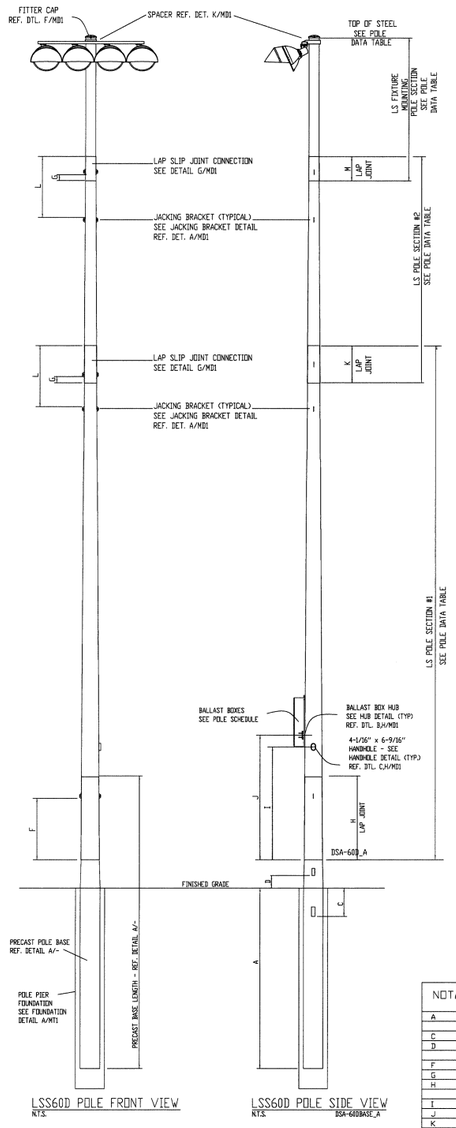
NUMBERED SHEET NOTES

1. PROVIDE (1) 100A/3P BREAKER. SEE E5.1.
2. (1) 1-1/2" CONDUIT WITH CONDUCTORS. SEE E5.1.
3. (1) 1"C WITH (6)#10 & (2) 10G (FOR CONTACTORS C1 & C2)
   (1) 1-4"C WITH (6)#8 & (2) 8G (FOR CONTACTORS C3 & C4)
   (1) 1/2"C WITH (2)#12 & (1)#12 G (CONTROL POWER)
   (1) 3/4" WITH CONDUCTORS (SURGE PROTECTION)
4. (1) 1" CONDUIT WITH CONDUCTORS TO POLE A1. SEE E5.1.
5. (1) 1-1" CONDUIT WITH CONDUCTORS TO POLE A2. SEE E5.1.
6. (1) 1-1/4" CONDUIT WITH CONDUCTORS TO POLE B2. SEE E5.1.
7. (1) 1" CONDUIT WITH CONDUCTORS TO POLE B1. SEE E5.1.

Figure 3

Site Plan

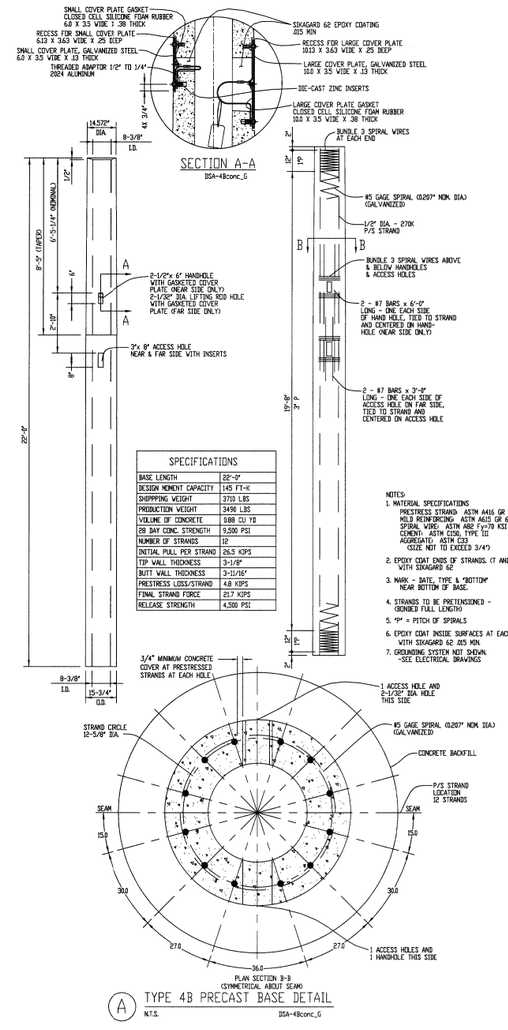
Source: Quattrocchi Kwok Architects



LSS60D POLE FRONT VIEW
N.T.S.

LSS60D POLE SIDE VIEW
N.T.S. DSA-60BASE_A

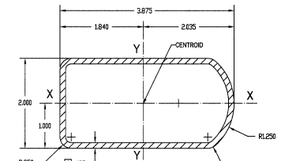
NOTATION	DIMENSION LSS60D
A	14'-0"
C	2'-0" NOM.
D	1'-0" NOM.
F	4'-4" NOM.
G	1'-6"
H	5'-10 1/4" NOM. 5'-3 3/4" MIN.
I	7'-7 1/2" NOM.
J	8'-9 1/2" NOM.
K	3'-5 5/8" NOM. 2'-1 1/4" MIN.
L	4'-7" NOM.
M	2'-2" NOM. 1'-8 1/2" MIN.



A TYPE 4B PRECAST BASE DETAIL
N.T.S. DSA-48conc_G

SPECIFICATIONS	
BASE LENGTH	22'-9"
DESIGN MOMENT CAPACITY	145 FT-K
SHIPPING WEIGHT	3710 LBS
PRODUCTION WEIGHT	3490 LBS
VOLUME OF CONCRETE	0.88 CU YD
28 DAY CONC. STRENGTH	9,500 PSI
NUMBER OF STRANDS	12
INITIAL PULL PER STRAND	26.5 KIPS
TIP WALL THICKNESS	3-1/8"
BUTT WALL THICKNESS	3-11/16"
PRESTRESS LOSS/STRAND	4.8 KIPS
FINAL STRAND FORCE	21.7 KIPS
RELEASE STRENGTH	4,500 PSI

NOTES:
1. MATERIAL SPECIFICATIONS
   PRESTRESS STRAND: ASTM A416 GR 270 (LOW RELAXATION)
   MILD REINFORCING: ASTM A615 GR 60
   SPIRAL WIRE: ASTM A82 Fy=70 KSI
   CEMENT: ASTM C150, TYPE III
   AGGREGATE: ASTM C33
   (SIZE NOT TO EXCEED 3/4")
2. EPOXY COAT ENDS OF STRANDS. (T AND B)
   WITH SIKAGARD 62
3. MARK - DATE, TYPE & "BOTTOM"
   NEAR BOTTOM OF BASE.
4. STRANDS TO BE PRETENSIONED -
   (SEE NOTE 1 FOR LENGTH)
5. "P" = PITCH OF SPIRALS
6. EPOXY COAT INSIDE SURFACES AT EACH HOLE
   WITH SIKAGARD 62 .015 MIN.
7. GROUNDING SYSTEM NOT SHOWN.
   -SEE ELECTRICAL DRAWINGS

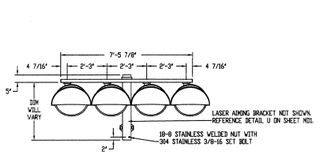


1 FIXTURE SUPPORT CROSSARM PROPERTIES
N.T.S. DSA-39SP_B

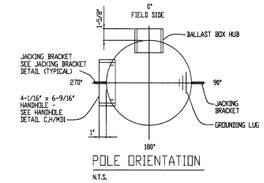
1. SECTION PROPERTIES BASED ON NOMINAL DIMS
   AREA (IN^2): 1.3059
   MOMENTS OF INERTIA ABOUT THE CENTROID (IN^4): X: .8630 Y: 2.3268
   SECTION MODULUS (IN^3): X: .8630 Y: 1.1432
   RADII OF GYRATION ABOUT THE CENTROID (IN): X: .8129 Y: 1.3348
   APPROX. WT. PER FOOT (LBS): 4.45

2. SECTION PROPERTIES BASED ON WALL THICKNESS @ 93% OF NOMINAL (PER AISC LRFD SPEC FOR STEEL HSS)
   AREA (IN^2): 1.2177
   MOMENTS OF INERTIA ABOUT THE CENTROID (IN^4): X: .8113 Y: 2.1796
   SECTION MODULUS (IN^3): X: .8113 Y: 1.0712
   RADII OF GYRATION ABOUT THE CENTROID (IN): X: .8162 Y: 1.3380

NOTE:
1. MATERIAL: ASTM A500, GRADE B, Fy = 70 KSI MIN.



B 4 FIXTURE CONFIGURATION
N.T.S. DSA-4A_D



POLE ORIENTATION
N.T.S.

1. CONTAINS COMBINED EPA OF LIGHT FIXTURES, CROSS ARM AND MISCELLANEOUS FIXTURE MOUNTING APPARATUS.

FIXTURE WEIGHT 40 LBS. THIS INCLUDES THE WEIGHT OF FIXTURE, CROSS ARM & MISC. MOUNTING APPARATUS. ELECTRICAL BALLAST BOX WEIGHT 50 LBS PER FIXTURE SERVICED

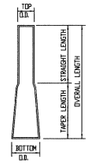
POLE SCHEDULE

SITE LOCATION	POLE MARK	REFERENCE LOCATION	POLE TYPE	FIXTURE CONFIGURATION	TOTAL EPA[1]	BALLAST BOX REQUIREMENTS
SEE SITE PLAN (BY OTHERS)	ALA2	SEE POLE ORIENTATION PLAN	LSS60D	4 - SEE DETAIL B/MSI	8.8	SEE DETAIL D/MDI

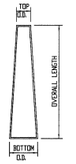
POLE DATA TABLE
DSA-POLESCHE_C

POLE TYPE	PIECE MARK	MAX NUMBER OF X-Arms	POLE SECTION	TOP O.D. (INCHES)	BTM. O.D. (INCHES)	OVERALL LENGTH	STRAIGHT LENGTH	TAPER LENGTH	THICKNESS (INCHES)	TOP OF STEEL	ASTM REFERENCE
LSS60D	LS-2017	2	FIXTURE MOUNTING	8.000"	8.781"	5'-3"	3'-1"	2'-2"	.125	61'-6 3/8" NOM. 62'-10 3/4" EXP.	A513 (Fy=38ksi)
	MP-4TTDSA-9		#2	8.190"	10.940"	19'-7 3/4"	-----	19'-7 3/4"	.179	-----	A595A (Fy=55 ksi) or A572, Gr 55 or 65
	MP-5BT-D		#1	10.096"	15.750"	40'-4 5/8"	-----	40'-4 5/8"	.179	-----	A595A (Fy=55 ksi) or A572, Gr 55 or 65
	MP-4BDSA		PRECAST BASE	FOR PRECAST MEMBER PROPERTIES SEE PRECAST BASE DETAIL A/-							

DSA-60BT_J



FIXTURE MOUNTING POLE SECTION

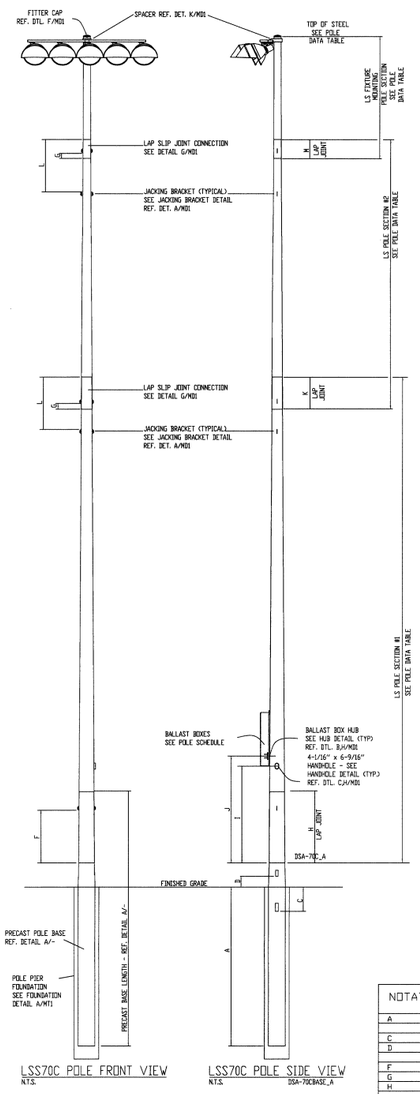


TOP/MIDDLE/BOTTOM POLE SECTION

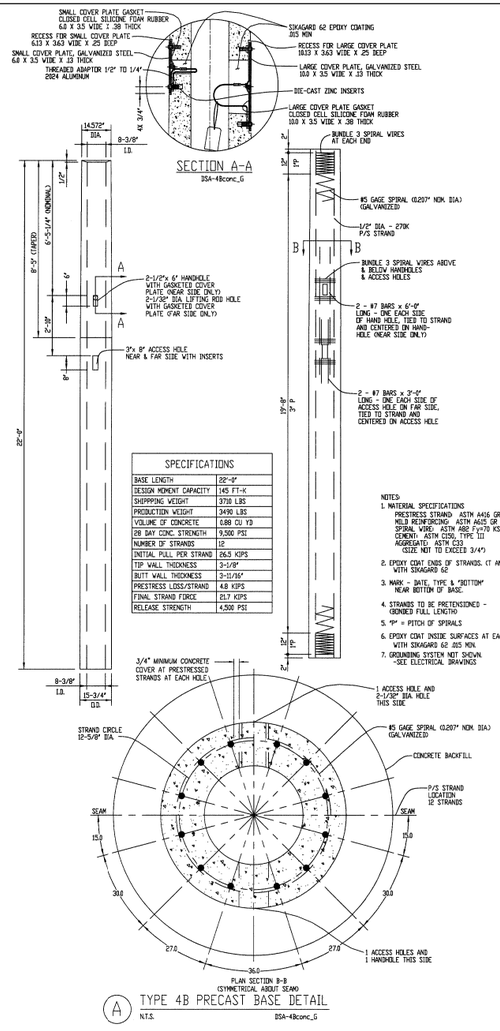
Figure 4

Infield Pole Details

Source: Musco Lighting



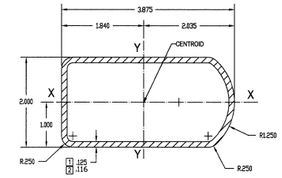
NOTATION	DIMENSION LSS70C
A	14'-0"
C	2'-0" NOM.
D	1'-0" NOM.
F	4'-4" NOM.
G	1'-6"
H	5'-10 1/4" NOM. 5'-3 3/4" MIN.
I	7'-7 1/2" NOM.
J	8'-9 1/2" NOM.
K	3'-5 5/8" NOM. 2'-1 1/4" MIN.
L	4'-7" NOM.
M	2'-0" NOM. 1'-5 1/2" MIN.



SPECIFICATIONS	
BASE LENGTH	22'-4"
DESIGN MOMENT CAPACITY	145 FT-K
SHIPPING WEIGHT	3710 LBS
PRODUCTION WEIGHT	3490 LBS
VOLUME OF CONCRETE	0.88 CU YD
28 DAY CONC. STRENGTH	9,000 PSI
NUMBER OF STRANDS	12
INITIAL PULL PER STRAND	26.5 KIPS
TIP WALL THICKNESS	3-1/8"
BUTT WALL THICKNESS	3-1/16"
PRESTRESS LOSS/STRAND	4.8 KIPS
FINAL STRAND FORCE	21.7 KIPS
RELEASE STRENGTH	4,500 PSI

NOTES:
1. MATERIAL SPECIFICATIONS
   PRESTRESS STRAND ASTM A416 GR 270 (LOW RELAXATION)
   MILD REINFORCING ASTM A615 GR 60
   SPIRAL WIRE: ASTM A82 Fy=70 KSI
   CEMENT: ASTM C150, TYPE III
   AGGREGATE: ASTM C33
   (SIZE NOT TO EXCEED 3/4")
2. EPOXY COAT ENDS OF STRANDS. (T AND B)
   WITH SIKAGARD 62
3. MARK - DATE, TYPE & "BOTTOM"
   NEAR BOTTOM OF BASE.
4. STRANDS TO BE PRETENSIONED -
   DEBONDED FULL LENGTH
5. "P" = PITCH OF SPIRALS
6. EPOXY COAT INSIDE SURFACES AT EACH HOLE
   WITH SIKAGARD 62 .005 MIN.
7. GROUNDING SYSTEM NOT SHOWN.
   -SEE ELECTRICAL DRAWINGS

A TYPE 4B PRECAST BASE DETAIL
N.T.S. DSA-48conc_G

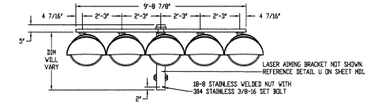


1 SECTION PROPERTIES BASED ON NOMINAL DIMS
AREA (IN^2): 1.3059
MOMENTS OF INERTIA ABOUT THE CENTROID (IN^4): X: .8630 Y: 2.3268
SECTION MODULUS (IN^3): X: .8630 Y: 1.1432
RADII OF GYRATION ABOUT THE CENTROID (IN): X: .8129 Y: 1.3348
APPROX. WT. PER FOOT (LBS): 4.45

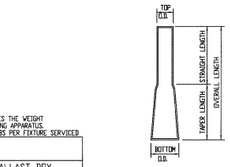
2 SECTION PROPERTIES BASED ON WALL THICKNESS @ 93% OF NOMINAL (PER AISC LRFD SPEC FOR STEEL HSS)
AREA (IN^2): 1.2177
MOMENTS OF INERTIA ABOUT THE CENTROID (IN^4): X: .8113 Y: 2.1796
SECTION MODULUS (IN^3): X: .8113 Y: 1.0712
RADII OF GYRATION ABOUT THE CENTROID (IN): X: .8162 Y: 1.3380

NOTE:
1. MATERIAL: ASTM A500, GRADE B, Fy = 70 KSI MIN.

1 FIXTURE SUPPORT CROSSARM PROPERTIES
N.T.S. DSA-2PSP_B



B 5 FIXTURE CONFIGURATION
N.T.S. DSA-5A_D



POLE ORIENTATION
N.T.S.

1. CONTAINS COMBINED EPA OF LIGHT FIXTURES, CROSS ARM AND MISCELLANEOUS FIXTURE MOUNTING APPARATUS.

FIXTURE WEIGHT 40 LBS. THIS INCLUDES THE WEIGHT OF FIXTURE, CROSS ARM & MISC. MOUNTING APPARATUS. ELECTRICAL BALLAST BOX WEIGHT 50 LBS PER FIXTURE SERVICED

POLE SCHEDULE

SITE LOCATION	POLE MARK	REFERENCE LOCATION	POLE TYPE	FIXTURE CONFIGURATION	TOTAL EPA[1]	BALLAST BOX REQUIREMENTS
SEE SITE PLAN (BY OTHERS)	RL82	SEE POLE ORIENTATION PLAN	LSS70C	5 - SEE DETAIL B/MS2	13.5	SEE DETAIL P./M01

POLE DATA TABLE — DSA-POLESCHE_C

POLE TYPE	PIECE MARK	MAX NUMBER OF X-Arms	POLE SECTION	TOP O.D. (INCHES)	BTM. O.D. (INCHES)	OVERALL LENGTH	STRAIGHT LENGTH	TAPER LENGTH	THICKNESS (INCHES)	TOP OF STEEL	ASTM REFERENCE
LSS70C	LS-2013	2	FIXTURE MOUNTING	7.000"	7.548"	5'-3"	3'-3"	2'-0"	.125	70"-4" NOM. 71"-9" EXP.	A513 (Fy=38ksi)
	MP-4TTDSA-11		#2	6.980"	10.940"	28'-3 3/8"	-----	28'-3 3/8"	.179	-----	A595A (Fy=55 ksi) or A572, Gr 55 or 65
	MP-5BT-D		#1	10.096"	15.750"	40'-4 5/8"	-----	40'-4 5/8"	.179	-----	A595A (Fy=55 ksi) or A572, Gr 55 or 65
	MP-48DSA		PRECAST BASE	FOR PRECAST MEMBER PROPERTIES SEE PRECAST BASE DETAIL A/-							

FIXTURE MOUNTING POLE SECTION

TOP/MIDDLE/BOTTOM POLE SECTION

Figure 5

Outfield Pole Details

Source: Musco Lighting

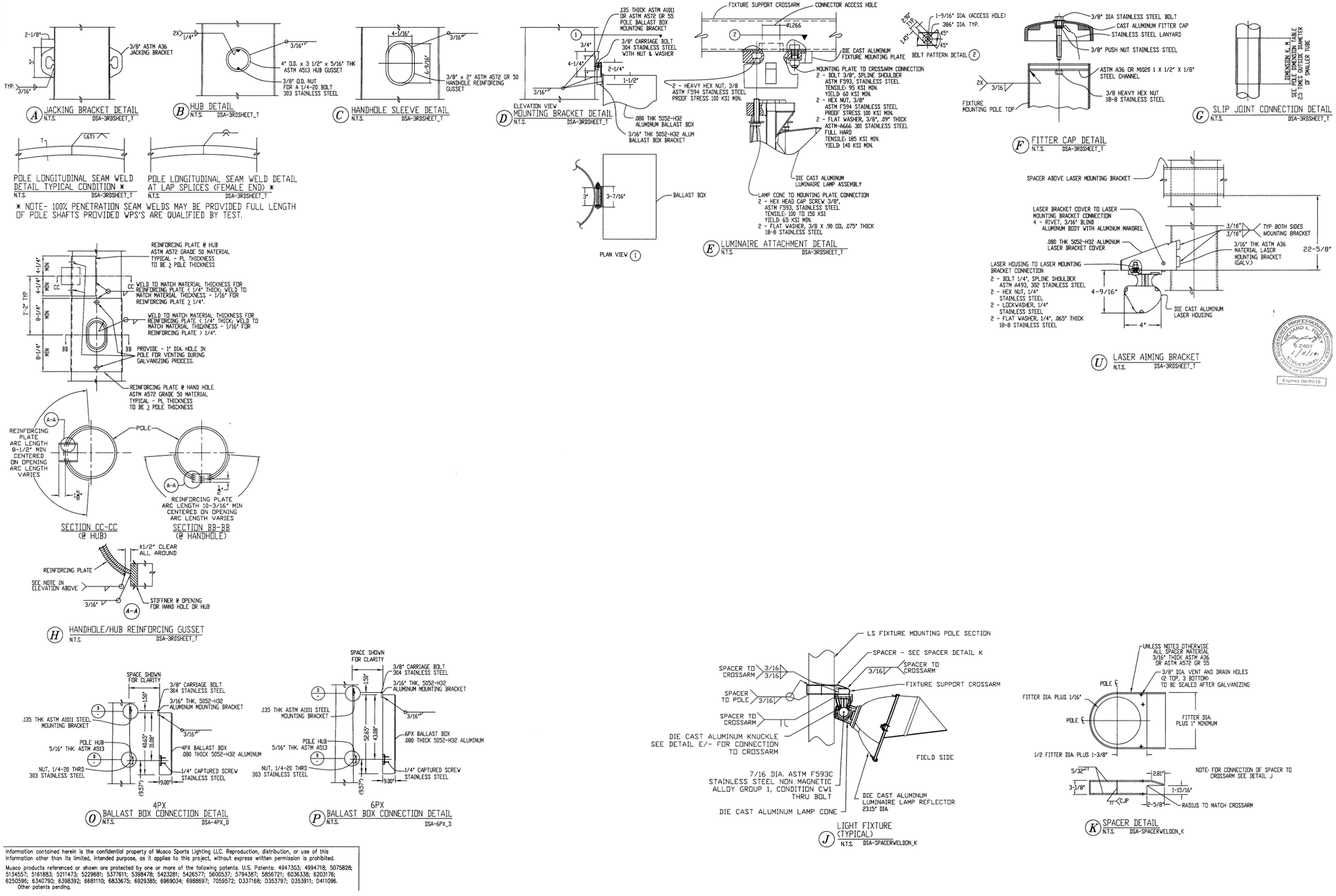


Figure 6

Light Fixture Details

Source: Musco Lighting

inches at the top. The outfield poles would have an outside diameter of 15.75 inches at the base and 7.0 inches at the top.

Each light pole would be anchored in drilled pier foundations that would extend to a depth of 14 feet below the ground surface and would be reinforced with concrete. Electric cables supplying power to the lights would run in conduits placed in underground trenches. An electrical distribution/breaker panel with 300-amp service would be mounted on the exterior of one of the existing Wood Middle School buildings located west or southwest of the Minor Field. Electrical conduit would run from there to a sub-panel located about 30 feet east of Pole B1. The panel box would be enclosed by an 8-foot-high chain-link fence enclosure with opaque fabric panels.

Project Operations

The night lighting would be used predominantly for Alameda Little League games played by the Triple A (age group 9 through 11) and the Major (ages 11 and 12) divisions. Periodically the night lighting could be used for other games or sporting events or similar types of use, subject to approval by the AUSD. Such uses would be subject to the same restrictions on hours that would apply to the Little League use of the field.

The proposed lighting would be used for night games that would start at 7:00 or 7:30 p.m. and would run to 9:00 or 9:30 p.m. Under Little League's international rules, the lights could not be operated after 10:00 p.m. The night games would be held five or six nights a week, with Sundays and possibly Mondays being dark. Regular night games would occur during the regular season, which runs from early January until the first week of June. In addition, during the post-season, which runs from the first week of June until late July, there would be about one game a week, or approximately ten post-season night games.

A public address (PA) system already owned and in periodic use by the Alameda Little League would occasionally, but infrequently, be used in conjunction with the proposed night games. The PA system would not be used for non-Little League games or events. The PA system, which includes two large loudspeakers mounted on stands near the score boxes, is currently used for announcing of the opening and closing games of the season. With approval of the proposed project, the PA system would also be used for tournament games during the post-season. As noted above, one night game a week is anticipated during the post-season. Thus, the PA system could be operated up to eight evenings a year, in addition to the current daytime use a few times a year, though it would generally be well under this number because playoff tournaments are held at a large number of venues throughout Northern California. (Information on the sound levels from the PA system is provided in Section XII.)

The warranty supplied by Musco Sports Lighting, the vendor for the lights, includes replacement of the entire lamp system after 5,000 hours of operation (the lights are estimated to be illuminated approximately 300 to 400 hours per year). Lamps would be replaced using a "cherry-picker" lift and the proper aim of the luminaires would be confirmed with the laser aiming bracket, and adjusted as necessary.

Approvals

Division of the State Architect: The project design would require approval by the Division of the State Architect.

Alameda Unified School District: The project would require discretionary approval by the Alameda Unified School District. No other approvals would be required.

9. Site Description and Surrounding Land Uses:

The proposed project site is located in the City of Alameda on the east side of Grand Street, between Shoreline Drive on the south and Otis Drive on the north, as shown on Figure 1. Regional freeway access to the site is from Interstate 880 via the Webster Street Tube, Park Street Bridge, or the Fruitvale Bridge.

The project site occupies a portion of the approximately 9.7-acre campus of Wood Middle School, which is currently developed with two school buildings, three portable classrooms, a parking lot, two baseball diamonds, a soccer field with running track, paved outdoor play area with basketball hoops, and outdoor courtyard with tables and seating. The proposed project would be developed entirely on the westerly baseball diamond, which consists of turf, dirt base lines, cyclone fencing, and a small building housing a snack bar and bathrooms. The project site occupies an area of about 56,400 square feet. Existing conditions on the site are shown on Figure 7.

The project site is essentially level, with an elevation of 13 feet above mean sea level (msl). The project site is located on a single parcel (APN 072-0384-031). The property is currently zoned R-1 (One Family Residential) and designated Public/Institutional/School in the Alameda General Plan.

The project site is located in a primarily residential neighborhood. Single-family homes are located to the east and west of the school site, and to the north of Otis Drive. Immediately to the north of the school is Rittler Park, at the southeast corner of Grand Street and Otis Drive, and Donald D. Lum Elementary School, located just east of Rittler Park. Apartments or condominiums are located to the south of the school, along Shoreline Drive. Although they appear to be multi-family residential units, at least two businesses are registered at these buildings. Alameda Hospital is located about 1,900 feet (0.36 mile) to the northeast and a commercial shopping center, the Alameda South Shore Center, is located about 1,800 feet (0.34 mile) to the east. Crown Memorial State Beach is located about one-half mile to the west.

In addition to nearby residences, other sensitive receptors in the vicinity of the project site include:

- Donald D. Lum Elementary School, at 1801 Sandcreek Way, about 200 feet northeast of the site (distance to nearest classroom; outdoor play area is adjacent to site);
- Sunset Home for the Elderly, at 428 Sunset Road, about 540 feet northwest of the site;
- Alameda Island Kids at Lum (daycare center), at 1801 Sandcreek Way, about 590 feet northeast of the site;
- Alameda Hospital, at 2070 Clinton Avenue, about 1,900 feet northwest of the site;
- Saint Joseph Notre Dame High School, at 1011 Chestnut Street, about 2,150 feet northeast of the site; and
- Saint Joseph Elementary School, at 1910 San Antonio Avenue, about 2,500 feet northeast of the site.

a) Overview of Minor Field (Project Site) as viewed from beyond left field.

b) Infield of Minor Field.

Figure 7

Existing Site Conditions

Source: Douglas Herring & Associates

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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	☐ Agricultural Resources	☐ Air Quality
☐ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Haz. Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	
☒ 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.

☐ 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 the 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.

Signature	Date
Printed name	For

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

EVALUATION OF ENVIRONMENTAL IMPACTS:

I. AESTHETICS — *Would the project:*

a) Have a substantial adverse effect on a scenic vista? ☐ ☐ ☐ ☒

Explanation: The project site is located in a fully developed residential neighborhood in the southeastern portion of the City of Alameda. San Francisco Bay, widely considered to comprise a scenic vista, is located about 850 feet south of the project site. However, the Bay is not visible from the project site or from the immediate surroundings.

Although the Bay is barely visible from in front of Wood Middle School, viewing toward the south end of Grand Street, the water surface is hardly detectable and constitutes a minute portion (well under 1 percent) of the total viewshed from this location. The majority of the view in this direction consists of the four-lane roadway, school buildings, single-story single-family homes lining the west side of the street, and a three-story apartment building located south of the school property. Even this view toward the Bay, which would be unaffected by the proposed project, would not constitute a scenic vista.

Views from the project site itself consist of the nearby school buildings to the west and southwest, and a soccer field to the south with a backdrop of three-story apartment buildings further to the south. Toward the northwest, the view consists of the adjacent snack bar, the ball fields at Rittler Park, and surrounding houses beyond the park. The view to the north is similar, with portions of the adjacent elementary school visible through the trees that are to the north of the adjacent Major Field and adjacent to the northeast corner of the Minor Field. Viewing east, the adjacent Major Field is in the foreground and the backs of homes lining Otis Drive, east of the school property, are partially visible and partially screened by fencing. None of these views would be considered scenic vistas, which are generally considered to include, in part if not wholly, views of the natural environment.

Views from neighboring public vantage points in the vicinity of the project vary in their specifics from location to location, but are generally similar to the views from the project site. Depending on location, they consist of school buildings, the lawns and playing fields of Rittler Park, single-family homes, apartment buildings, and public streets. None of these views would be considered scenic. The only public scenic views available in the vicinity of the project are views of San Francisco Bay, visible from along Shoreline Drive and the adjacent beach.

The proposed project would erect four light poles with heights of 60 to 70 feet, each surmounted by an array of four to five shielded floodlights. The effects of these changes on the visual quality of the site and its surroundings are discussed below in Section I-c. However, the project would have no adverse effect on a scenic vista because it would not alter or impede views of San Francisco Bay from along Shoreline Drive, and there are no other scenic vistas in the project vicinity.

b) Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

Explanation: The project site contains no significant trees, rock outcroppings, or historic buildings, and is not located within the viewshed of a State scenic highway.[3] The proposed project would have no impact on scenic resources.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

Explanation: The existing visual quality of the site is unremarkable—neither particularly high nor low. The site consists of a standard baseball field meeting uniform Little League dimensions. The field consists of turf, dirt base lines, cyclone fencing, small bleacher stand, opposing team dugouts adjacent to first and third bases, practice batting cage, and a small building housing a snack bar and bathrooms. Two maintenance equipment and general storage containers are located adjacent to the northern edge of the ball field.

The proposed project would erect four tall light standards surmounted by floodlights: two 60-foot poles adjacent to first and third bases, and two 70-foot poles in the outer corners of the outfield. While the poles would be visually prominent due to their height, they would not be the only tall elements in the vicinity. Three Mexican fan palm trees are growing along Kitty Hawk Road, about 375 feet east of the project site, that appear to have heights ranging from approximately 40 to 50 feet. There are also tall, full trees of varying species located in proximity to the site. These include a row of more than a half-dozen mature trees separating the two ball fields at Wood Middle School from the adjacent playground of Lum Elementary School, another group that is adjacent to the soccer field/running track that abuts the southern edge of the project site, and a third group located just south of Rittler Park, about 150 feet from the project. While these neighboring trees would not obscure the proposed light poles, and are qualitatively quite different from manmade light poles, they comprise other tall elements in the project vicinity that project skyward and penetrate local views of the sky. In this context, the proposed light poles would not be entirely anomalous.

The light poles would be introduced to an environment that is dominated in the immediate vicinity by sports fields and public school buildings. Light poles are common features to this type of environment, and are not considered by most viewers to be a jarring or out-of-place visual element. The poles and fixtures would be a gray color (galvanized steel poles with powder-coated fixtures and enclosures), which would help minimize their visibility from a distance.

The light poles would be set back a considerable distance from neighboring residences. The nearest residence would be located 300 feet away, while most homes would be 400 to 600 feet and further away. When viewed at these distances, the poles would be visible but not dominant. (When illuminated at night, the light poles would be considerably more noticeable. The effects of light and glare are addressed in Section I-d, below.)

[3] California Department of Transportation, website, http://www.dot.ca.gov/hq/LandArch/scenic_highways/, accessed July 15, 2014.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

While some residential neighbors to the project are likely to find the proposed light poles to be visually objectionable, they would not rise to the CEQA threshold of causing a substantial degradation of the existing visual character or quality of the site and its surroundings. For this reason, although it is acknowledged that the proposed project would have an adverse impact on the existing visual quality of the site and its surroundings, this would be a ***less than significant impact***, and no mitigation is required.

d)	*Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*	☐	☐	**X** ☐

Explanation: Nighttime illumination of the proposed light poles is expected to comprise the primary impact of the project and the greatest point of objection from neighboring residents. Accordingly, the main focus of analysis presented in this Initial Study/Mitigated Negative Declaration (IS/MND) is on the potential light and glare impacts. To provide proper context for the analysis presented below, relevant background information is provided, including definitions of terms and concepts employed in the discussion. This section of the IS/MND was prepared by Marc Papineau, Principal of Environmental Service.

Buffers between the proposed lighted ball field (Minor Field) and existing surrounding land uses include buffer areas with widths of approximately 330 feet on the west side (toward Grand Street), 270 feet on the south side (toward Shoreline Drive), 270 feet on the east side (toward Kitty Hawk Road), and 440 feet on the north side (toward Otis Drive). These buffer areas consist of a public park and school land and improvements.

The buffer area and existing ball fields are encircled by Grand Street on the west, Kitty Hawk Road and Sandcreek Way on the east, Otis Drive on the north and Shoreline drive on the south. The adjoining land uses consist entirely of residential land uses, with single-family uses on the east, west, and north, and apartments and condominiums on the south.

Existing Lighting

Existing lighting was observed to be minimal, mainly in the form of city street lights. The existing ball fields are not lighted, nor are the adjacent track and football/soccer field inside the track. Existing lighting consists of security lighting, interior residential lighting, and street lighting. The overall light level is low, being typical for a suburban setting away from the downtown or strip commercial uses, with minimal lighting along the residential streets. The existing neighborhood light environment is consistent with CIE Zone 3, which is a residential suburban setting.[4]

Perimeter Residences

The evaluation of light and glare impacts is focused on the effects at perimeter residences, defined as those immediately outside the buffer area; they are denoted by their street address

[4] Commission Internationale de l'Eclairage (CIE) [translation from French: International Commission on Illumination].

on Figure AES–1. Perimeter houses were observed on several visits to consist primarily of one-story houses with some exceptions: there are a half-dozen two-story single-family houses on Grand Street, Otis Drive, Kitty Hawk Road, and Sandcreek Way adjacent to the buffer area; they are highlighted in yellow on Figure AES–1. These six two-story, single-family houses are located at the following addresses:

301 Grand Street	1709 Otis Drive	1908 Sandcreek Way
1701 Otis Drive	1815 Otis Drive	409 Kitty Hawk Road

In addition, there are three-story condominiums and apartments located at 1777, 1801, and 1825 Shoreline Drive, 318 Grand Street, and 325 Kitty Hawk Road, to the south of the buffer area. They are highlighted in blue on Figure AES–1.

Owing to the design and layout of the houses on Grand Street, some of them (*e.g.*, 529 and 533 Grand Street) are oriented such that projecting garages may preclude direct viewing of the ball field from the primary front windows. However, the preliminary screening evaluation was performed under a simplifying assumption of no shielding effects by the configuration of houses or intervening trees.

Evaluation of Nighttime Lighting and Glare

In Environmental Impact Reports (EIRs) prepared for California jurisdictions, Appendix G of the *CEQA Guidelines* states that a project could have a significant effect if it would:

> *Create a new source of substantial light or glare which would affect day or nighttime views in the area.*

A definition of "light trespass" from CIE's definition of the term "obtrusive light" follows here:

> *Unwanted light which, because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction, or a reduction in the ability to see essential information.*

From this definition it can be seen that light trespass can be caused by several characteristics of nighttime lighting. These include:

- **Spill Light:** The presence of lighted area(s) beyond the primary area which the source is intended to light. Illuminance produced outside of the property line containing the luminaire is trespass or spill light.
- **Brightness or Glare:** The presence of bright source(s) within the observer's field of view which are objectionable or annoying. Direct viewing of luminaires which may also cause discomfort (discomfort glare) and/or impairment of the performance of visual tasks (disability glare).
- **Sky glow:** This is upward glow from reflection, diffraction, or scattering from particles in the air.

Glare has been recognized as being directly related to source luminance since at least the 1940s and 1950s, with published studies by Hopkinson, Petheridge, Luckiesh, and Guth in that timeframe. A. Dexter Hopkinson, past dean of the School of Engineering of Columbia University, published articles on lighting glare between 1940 and 57. He and others (Petherbridge, 1950; Luckiesh and Guth, 1948) postulated that glare is directly proportional to source luminance and apparent size (also, known as solid angle), and inversely proportional to background luminance and divergence of the viewing angle or line-of-sight from the aiming

Figure AES-1

Buffer Areas and Residential Receptors Surrounding Project Site

Source: Environmental Service, 2014

direction of the light source. Light trespass depends on the amount of light cast at an imaginary vertical plane at a receptor; it is commonly expressed in units of foot-candles (vertical).[5]

The *CEQA Guidelines* specifically call out glare as a potential impact to be considered. Therefore, two quantities were considered in the lighting and glare analysis: 1) field illumination and light spillover (or "light trespass") and 2) luminous intensity or "glare." Future post-project light conditions were evaluated based on information provided by the applicant and the applicant's lighting design-build consultant.

Thresholds of Significant Effect

Table AES–1 lists threshold criteria above which effects of the project would be considered potentially significant impacts. As noted above, two criteria were applied to assess whether lighting impacts could be significant and require project modifications or other mitigation measures. They are defined as follows:

> **Light trespass.** Light spillover or trespass is assessed based on illuminance in the vertical plane, expressed in foot-candles (fc), cast upon a vertical surface at a specified height above the ground plane. Illuminance in the vertical plane which exceeds 0.7–1 fc (vertical) is considered by the Institution of Lighting Engineers (ILE) and Illuminating Engineering Society of North America (IESNA) to be adverse light spillover during the illuminated activity. Vertical illuminance after the activity curfew should be even lower: 0.2–0.3 fc in urban residential areas.
>
> **Glare.** Glare is assessed based on the luminous intensity expressed in candela (cd) of individual luminaires as viewed from a window of an adjacent residence. Luminous intensity above 10,000 cd is considered by CIE and ILE as presenting a potential for glare impact only when the view of the luminaire is prolonged rather than momentary.

Luminous intensity of a given luminaire varies with receptor location, and depends upon the line-of-sight and aiming line, which is the centerline of the beam. Maximum luminous intensity is along the centerline of the beam. With increasing vertical angle above or below the beam centerline, intensity decreases. In addition, with increasing horizontal offset angle left or right of the beam centerline, intensity also drops off.

Design Criteria

Middle school level baseball, with fewer than 500 spectators, is designated by IESNA as Class IV activity. Class IV lighting calls for an average of 30 foot-candles in the infield and an average of 20 fc in the outfield. However, Little League rules require lighting to 50 fc in the infield and 30 fc in the outfield.[6]

ILE and CIE recommend a maximum limit of 10,000 candela for any luminaire in a sports lighting installation. Other published design standards for on-field light levels at lighted ballparks vary among jurisdictions. For example, the Fairfax County Park Authority suggests in its lighting ordinance a maximum limit of 12,000 candela for any of its lighting sports fields.[7] In

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[5] A foot-candle is the amount of illuminance on a one-square-foot surface that is uniformly distributed with a flux of one lumen. It is equal to approximately 10.764 lux.

[6] Little League® Baseball, *2013 Little League® Lighting Standards and Safety Audit,* Supplementing the Little League® 2013 Operating Manual Lighting Information, 2013. http://www.littleleague.org/Assets/forms_pubs/asap/LightingStandards12.pdf

[7] Fairfax County Park Authority, *Athletic Field Lighting and Control of Obtrusive Light Pollution*, White Paper - Final Draft, July 2010.

Table AES–1
Thresholds of Significance for Light in Suburban Residential Areas

Parameter	Threshold of Significance for Zone E3	Objectives/Notes
Illuminance in Vertical Plan (*E*)		
Before Curfew (10 p.m.)	S1: 10 lux (1 fc) S2: 8 lux (0.7 fc)	Intended to limit light trespass on neighborhood windows. Limits apply to nearby dwellings, specifically to their relevant surfaces, or portions thereof, such as windows. The values are additive from all proposed luminaries and existing light sources.
After Curfew (10 p.m.)	S1: 2 lux (0.2 fc) S2: 3 lux (0.3 fc)	
Luminous Intensity (*I*)		
Before Curfew (10 p.m.)	10,000 cd	Intended to limit annoying glare. Limits apply to an individual luminaire as viewed from locations where the bright luminaire surface potentially could be troublesome and from viewing locations from which views of the luminaire are likely to be prolonged rather than momentary. (Values apply to individual luminaires; therefore, the values are not additive.)
After Curfew (10 p.m.)	1,000 cd	
Upward Light Ratio		
Ratio of luminous flux incident on a horizontal plan just above the luminaires (in their installed positions) to total luminaire flux.	15%	Intended to limit sky glow. Limit applies to the installation or to individual luminaires.

Sources: Institution of Lighting Engineers (ILE), 2005; Illuminating Engineering Society of North America (IESNA), 2011.

Notes:

Zone E3 is a medium brightness area typically found in suburban residential, neighborhood commercial, or small town centers.

Fc = foot-candle, a British unit of illuminance; lux is its metric (SI) counterpart.

Cd = candela, a metric (SI) unit of luminous intensity per unit area of light traveling in a given direction.

the City of San Diego, adopted design standards call for 50 fc in the infield and 30 fc in the outfield.[8] The City of Irvine's Park Standards Manual calls for progressive light levels depending on the age/level of play, as follows:

Regulation baseball:	40–50 fc infield and 20–30 fc outfield
Pony league baseball:	20–30 fc infield and 15–20 fc outfield
Adult league softball:	20–30 fc infield and 15–20 fc outfield[9]

However, the official Little League® safety standard remains 50 fc in the infield and 30 fc in the outfield. For each new lighting installation, the Little League® local district administrator must pre-approve plans as being adequate and within minimum standards for safe play.

Proposed Ball field Lighting

To achieve lighting necessary required for the youth little league baseball activity or other similar activities authorized by the Alameda Unified School District, multiple light poles, or "standards," each having a bank of 4 or 5 lights called "luminaires" are proposed. For the proposed project, two infield poles (A1 and A2) and two outfield poles (B1 and B2) are proposed. Infield Pole A1 would have luminaires #1–4, and infield Pole A2 would have luminaires #15–18. Outfield Pole B1 would support luminaires #5–9, and outfield Pole B2 would support luminaires #10–14. The luminaires would be aimed, in a distributed manner, at various points of the infield and outfield to achieve an approximately uniform or gradually transitioning light level across the field. The luminaires proposed are all Light Structure Green™ luminaires with 1500 watt MZ (metal halide) lamps. These have aluminum spill and glare light control visors and are classified as semi-cutoff.

Light Spillover Analysis

Light spillover was evaluated at three heights above ground level in order to characterize potential light spillover impacts for one-story houses, two-story houses, and third-floor apartments or condominiums. "Light level" is technically known as illuminance and for the evaluation of spillover is quantified in units of foot-candles (fc) in the vertical plane. Table AES–2 summarizes the screening assessment results, and more details are provided below.

Table AES–2 summarizes the screening assessment results for representative perimeter housing units located just outside the buffer area. Units listed in the table include second- and third-floor units of multi-family housing (318 Grand Street, 1777 Shoreline Drive, 1801 Shoreline Drive, and 325 Kitty Hawk Road) and second-floor units of single-family houses having a second floor (301 Grand Street, 1701, 1709 and 1815 Otis Drive, and 409 Kitty Hawk Road). Illuminance at other perimeter residences would be similar or reduced in comparison.

Illuminance levels in Table AES–2 were read off a graphical photometric analysis prepared by Musco Lighting for three discrete receiver elevations: 3 feet, 13 feet, and 23 feet above ground level. The graphical presentation shows illuminance levels on a grid out to a boundary location. Light drop-off results in decreasing illuminance with increasing distance from the luminaires. Musco Lighting applied a photometric model which simulates light drop-off based on the luminaire model characteristics, luminaire aiming angles, locations of the poles, and elevations of the mountings above ground level. Based on Musco Lighting's photometric modeling, second and third floors would be exposed to lower illuminance levels than would occur at 3 feet

[8] City of San Diego, Park & Recreation Department, *Consultant's Guide to Park Design and Development*, Section 2.2.18.3: Multi-Purpose Field and Court Lighting, January 2005.

[9] City of Irvine, *City of Irvine Park Standards Manual*, Section VII: Park Design Standards, adopted November 1, 2000. http://www.britastro.org/dark-skies/pdfs/ile.pdf.

Table AES–2

Spillover Light Values at Key Residential Receptors
(in foot-candles (fc))

Address	Elevation Above Ground Level			Significant?[1]
	3 feet	13 feet	23 feet	
1801 Shoreline Drive	0.02–0.12	0.03–0.12	0.03–0.10	No
1777 Shoreline Drive	0.15–0.18	0.12–0.15	0.10–0.13	No
318 Grand Street	0.09–0.13	0.08–0.12	0.07–0.10	No
301 Grand Street	<0.09	<0.08	N/A	No
1701 & 1709 Otis Drive	<0.14	<0.11	N/A	No
409 Kitty Hawk Road	0.09	0.08	0.07	No
325 Kitty Hawk Road	0.07–0.08	0.06–0.07	N/A	No

Source: Musco Lighting, 2014

Notes:

[1]The applicable threshold of significance is 0.7 fc (vertical). See Table AES–1.

above ground level. No units are expected to be exposed to more than 0.2 fc (vertical) which is consistent with the thresholds of significance listed in Table AES–1.

Receiver Elevation: 3 feet above ground level

This elevation is applicable to the ground floors of nearby receptors. At the ground floor of the nearest residential receptors illuminance in the vertical plane would not exceed 0.2 fc (vertical). Along the boundary of 1801 Shoreline Drive, illuminance in the vertical plane would be in the range of 0.02–0.12 fc. At the boundary of 1777 Shoreline Drive, illuminance in the vertical plane would be in the range of 0.15–0.18 fc. Illuminance in the vertical plane along the east side of Grand Street would be in the range of 0.09–0.18 fc. In the back yards of Kitty Hawk Road and Kitty Hawk Place residences, illuminance in the vertical plane would be in the range of 0.02–0.14 fc. At the Otis Drive residences, illuminance would be similar to or lower than the levels along the east side of Grand Street (0.09–0.18 fc), as the buffer is 440 feet to Otis Drive and only 330 feet to Grand Street.

Receiver Elevation: 13 feet above ground level

This elevation is applicable to the consideration of two-story houses at 301 Grand Street, 1701 Otis Drive, 1709 Otis Drive, 1815 Otis Drive, 409 Kitty Hawk Road, 1908 Sandcreek Way, and attached housing at 1777 and 1801 Shoreline Drive, 318 Grand Street, and 325 Kitty Hawk Road.

At the second floor of the nearest residential receptors, illuminance in the vertical plane would not exceed 0.2 fc (vertical). Along the boundary of 1801 Shoreline Drive, illuminance in the vertical plane would be in the range of 0.03–0.12 fc. Illuminance in the vertical plane would be in the range of 0.12–0.15 fc along the boundary of 1777 Shoreline Drive. Along the boundary of 318 Grand Street, illuminance in the vertical plane would be in the range of 0.08–0.12 fc. It would be approximately 0.02 fc (vertical) along the boundary of 325 Kitty Hawk Road. At 301

Grand Street, illuminance in the vertical plane would be less than 0.08 fc. At 409 Kitty Hawk Road, illuminance in the vertical plane would be in the range of 0.06–0.07 fc. At 1701, 1709, and 1815 Otis Drive, illuminance would be less than 0.11 fc (vertical).

Receiver Elevation: 23 feet above ground level

This elevation is applicable only to the consideration of third-floor residences at 1777 and 1801 Shoreline Drive, 318 Grand Street, and 325 Kitty Hawk Road. At the third floor of the nearest residential receptors, illuminance in the vertical plane would not exceed 0.2 fc (vertical). Along the boundary of 1801 Shoreline Drive, illuminance in the vertical plane would be in the range of 0.03–0.10 fc. Illuminance in the vertical plane would be in the range of 0.10–0.13 fc along the boundary of 1777 Shoreline Drive. It would be in the range of 0.07–0.10 fc along the boundary of 318 Grand Street. Along the boundary of 325 Kitty Hawk Road, illuminance in the vertical plane would be in the range approximately 0.01–0.02 fc.

Conclusion

At all elevations considered from ground floor to third floor, the projected light level in vertical foot candles would be lower than the threshold criterion of significant effect at the nearest residential receivers. Therefore, the light spillover impact that would result from implementation of the proposed project would be ***less than significant***.

Glare Analysis

Preliminary screening was performed to assess lines-of-sight, critical luminaires, and luminous intensity at the surrounding residential land uses. The screening approach applied simple geometry to identify the critical luminaires for each receptor. For the critical luminaires the following angles were calculated: 1) the vertical angle of the line-of-sight above the aiming line and 2) horizontal offset angle between from the vertical plane of the aiming line and the vertical plane of the line-of sight. The screening values were set at 0 to +28 degrees vertical and 0 degrees + or – 36 degrees horizontal. Outside these ranges the effect would be less than significant because the cut-off visor and luminaire reflector housing would shield much of the source (i.e., the reflector and lamp).

Houses were assumed to have at least one street-facing front window with an unobstructed view of a luminaire. In reality, some of the existing houses (e.g., 529 and 533 Grand Street) having front windows are oriented with garages that preclude viewing of the distant ball field. Nonetheless, these locations are included in the grid of modeled candela values discussed below. Effects on lines-of sight of front window and garage configurations, intervening buildings, and screening by trees or other landscaping were not accounted for in the modeling. The results therefore represent a worst-case analysis.

Preliminary screening found numerous instances in which screening values were exceeded for the default light control visors, which means that luminous intensity in candela likely would have exceeded 10,000 cd, the threshold of significance established in Table AES–1, at multiple receivers. After this screening, Musco Lighting adjusted the light control visors to longer 14-inch visors. Based on the pole locations and aiming lines, and the proposed Light Structure Green™ luminaires with 1500 watt MZ (metal halide) lamps and the longer 14-inch light control visors, Musco Lighting again modeled luminous intensities in the project vicinity. The luminous intensities listed in Table AES–3 were read off the graphical photometric analysis results prepared by Musco Lighting, which shows luminous intensities on a grid over the entire buffer area and adjoining residential areas.

With the longer 14-inch light control visors, no housing units are expected to be exposed to luminous intensity of 10,000 cd or higher. The grid of modeled candela values with the 14-inch

Table AES–3
Modeled Glare Values at Offsite Residential Receptors
(in candelas (cd))

Address	Parcel Numbers	Critical luminaires	Angles		Luminous intensity (candela)	Significant?[3]
			Vertical[1]	Horizontal[2]		
301-21 Grand St.	74-1265 -175 to -180	none	---	---	No impact	No
325-329 Grand St.	74-1265 -173, -174	#17	+25	18 to 21	4000-4500	No
401-405 Grand St.	74-1265 -171, -172	none	---	---	No impact	No
409-13 Grand St.	74-1265 -169, -170	#10	+20	0 to 4	5500-5900	No
		#11	+20	6 to 8		
417-21 Grand St.	74-1265 -167, -168	#10	+20	2 to 6	5000-5500	No
		#17	+25	0 to 4		
425 Grand St.	74-1265-166	#16	+25	20	4800-5300	No
		#10	+20	9		
429 Grand St.	74-1265-165	#16	+25	17	5700-6300	No
		#10	+20	14		
433 Grand St.	74-1265-164	#16	+25	13	5400-7100	No
		#10	+20	18		
501-05 Grand St.	74-1265 -50, -51	#16	+25	5 to 8	5300-7800	No
509 Grand St.	74-1265-49	#16	+25	0	5200-7900	No
		#10	+19	32		
513-21 Grand St.	74-1265 -46, -47, -48	#16	+25	3 to 14	7400-7800	No
525-33 Grand St.	74-1265 -43, -44, -45	#16	+26	12	6100-7300	No
		#16	+26	15 to 18		
1701-15 Otis Dr.	74-1255 -38, -39, -40	#3	+24	1 to 7	5300-6000	No
		#3	+24	10 to 12		
1721-33 Otis Dr.	74-1255 -48, -49, -50	#2	+24	0	4300-5000	No
		#2	+24	3 to 4		
		#9	+20	1 to 10		
1805-21 Otis Dr.	74-1255 -74, -75, -76	#8	+22	0	2100-4600	No
		#8	+22	2 to 3		
1900 Sandcreek Way	74-1240-98	#7	+20	0 to 3	5300-5400	No
1901 Kitty Hawk Pl.	74-1240-12	#7	+20	7	4700-5200	No
425-33 Kitty Hawk Rd.	74-1240 -9, -10, -11	#6	+21	0	4500-5000	No
		#6	+21	4 to 5		

413-21 Kitty Hawk Rd.	74-1240 -6, -7, -8	#5	+21	0	3900-4600	No
		#5	+21	4 to 10		
1801 Shoreline Dr. 3rd floor level	74-1250-4-2	#14	+20	0 to 17	1200-4600	No
		#14	+23	0 to 17		
1777 Shoreline Dr. 3rd floor level	74-1250-4-1	#13	+20	5 to 11	5000-5100	No
		#13	+22	5 to 11		

Source: Musco Lighting and Environmental Service, 2014

Notes:

[1]Vertical angle means angle above (+) or below (-) the aiming line.

[2]Horizontal angle means anglular offset from the vertical plane containing the aiming line.

[3]The applicable threshold of significance is 10,000 cd. See Table AES–1.

visors is shown on Figure AES–2. The outer perimeter of the zone potentially exposed to 10,000 cd is delineated with a red line on the figure. Luminous intensities at second and third floors would be reduced from the levels presented in Table AES–3 and shown on Figure AES–2. As demonstrated by Figure AES–2 and Table AES–3, luminous intensities would not exceed the threshold criterion of 10,000 cd at any sensitive receptor; therefore, the potential glare impact of the project would be a ***less-than-significant impact***. Information on the effects at specific locations is provided in the following paragraphs.

301-321 Grand Street

Along Grand Street, from 301 Grand Street to 321 Grand Street, front yards and front windows of typical one-story, single-family houses, potential lines-of-sight to Poles A1, B1, and B2 are broken by intervening three-story apartment buildings.[10] There would be no potential for glare impact.

325 and 329 Grand Street

These are adjacent houses on Grand Street. At 325 and 329 Grand Street, from front windows, driveways and yards, Poles A1 and A2 would be visible above the adjacent one-story building. Lines-of-sight to Poles B1 and B2 would be broken by the taller three-story Wood Middle School building. Luminaires on Pole A1 would be aimed facing north or northeast and, therefore, luminaires on Pole A1 would not be potential glare sources at these homes.

There are unbroken lines-of-sight from 325 and 329 Grand Street to Pole A2. Luminaire #17 on Pole A2 would be aimed approximately toward third base infield area. At both residences, the estimated vertical angle would be +25 degrees and the horizontal offset angle would be in the narrow range of 18 to 21 degrees. Modeled luminous intensity would be in the range of 4,000 to 4,500 cd, which is less than the significance threshold of 10,000 cd.

401 and 405 Grand Street

These are adjacent houses on Grand Street where potential lines-of-sight to Poles A2, B1, and B2 would be broken by the taller three-story school building. At 401 Grand Street, from front windows, driveways and yards, Pole A1 would be visible above the adjacent one-story buildings. However, the luminaires on Pole A1 would be aimed facing north or northeast (i.e.,

[10] The house at 301 Grand Street has a second story with a street-facing window. The line-of-sight to this window also is broken by intervening three-story apartment buildings.

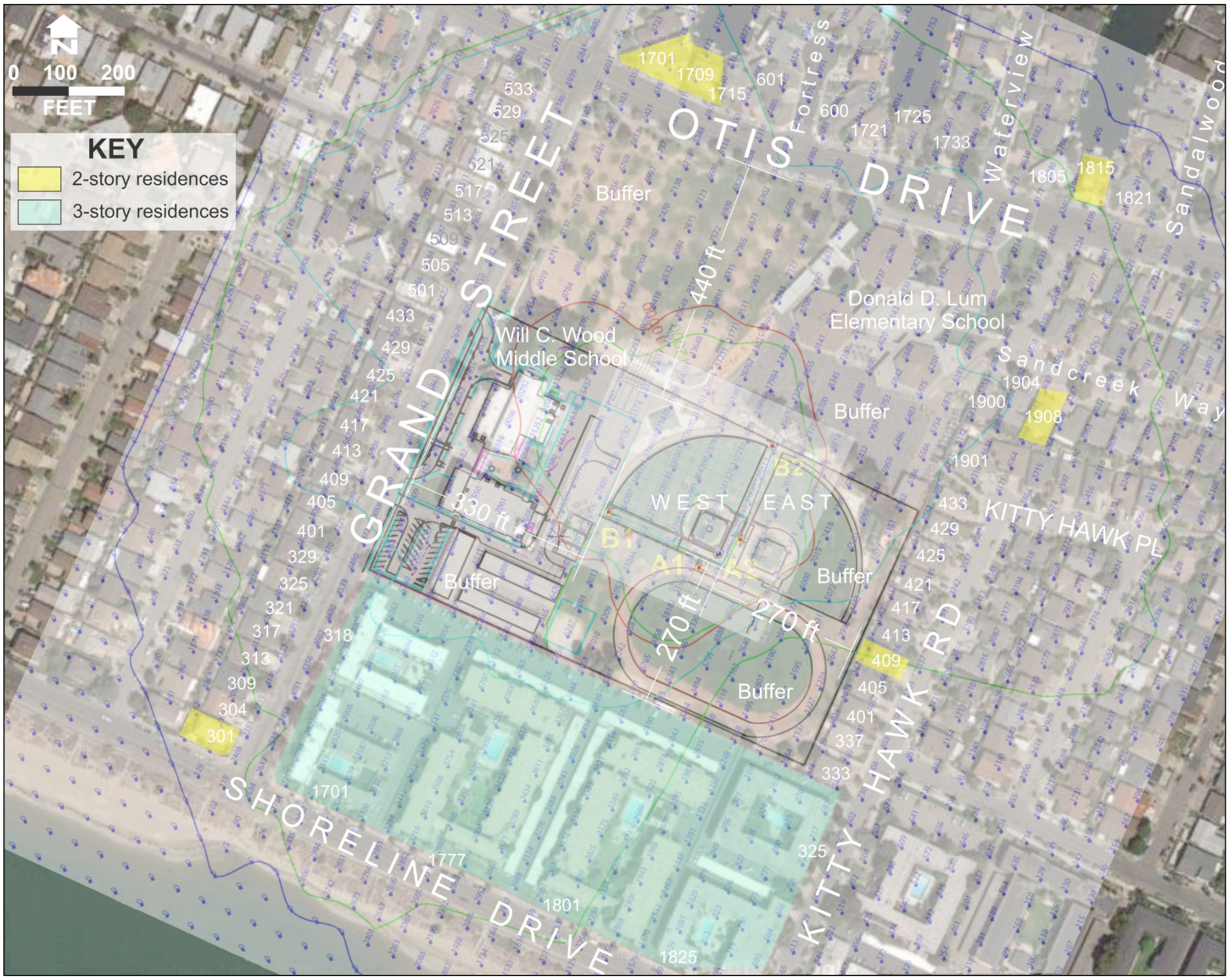

Figure AES-2

Glare Screening Values

Source: Environmental Service, 2014

away from these homes) and, therefore, the luminaires on Pole A1 would not be potential glare sources at these residences. There would be no potential for glare impact at these locations.

409 and 413 Grand Street

Line-of-sight analysis at these two adjacent houses on Grand Street shows that potential lines-of-sight from 409 and 413 Grand Street to Pole A2 would be interrupted by the three-story Wood Middle School building. However, lines-of-sight from 409 and 413 Grand Street to Pole B2 would be unbroken by the lower, 22-foot tall school building north of the three-story school building.

Luminaires #10 and #11 may both be visible in the front yards, driveways, and front windows of 409 and 413 Grand Street. At both residences, the estimated vertical angle for luminaire #10 would be +20 degrees and the horizontal offset angle would be in the narrow range of 0 to 4 degrees. For luminaire #11, at both residences, the estimated vertical angle would be +20 degrees and the horizontal offset angle would be in the narrow range of 6 to 8 degrees. Modeled luminous intensity would be in the range of 5,500-5,900 cd, well under the significance threshold.

417 and 421 Grand Street

There would be potential lines-of-sight from 417 and 421 Grand Street to Pole A2, which would be unbroken by the three-story Wood Middle School building. Lines-of-sight from 417 and 421 Grand Street to 70-foot-tall Pole B2 would apparently be just barely broken, or potentially unbroken, by the lower, 22-foot-tall Wood Middle School building.

Luminaires #10 and #11 may both be visible in the driveways and front windows of 417 and 421 Grand Street. For Luminaire #10, the estimated vertical angle at both residences would be +25 degrees and the horizontal offset angle would be in the narrow range of 2 to 6 degrees. For Luminaire #17, the estimated vertical angle at both residences would be +20 degrees and the horizontal offset angle would be in the narrow range of 0 to 4 degrees. Expected luminous intensities would be in the range of 5,000 to 5,500 cd, and would therefore experience a less-than-significant glare impact.

425-433 Grand Street

These are three adjacent houses on Grand Street. Line-of-sight analysis shows there would be potential lines-of-sight from each of them to Poles A2 and B2. Lines-of-sight to Pole B2 would be just barely broken, or potentially unbroken, by the lower, 22-foot-tall Wood Middle School building.

Luminaires #10 and #16 would both potentially be visible in the driveways and front windows of the residences at 425-433 Grand Street. For Luminaire #10, the estimated vertical angle at the three residences would be +20 degrees and the horizontal offset angle would be in the range of 9 to 18 degrees. For Luminaire #16, the estimated vertical angle at the three residences would be +25 degrees and the horizontal offset angle would be in the narrow range of 13 to 20 degrees. Modeled luminous intensities would be in the range of 4,800-5,300 cd at 425 Grand Street, 5,700-6,300 cd at 429 Grand Street, and 5,400-7,100 cd at 433 Grand Street, all of which would be less than the significance threshold of 10,000 cd.

501-509 Grand Street

The houses at 505 and 509 Grand Street do not appear to have any front window that would be in the line-of-site to Luminaire #16. The front windows on both residences are located on a

north-facing wall rather than a street-facing wall. Screening levels of luminous intensity are reported in Table AES–3 as if the houses at 505 and 509 Grand Street had street-facing windows.

The estimated vertical angle of Luminaire #16 at 501 and 505 Grand Street would be +25 degrees and the horizontal offset angle would be approximately 5 to 8 degrees. At 509 Grand Street, the estimated vertical angle of Luminaire #16 would be +25 degrees and the horizontal offset angle would be 0 degrees. Modeled luminous intensities would be in the range of 5,200 to 7,900 cd, below the significance threshold.

513-521 Grand Street

The houses at 513, 517, and 521 Grand Street are adjacent houses. The horizontal offset angle for Luminaire #10 would equal or exceed +35 degrees at 513 Grand Street and would equal or exceed +36 degrees at 521 and 525 Grand Street. The critical luminaire, therefore, would be Luminaire #16. This luminaire would have an estimated vertical angle of +25 degrees and a horizontal offset angle of 3 to 14 degrees. Modeled luminous intensities would be in the range of 7,400 to 7,800 cd, which would be less than the threshold limit of 10,000 cd.

525-533 Grand Street

At these three adjacent houses, Luminaire #16 would have a vertical angle of +26 degrees and a horizontal offset angle in the range of 12 to 18 degrees. Modeled luminous intensities would be in the range of 6,100 to 7,300 cd, and would not be significant.

1701-15 Otis Drive

The houses at 1701 and 1705 Otis Drive are two-story houses, and the house at 1715 Otis Drive is a one-story house. The vertical angle from Luminaire #3 would be +24 degrees and the horizontal offset angle would be in the range of 1 to 12 degrees at all three adjacent houses. Modeled luminous intensities would be in the range of 5,300 to 6,000 cd.

1721-33 Otis Drive

The houses at 1721, 1725, and 1733 Otis Drive are adjacent one-story houses. For Luminaire #2, the vertical angle would be +24 degrees and the horizontal offset angle would be in the narrow range of 0 to 4 degrees. For Luminaire #9, the vertical angle would be 20 degrees and the horizontal offset angle would be in the range of 1 to 10 degrees. Modeled luminous intensities would be in the range of 4,300 to 5,000 cd, well below the threshold limit.

1805-1821 Otis Drive

The houses at 1805 and 1821 Otis Drive are one-story houses, and the house at 1815 Otis Drive is a two-story house. At these locations, Luminaire #8 would produce a vertical angle of +22 degrees and a horizontal offset angle of 0 to 3 degrees. Luminous intensities would range from 2,100 to 4,600 cd.

1900 Sandcreek Way

At this one-story house located northeast of the project site, the vertical angle from Luminaire #7 would be +20 degrees and the horizontal offset angle would be 0 to 3 degrees. Modeled luminous intensities would be in the range of 5,300 to 5,400 cd.

1901 Kitty Hawk Place

This one-story house adjoining the lot at 1900 Sandcreek Way would have a vertical angle from Luminaire #7 of +20 degrees and a horizontal offset angle of approximately 7 degrees, with luminous intensities of 5,300 to 5,400 cd.

425-433 Kitty Hawk Road

The houses at 425, 429, and 433 Kitty Hawk Road are adjacent one-story houses located due east of the project site. For Luminaire #6, the vertical angle would be +21 degrees and the horizontal offset angle would be in the narrow range of 0 to 5 degrees. Modeled luminous intensities would be in the range of 4,500 to 5,000 cd.

413-421 Kitty Hawk Road

These locations east-southeast of the project site would experience a vertical angle from Luminaire #5 of +21 degrees and a horizontal offset angle in the range of 0 to 10 degrees. They would be exposed to luminous intensities of 3,900 to 4,600 cd, well under the 10,000-cd threshold.

1801 Shoreline Drive

The apartment building at 1801 Shoreline Drive is the mirror image of the adjoining apartment building at 1777 Shoreline Drive, both being located south or south-southwest of the project site. For Luminaire #14, at 1801 Shoreline drive, vertical angles would range from +20 on the 1st floor to +23 degrees on the 3rd floor. Horizontal offset angles would be in the range of 0 to 17 degrees. Modeled luminous intensities would be in the range of 1,200 to 4,600 cd near ground level, and would be lower on the second and third floor levels.

1777 Shoreline Drive

As noted above, this apartment building is the mirror image of the adjoining apartment building at 1801 Shoreline Drive. At this location, Luminaire #13 would produce vertical angles varying from +20 degrees on the first floor to +22 on the third floor, with horizontal offset angles in the range of 0 to 11 degrees. Luminous intensities would range from 5,000 to 5,100 cd near ground level, and would be lower on the second and third floor levels.

318 Grand Street

For Luminaire #12, at 325 Grand Street, vertical angles would vary from +20 degrees on the first floor to +22 on the third floor. Horizontal offset angles would be in the range of 0 to 9 degrees. Luminous intensities would be in the range of 4,900-5,300 cd near ground level and less than 4,900-5,300 cd on the second and third floor levels.

Conclusion

At many of the adjacent residences considered, preliminary assessment indicated that luminous intensity could exceed the threshold limit of 10,000 cd. Musco Lighting consequently modified the luminaires to include longer 14-inch aluminum light control visors to further limit the surface area of the light source (i.e., the cast aluminum reflector housing, tempered glass lens, and lamp) that would be visible at off-site viewing locations. (Longer visors cut off more of the "up light" above the aiming line than shorter visors.) With this visor modification, luminous intensities at all of the residential receptors adjoining the buffer area would be less than 10,000 cd. Therefore, the effect of the project's adverse glare light would be a ***less-than-significant impact***.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

II. AGRICULTURAL AND FOREST RESOURCES

— *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forestry Legacy Assessment Project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:*

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?*	☐	☐	☐	☒

Explanation: The project property is designated "Urban and Built–Up Land" on the most recent map of important farmland published by the Department of Conservation (DOC), a department of the California Resources Agency.[11] The DOC's Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used for analyzing impacts on California's agricultural resources. The FMMP updates the maps every two years; the most recent map was prepared in 2010. The project would be located in a fully developed area that has been urbanized for many years. The entirety of the island city of Alameda is designated Urban and Built–Up Land. There is no Prime Farmland or Farmland of Statewide Importance in the vicinity of the project site, and the project would not convert farmland to a non-agricultural use.

The proposed nighttime lighting of an existing baseball diamond would not remove productive agricultural land from production, and it would not convert land designated as Prime Farmland or Unique Farmland from agricultural production. The project would have no impact on agricultural resources.

[11] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, "Alameda County Important Farmland 2012" (map), April 2014.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract?* ☐ ☐ ☐ **X**

Explanation: The project site is zoned for residential use; no portion of the site is zoned for agricultural use, and none of the site lies within a Williamson Act contract area.

c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?* ☐ ☐ ☐ **X**

Explanation: The project site is not zoned as forest land or timberland, and no trees are present on the site. The proposed project would have no impact on forest or timberland.

d) *Result in the loss of forest land or conversion of forest land to a non-forest use?* ☐ ☐ ☐ **X**

Explanation: See Item II(c), above.

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**

Explanation: The project site is not located in an area devoted to or compatible with agricultural use and does not support forest land. The project would not cause conversion of other farmland to non-agricultural use or forest land to non-forest use.

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:*

a) *Conflict with or obstruct implementation of the applicable air quality plan?* ☐ ☐ ☐ **X**

Explanation: The Bay Area Air Quality Management District (BAAQMD) is the air quality agency with jurisdiction over the Bay Area. It is responsible for monitoring regional air quality,

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

developing regional clean air plans, and responding to citizen air quality complaints. BAAQMD is also the agency with permit authority over most types of stationary sources in the San Francisco Bay Area.

The project site lies within the San Francisco Bay Area Air Basin (SFBAAB), one of the cleanest air basins in the State. The nine counties surrounding San Francisco Bay (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties) form a regional air basin, sharing common geographical features and weather patterns, and therefore similar air pollution burdens, which cannot be addressed by counties acting on their own.

As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) identified "criteria pollutants" and established the national ambient air quality standards (NAAQS) for these pollutants designed to protect the public health and welfare. There are NAAQS for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter equal to or less than 10 microns (PM_{10}), fine particulate matter equal to or less than 2.5 microns ($PM_{2.5}$), and lead (Pb). Similarly, pursuant to the State Clean Air Act, the State has adopted California ambient air quality standards (CAAQS) for the same pollutants that in some cases are more stringent than the federal standards.

The SFBAAB currently fails to meet some of the adopted NAAQS and CAAQS. The Bay Area is designated as a nonattainment area for the State and federal ozone standards, the State respirable particulate matter (PM_{10}) standard, and the State fine particulate matter ($PM_{2.5}$) standard. The *Bay Area 2005 Ozone Strategy* and the *Bay Area 2010 Clean Air Plan* (CAP) adopted by BAAQMD identify a variety of strategies, programs, regulations, and control measures intended to reduce emissions of air pollutants including ozone and ozone precursors so as to bring the Bay Area into attainment with the CAAQS and NAAQS. Most of the regulations and control measures require implementation by BAAQMD or the Metropolitan Transportation Commission and/or coordination with transit agencies or other public agencies.

The proposed project would not conflict with the adopted 2010 CAP or measures to safeguard public health by reducing exposures to toxic air contaminants (TACs) and reduce emissions of criteria pollutants and their precursors, including reactive organic gases (ROG), diesel particulate matter (DPM), and carbon dioxide (CO_2). Chapter 3 of the CAP includes a list of stationary control measures identified in the 2005 ozone control strategy, and Chapter 4 contains a lengthy list of proposed air pollution control strategies. All of the CAP control measures and strategies were reviewed to identify any that are relevant or potentially applicable to the proposed project. The only one that is somewhat relevant is CAP Strategy ECM1 for Energy Efficiency, which calls for incentives (provided, for example, by the California Energy Commission or California Public Utilities Commission) for improving energy efficiency at schools. Although this is not directly applicable to the proposed project, the luminaires proposed are all Light Structure Green™ luminaires that have improved energy efficiency and require fewer fixtures compared with prior technology. They would therefore be consistent with CAP Strategy ECM1. None of the other CAP control measures or strategies would apply to the proposed project. The project would therefore not conflict with or obstruct implementation of the applicable air quality plan.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?*	☐	☐	X	☐

Explanation: Although the project would be located in a region that experiences occasional violations of ozone, PM_{10}, and $PM_{2.5}$ standards, there is no potential for construction or operation of the proposed project to contribute to these violations. There would be limited emissions of reactive organic gases ROG, NO_x, and $PM_{2.5}$ exhaust during project construction for the excavation of foundations and conduit trenches, transporting and pouring concrete, and erection of the support poles. These would be minor, short-term emissions that would not have the potential to substantially interfere with the region's compliance with federal and State ambient air quality standards. By way of comparison, the construction screening criterion established by the BAAQMD for a wide range of development projects—including schools, restaurants, regional shopping centers, office buildings, hospitals, and much more—is 277,000 square feet of development. Projects falling below this size threshold are generally considered to have a less-than-significant effect on air quality from construction-related air emissions.

Once construction of the project is complete, it would not generate any emissions of criteria air pollutants. It would, however, have an indirect impact on air quality because the night games would draw additional participants and spectators who would in most cases be expected to travel to and from the site in automotive vehicles. However, with 12 to 13 players per team, the number of total vehicles would not be large; it is conservatively estimated that up to 35 cars could be associated with a typical night game.[12] At least half of the vehicle trips would be local trips of very short distances, while some trips could originate from neighboring cities. These trips would be a fraction of the trips generated by more typical land use development projects. For example, the BAAQMD screening threshold for a high-turnover restaurant is 33,000 square feet; for a discount superstore it is 87,000 square feet, and for a motel it is 688 rooms. When compared to these thresholds, it is clear that even the indirect operational air emissions from the proposed project would not be significant.

c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*	☐	☐	X	☐

Explanation: As discussed in Section III-b, above, the project's emissions of criteria air pollutants would be well under the significance thresholds adopted by BAAQMD for evaluating impacts of ozone and particulate matter. Therefore, the project would not contribute substantially to existing or projected violations of those standards, and the project's cumulative impact related to emissions of criteria air pollutants would be less than significant.

[12] Ron Matthews, President, Alameda Little League, personal communication, May 16, 2014.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) *Expose sensitive receptors to substantial pollutant concentrations?*	☐	☐	X	☐

Explanation: Health risk from exposure to air pollutants is evaluated based on the potential for exposure to $PM_{2.5}$ and toxic air contaminants (TACs), the two emission types that pose the most significant threat to human health. According to BAAQMD, more than 80 percent of the inhalation cancer risk from TACs in the Bay Area is from diesel engine emissions.[13] TACs are a set of airborne pollutants that may pose a present or potential hazard to human health, and are separated into carcinogens and non-carcinogens. State and local regulatory programs are intended to limit exposure to TACs and the associated health risk. Both TACs and $PM_{2.5}$ are emitted by trucks, cars, construction equipment, and other mobile sources. They are also emitted by stationary sources that require permitting by the BAAQMD, which requires source controls.

Project impacts related to increased health risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. The BAAQMD recommends using a 1,000-foot radius around a project site for purposes of identifying community health risk from siting a new sensitive receptor or a new source of TACs. A lead agency should enlarge the radius if an unusually large source or sources of hazardous emissions that might affect a project lies outside the 1,000-foot radius.

As discussed in Section III-b, above, operation of the project would have no direct emissions of air pollutants, including TACs and $PM_{2.5}$. The indirect air emissions from vehicles travelling to and from the games would be negligible and would be emitted well away from participants and spectators of night games at Minor Field. Construction emissions would be limited in scope and duration and would not occur in close proximity to any sensitive receptors. There is therefore no potential for the project to expose sensitive receptors to substantial pollutant concentrations.

e) *Create objectionable odors affecting a substantial number of people?*	☐	☐	X	☐

Explanation: The BAAQMD identifies a variety of land uses that may typically generate objectionable odors, and recommend screening distances of 1 to 2 miles, depending on the use. Examples of odor-generating land uses include wastewater treatment plants, solid waste landfills and transfer stations, composting facilities, oil refineries, asphalt batch plants, chemical manufacturing plants, and coffee roasters, among others. No odor-generating facilities that would cause odor complaints were identified in proximity to the project site.

During construction, diesel-powered vehicles and equipment would generate odors at the site. However, these odors would be temporary and they would be quickly dispersed through atmospheric dispersion, and therefore would not be likely to be noticeable beyond the project boundaries.

[13] Bay Area Air Quality Management District (BAAQMD), *California Environmental Quality Act Air Quality Guidelines*, page 5-3, May 2011.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

Operation of the proposed project would have no potential to create objectionable odors.

IV. BIOLOGICAL RESOURCES — *Would the project:*

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 Game or U.S. Fish and Wildlife Service?*	☐	☐	☐	X

Explanation: The project site is fully developed as a baseball field, and provides no habitat for sensitive biological species. Other than a cultivated turf lawn on the infield and outfield, the site is entirely developed with manmade features. There is therefore no potential for the project to adversely affect special-status plant or wildlife species.

b)	*Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*	☐	☐	☐	X

Explanation: There are no riparian corridors or other sensitive natural communities on the project site.

c)	*Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*	☐	☐	☐	X

Explanation: There are no creeks, wetlands, or other waters on the project site that would be regulated as Waters of the U.S. and State pursuant to Section 404 of the Clean Water Act.

d)	*Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with any established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*	☐	☐	☐	X

Explanation: As discussed in Section IV-a, above, there is no natural habitat on the site that could be utilized as a migration corridor for wildlife.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Explanation: Although the City of Alameda protects significant trees designated by the City as Historical Monuments via its Historic Preservation Ordinance, there are no trees on the project site.[14] There are no other local policies or ordinances protecting biological resources that are applicable to the project site or the proposed project.

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?	☐	☐	☐	☒

Explanation: There are no habitat conservation plans or other similar plans applicable to the project site.

V. CULTURAL RESOURCES — *Would the project:*

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐

Explanation: Section 15064.5 defines an historical resource as a resource listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources. California historic resources listed in, or formally determined eligible for the National Register of Historic Places are automatically listed on the California Register. A lead agency under CEQA also may determine an object, building, structure, site, area, place, record, or manuscript to be an historical resource, provided the determination is "supported by substantial evidence in light of the whole record."[15] A lead agency may generally consider a resource to be historically significant if it meets one or more of the criteria for listing on the California Register of Historical Resources. Those criteria include the following:

- the resource is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- the resource is associated with the lives of persons important in our past;
- the resource embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- the resource has yielded or may be likely to yield, information important in prehistory or history.

[14] City of Alameda, *Code of Ordinances*, Chapter XIII, Article VII, Section 13-21–Preservation of Historical and Cultural Resources.

[15] Governor's Office of Planning and Research, *CEQA Guidelines*, Section 15064.5(a)(3), revised October 26, 1998.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

The value and significance of an historical resource is determined in part by the degree of historical integrity it possesses. Following the National Register integrity criteria, California Register regulations specify that integrity is a quality that applies to historic resources in seven ways: location, design, setting, materials, workmanship, feeling, and association.[16]

The project site consists of an established baseball diamond, team dugouts, spectator bleachers, and a snack bar. No potential historical resources were identified on the site during the site reconnaissance conducted in conjunction with the environmental review of the proposed project. Furthermore, as discussed in more detail in the following section, as part of this environmental review an archival search of maps, records, and reports of historic resources was conducted by the Northwest Information Center (NWIC), which is part of the California Historical Resources Information System (CHRIS). The NWIC did not identify any historic resources within the project area, and concluded that there is a low possibility of identifying historic-period archaeological resources on the project site.[17] Although the NWIC noted that there is a recorded historical resource adjacent to the project—the Will C. Wood Middle School educational building—the proposed project would not affect this resource, and accordingly the AUSD has elected not to conduct further evaluation of this resource.

Despite the NWIC's conclusion that there is low potential for encountering historic resources at the project site, historic resources of significance could potentially remain buried under the site. If historic resources are present on the site, they could be damaged or destroyed by subsurface disturbance that would occur during project construction, which would be a ***potentially significant impact***. Implementation of Mitigation Measures CR–1 through CR–2, set forth in Section V-b, below, would reduce potential impacts to cultural resources to a less-than-significant level.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	**X**	☐	☐

Explanation: Prior to European contact, the project area was inhabited by the Bay Miwok tribe of Native Americans. By the 19th century, forced missionization and the epidemic spread of western diseases had reduced the Bay Miwok population significantly, resulting in the disappearance of local tribelets, such as the Chochenyo, who inhabited the Alameda area. Buried Native American artifacts, including remnants of former settlements, have been encountered throughout the Bay Area, particularly adjacent or in proximity to water sources and along the margins of San Francisco Bay.

As noted in Section V-a, an archival search of cultural resources records was conducted by the Northwest Information Center (NWIC) in order to identify any recorded archaeological sites on or near the project site. Other than the nearby historic building identified in Section V-a, no

[16] The definition of integrity under the California Register follows National Register of Historic Places criteria. Detailed definitions of the qualities of historic integrity are in National Register Bulletin 15, *How to Apply National Register Criteria for Evaluation*, published by the National Park Service.

[17] Lacey Klopp, Researcher, Northwest Information Center, Sonoma State University, *Record Search Results for the Proposed Wood Middle School Field Lighting Project* (letter report), NWIC File No. 13-1751, June 2, 2014.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

recorded archaeological sites were identified on or near the project site. The NWIC concluded that there is a low potential for unrecorded Native American cultural resources to remain buried at the project site, and did not recommend any subsurface testing of the site or other further investigation prior to project construction. Nonetheless, currently unknown but potentially significant archaeological deposits may be present in the site's subsurface, and could be damaged or destroyed during site excavation and trenching, which would constitute a ***potentially significant, adverse impact***. Implementation of the following mitigation measures would reduce this potential impact to a less-than-significant level.

Mitigation Measure CR–1: If any cultural artifacts are encountered during site excavation, trenching, or other construction activities, all ground disturbance in the vicinity shall be halted until a qualified archaeologist can identify and evaluate the resource(s) and, if necessary, recommend mitigation measures to document and prevent any significant adverse effects on the resource(s). The archeological consultant shall immediately notify the Alameda Unified School District (AUSD) of the encountered archeological deposit. The archeological consultant shall prepare and implement a plan, subject to review and approval by the AUSD, for evaluation, recovery, and/or documentation of the discovered resource.

The results of any additional archaeological effort required through the implementation of Mitigation Measures CR–1 through CR–2 shall be presented in a professional-quality report, to be submitted to the AUSD and the Northwest Information Center at Sonoma State University in Rohnert Park. The AUSD shall fund and implement the mitigation in accordance with Section 15064.5(c)-(f) of the *CEQA Guidelines* and Public Resources Code Section 21083.2.

Mitigation Measure CR–2: In the event that any human remains are encountered during site disturbance, all ground-disturbing work shall cease immediately and a qualified archaeologist shall notify the Office of the Alameda County Coroner and advise that office as to whether the remains are likely to be prehistoric or historic period in date. If determined to be prehistoric, the Coroner's Office will notify the Native American Heritage Commission of the find, which, in turn, will then appoint a "Most Likely Descendant" (MLD). The MLD in consultation with the archaeological consultant and the AUSD, will advise and help formulate an appropriate plan for treatment of the remains, which might include recordation, removal, and scientific study of the remains and any associated artifacts. After completion of analysis and preparation of the report of findings, the remains and associated grave goods shall be returned to the MLD for reburial.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☐

c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?* ☐ ☒ ☐ ☐

Explanation: According to the response from the NWIC previously discussed, the project site is located within an area of artificial fill, which would not be expected to contain paleontological resources. According to the geotechnical investigation of the site, the fill extends to depths of 7 to 8 feet below the ground surface. The proposed conduit trenches would be approximately 3-1/2 to 4-1/2 feet deep. It is very unlikely, therefore, that any paleontological resources or unique geologic features would be encountered during excavation of the conduit trenches. However, excavation for the drilled pier foundations for each light pole would extend to depths of 14 feet below the ground surface. There is therefore some potential, however slight, for paleontological resources to be encountered during excavation activities associated with construction of the light pole foundations. Any destruction of unique paleontological resources during ground-disturbing activities would be a ***potentially significant impact***. Implementation of the following measure would reduce this potential impact to a less-than-significant level:

Mitigation Measure CR–3: If any paleontological resources are encountered during site grading or other construction activities, all ground disturbance shall be halted until the services of a qualified paleontologist can be retained to identify and evaluate the resource(s) and, if necessary, recommend mitigation measures to document and prevent any significant adverse effects on the resource(s). The project sponsor shall immediately notify Alameda Unified School District staff upon discovery of paleontological resources. If a fossil find is confirmed, it shall be recorded with the U.S. Geological Survey and curated in an appropriate repository, as determined by the paleontologist.

d) *Disturb any human remains, including those interred outside of formal cemeteries?* ☐ ☒ ☐ ☐

Explanation: See Section V-b.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

VI. GEOLOGY AND SOILS — *Would the project:*

a) *Expose people or structures to 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**

Explanation: The information and analysis presented in Section VI, Geology and Soils, is based on a site-specific preliminary geotechnical investigation prepared by Miller Pacific Engineering Group for the project, as well as other cited publicly-available sources.[18] The investigation included subsurface testing, with three exploratory borings drilled in proximity to the proposed light standards.

The project area is not located within an Alquist-Priolo fault zone (previously referred to as Special Studies Zones) and no active faults have been identified or mapped within or in proximity to the site by the California Division of Mines and Geology (CDMG).[19] There is therefore no potential for fault rupture at the site.

ii) *Strong seismic ground shaking?* ☐ **X** ☐ ☐

Explanation: The project area is located in the Coast Ranges Province that developed in response to faulting associated with movement at the plate boundary between the North American and Pacific Crustal Plates, which resulted in a series of northwest-trending mountain ranges and intervening valleys. Regional bedrock consists of complexly folded, faulted, sheared, and altered sedimentary, igneous, and metamorphic rock of the Franciscan Complex. A variety of rocks comprise the bedrock, including greenstone, sandstone, shale, chert, and melange, among others.

The closest known active faults to the project site are the Hayward fault, located about 4.5 miles to the east; the Calaveras fault, located roughly 12.5 miles to the east; and the San Andreas fault, located about 13.8 miles southwest of the site. Many earthquakes of low magnitude occur every year throughout the region, with the majority concentrated along the San Andreas, Hayward, and Calaveras faults.

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[18] Miller Pacific Engineering Group, *Geotechnical Engineering Investigation, Proposed Lighting for Western Baseball Field, Wood Middle School, 420 Grand Street, Alameda, California*, File No. 1911.02altr.doc, December 9, 2013.

[19] California Department of Conservation, Division of Mines and Geology, State of California Special Studies Zones [Revised Official Map], Oakland West Quadrangle, effective January 1, 1982.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

Similar to most urban locations throughout the Bay Area, the project site is potentially subject to strong seismic ground shaking during an earthquake on one of the major active earthquake faults that transect the region. A strong seismic event could cause the proposed light standards to collapse, putting people in the vinicity at risk, which would be a ***potentially significant impact***. However, the geotechnical consultant for the project concluded that proper foundation design and construction would enable the light poles to withstand the lateral forces that could result from high wind and/or the maximum probable ground shaking at the site. Accordingly, the following measures are recommended to reduce this impact to a less-than-significant level:

Mitigation Measure GS–1: The proposed project design and construction shall incorporate all of the foundation design and other recommendations presented in the December 9, 2013 geotechnical investigation prepared for the project by Miller Pacific Engineering Group (MPEG), along with a supplemental June 17, 2014 Response to Comments document, unless modified during construction, based on field conditions, by MPEG or another qualified registered geotechnical or civil engineer. The foundations shall be designed to withstand the seismic load factors and drilled pier design criteria listed in the MPEG report. In addition, the final design plans shall be reviewed by MPEG to ensure that their geotechnical recommendations have been appropriately incorporated into the project plans and specifications. All design and construction shall conform to the requirements of the latest Uniform Building Code. During construction, MPEG shall observe and test the foundation excavations, grading, and other geotechnical-related construction to ensure that all work is performed in accordance with MPEG's recommendations and the approved plans for the project.

iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐

Explanation:

Liquefaction

Liquefaction occurs when clean, loose, saturated, uniformly graded, fine-grained soils are exposed to strong seismic ground shaking. The soils temporarily lose strength and cohesion due to buildup of excess pore water pressure during earthquake-induced cyclic loading, resulting in a loss of ground stability that can cause building or tower foundations to fail. Soil liquefaction may also damage roads, pavements, pipelines, and underground cables. Soils susceptible to liquefaction include saturated, loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits.

According to Miller Pacific Engineering Group, the project site is located within a zone of high liquefaction risk. MPEG evaluated subsurface conditions and determined that the site is underlain by artificial (man-made) fill consisting of sand overlying older dune sand and soft

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☐	☐	☐	☐

Bay Mud. Loose to medium-dense sands and silty sands extend to a depth of 7 to 8 feet. These are underlain by medium-dense to dense silty sand. Soft blue-gray sandy clay (Bay Mud) was encountered in two test borings at depths of 19 to 21 feet below the ground surface (bgs). Relatively shallow groundwater (8 feet bgs) contributes to the liquefaction potential at the site.

MPEG's analysis determined that the soils at the light pole foundations could experience liquefaction that could result in settlement on the order of 1 to 2 inches.[20] This could cause the foundations to settle and tilt out of plumb, but would not be expected to result in a light pole toppling due to a foundation failure. Nonetheless, implementation of Mitigation Measure GS–1 would ensure that potential impacts from soil liquefaction would be less than significant.

Seismically-Induced Lurching or Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. MPEG did not identify lurching or lateral spreading as among the principal geologic hazards affecting the project site. Nonetheless, implementation of Mitigation Measure GS–1 would ensure that potential impacts from seismically-induced lurching or lateral spreading would be less than significant.

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid rearrangement, compaction, and settling of subsurface materials (particularly loose, non-compacted, and variable sandy sediments). Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). Areas are susceptible to differential settlement if underlain by compressible sediments, such as poorly engineered artificial fill or unconsolidated sediments. As noted above, the geotechnical consultant determined that the soils at the site include loose sands subject to liquefaction. There is therefore also potential for differential seismic settlement to adversely affect the proposed light poles. A strong seismic event could cause the proposed light standards to collapse and threaten the safety of any people nearby at the time of collapse, which would be a ***potentially significant impact***. Implementation of Mitigation Measure GS–1, above, would reduce this impact to a less than significant level.

iv) Landslides?

☐	☐	X	☐

Explanation: A landslide is a slope failure created by down-slope slippage of a mass of earth or rock that typically occurs as a planar or rotational feature along single or multiple surfaces. The project site and the lands surrounding it are flat, with no apparent topographic variation. The elevation of the site is 13 feet above mean sea level.[21] Therefore, the site is not subject to substantial risk of loss, injury, or death involving landslide.

[20] Miller Pacific Engineering Group, *Response to DSA Comments, Wood Middle School – Baseball Field Lighting, Alameda, California*, File No. 1911.02bltr.doc, June 17, 2014.

[21] U. S. Geological Survey, Oakland West, California Quadrangle 7.5-minute topographic map, 1980.

Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
☐	☐	☐	☐

b) Result in substantial soil erosion or the loss of topsoil? ☐ ☐ **X** ☐

Explanation: Any construction project that exposes surface soils creates a potential for erosion from wind and stormwater runoff. The potential for erosion increases on large, steep, or windy sites; it also increases significantly during rainstorms. Grading, trenching, and foundation excavation at the project site would expose soils to erosion. Significant erosion at the project site would be problematic because stormwater could carry suspended sediment offsite, potentially degrading water quality in San Francisco Bay. The Bay is on the list of impaired water bodies compiled by the San Francisco Bay Area Regional Water Quality Control Board (RWQCB) pursuant to the federal Clean Water Act, and impacts on water quality in the Bay are therefore of particular concern.

Construction activities that disturb 1 acres or more of land must obtain coverage under a Construction General Permit (CGP) that is administered by the RWQCB on behalf of the State Water Resources Control Board (SWRCB). The terms of the CGP require, among other things, preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which contains provisions for stabilizing graded and stockpile areas and reducing erosion and sedimentation. However, ground disturbance that would be required for construction of the proposed project would total a fraction of an acre.[22] The project would therefore not require a CGP or SWPPP, and its erosion impact would be less than significant.

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** ☐ ☐

Explanation: The potential for landsliding, lateral spreading, settlement, and liquefaction was addressed above in preceding sections, and mitigations were identified to reduce potential impacts to less-than-significant levels.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? ☐ ☐ **X** ☐

Explanation: Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. Fine-grained clay sediments are most subject to expansion. The soils that mantle the project vicinity are a mixture of sand, silty sand, and clay, which typically have a low shrink/swell potential. The geotechnical investigation report for the proposed project indicates that expansive soils are not one of the principal geologic hazards affecting the project site. In any event, the project would

[22] Nick Stephenson, Architect, Quattrocchi Kwok Architects, personal communication, July 30, 2014.